



# CATALOGUE 2019-2020

## OPTOELECTRONIC COMPONENTS

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**EVERLIGHT**

# EVERLIGHT

THE SOURCE OF LIGHT

EVERLIGHT Electronics Co., Ltd. was founded in 1983 in Taipei, Taiwan led by Chairman Robert Yeh, EVERLIGHT Electronics Co. has over 35 years of R&D experience for reliable capability. With immediate service and an excellent brand reputation, EVERLIGHT has taken top five in the competitive LED market. Our products are manufactured and packed in-house to guarantee maximum quality and service.

EVERLIGHT provides a diverse product portfolio consisting of High Power LEDs, SMD LEDs, Lamps, Lighting Components, LED Lighting Modules, Digital Displays, Opto-couplers and Infrared Components for various applications. Today, EVERLIGHT is a global company with over 6,400 employees based in China, Hong Kong, Japan, Korea, Singapore, Malaysia, India, Germany and U.S.A.

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# CONDITIONS OF RoHS

From July 1st, 2006, RoHS requires that all electrical equipment should not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs) or poly brominated diphenyl ethers (PBDEs), and the elements are restricted to certain amount (such as mercury in a wound lighting tube <5 mg, lead in CRT glass, soldering tin, etc.). Before the date every member of European Union must obey of environment on chemical regulation.



- According to RoHS part, the norm of restrict and limit used substance adopted by EVERLIGHT.

| Name                                                                | Description                                                                                                                                                                                                                                                     | Criteria                                    |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Cadmium                                                             | Cadmium and its compounds must not be present in parts, components, materials or products. Cadmium and its compounds must not used as stabilizers, coloring agent or as a surface coating treatment in parts, components, materials or products.                | < 5 ppm (Plastics)<br>< 75 ppm (Metals)     |
| Lead restrictions                                                   | Lead and/or lead compounds shall not be present in hardware components or parts, however, except solder, electrical components and interconnect materials. Lead carbonates and sulfates must not be used in any paint applied to parts, component, or products. | < 100 ppm (Plastics)<br>< 1000 ppm (Others) |
| Mercury restrictions                                                | Mercury must not be contained in any part, material, components or product, including, but not limited to switches, relays or electrical contacts.<br>This restriction does not apply to lamps with less than 10 mg if mercury.                                 | < 5 ppm                                     |
| Hexavalent chromium (chromium VI) and hexavalent chromium compounds | Hexavalent chromium (chromium VI) and hexavalent chromium compounds must not be present in parts, components, materials or products.                                                                                                                            | < 2 ppm                                     |
| Polybrominated Biphenyls (PBBs)                                     | Plastics parts, components, materials and products must not contain Polybrominated Biphenyls as flame retardants, specific PBBs, but are not limited to those listed in attachment item.                                                                        | < 5 ppm                                     |
| Polybrominated Diphenyl Ethers (PBDEs)                              | Plastic parts, components, materials and products must not contain Polybrominated Diphenyl Ethers, known as flame retardants, specific PBBEs, including, but are not limited to, those listed in attachment item.                                               | < 5 ppm                                     |

Compliant with the following condition :

- Please visit EVERLIGHT website for more updated information about third party test reports and RoHS declarations.  
( [www.everlight.com](http://www.everlight.com) )

# APPLICATION NOTICE

Since we are continuously improving all of our products, the information listed in this Catalogue, which includes specifications, characteristics, data, materials used, structure, etc., are subject to change without prior notice. It is necessary that you request the newest specification sheet from EVERLIGHT when you place any inquiry or purchase order.

Please carefully read the specification sheet, and confirm your acceptance of the content. EVERLIGHT does not accept any liabilities for damages occurred due to the customer's lack of confirming the newest product specification.

It is important to strictly follow the maximum limit and other important instructions listed on the specifications sheet when using EVERLIGHT's products. The following is a list of special notes for products used in specific applications. It is recommended that customers read the instructions carefully before installing the products. Again, EVERLIGHT does not accept any liabilities for any improper use of EVERLIGHT's product or failure to follow the instructions listed herein:

## Special Instruction:

- Products listed in this Catalogue are designed primarily for the application listed below:  
A : Calculators  
B : Measurement equipment  
C : AV machines  
D : QA machines  
E : Operating machines  
F : Consumer electronics  
G : Telecommunications

While products meet the application listed above, additional attention is required when products are to be utilized in the instruments listed under Special Instruction Notes 2 and 3.

- When high reliability and safety concerns are required, it is very important that the design be made to focus on safety and long term reliability. Special care should be given to assure that EVERLIGHT's products integrate and function properly with all other parts of the instrument. Instruments fall into these categories include:

- A : Instruments attached to transportation tools  
(aircraft, train, automobile)
- B : Traffic signs
- C : Gas leaking detectors and gas shutters
- D : Fire detectors
- E : Other safety detectors

- When extremely high reliability and safety concerns are required, it is necessary that you contact EVERLIGHT for additional information before use. Instruments fall into these categories include:

- A : Aerospace instruments
- B : Telecommunication tools (main line)
- C : Nuclear weapon controls
- D : Medical instruments

- Should you have any additional questions, please contact EVERLIGHT for details.

本資料所記載之製品的規格、特性、**DATA**、使用原料、構造...等，有時為了改良製品，無法事前通知，而逕行與予變更。因此請務必使用最新的規格書，並請針對內容加以確認。若因未確認規格書，導致使用次製品之機器或其他應用產品發生瑕疵時，敝公司將不負此責任。

使用本資料所記載之製品時，請遵守規格書所記載之絕對最大定格，使用上之注意事項，以及下列之注意點，若因不遵守規格書所記載之絕對最大定格，使用上之注意事項，以及下述之注意點，而導致發生損害問題時，敝公司將不負此責任。

## 注意項目：

- 本資料所記載之製品，原則是為了下述之用途而製造出來的產品  
A: 電算機  
B: OA機器  
C: 通信機器  
D: 計測機器  
E: 工作機器  
F: AV機器  
G: 家電製品

若雖合乎上述用途，但是屬於下述2或3所記載之機器時，則需遵守個別產品之使用注意事項。

- 若本資料所記載之製品用於下述講求高信賴性與安全性之用途時，因牽涉到機能與精度方面，為了維持這類機器的信賴性與安全性，請務必注重安全設計與長期性設計，並且需考慮整體機構間的關係，依機器整體之安全設計來使用。  
A: 運送機器(飛機、火車、汽車)與控制安全性等相關之產品  
B: 交通信號機  
C: 瓦斯漏氣檢測關閉機  
D: 防災裝置  
E: 各種安全裝置
- 若本資料所記載之製品用於下述講求高信賴性與安全性之用途時，因牽涉到機能與精度方面，請事先與敝公司聯絡。  
A: 太空機器(航太儀器)  
B: 通信機器(幹線)  
C: 原子彈控制機器  
D: 醫療機器
- 涉及上述注意事項之任何一項時，如有疑問，請和敝公司業務人員聯絡。

# TECHNICAL DATA

HIGH POWER LED ( SHUEN 炫, SHWO 燦, SHWO (D) 燦(D), SHWO (N) 燦(N), HV, JU 炬, XUAN 煊, A22, B05)

## CIE BINNING RANKS

### Cool-White Bin Coordinates

| 5000K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 50K-1 | 50K-2 | 50K-3 | 50K-4 |
| CIE X | 0.346 | 0.338 | 0.337 | 0.345 |
|       | 0.345 | 0.337 | 0.337 | 0.344 |
|       | 0.353 | 0.345 | 0.344 | 0.352 |
|       | 0.355 | 0.346 | 0.345 | 0.353 |
| CIE Y | 0.369 | 0.362 | 0.349 | 0.356 |
|       | 0.356 | 0.349 | 0.337 | 0.343 |
|       | 0.362 | 0.356 | 0.343 | 0.349 |
|       | 0.376 | 0.369 | 0.356 | 0.362 |

| 5700K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 57K-1 | 57K-2 | 57K-3 | 57K-4 |
| CIE X | 0.329 | 0.321 | 0.321 | 0.329 |
|       | 0.329 | 0.321 | 0.322 | 0.329 |
|       | 0.337 | 0.329 | 0.329 | 0.337 |
|       | 0.338 | 0.329 | 0.329 | 0.337 |
| CIE Y | 0.354 | 0.346 | 0.335 | 0.342 |
|       | 0.342 | 0.335 | 0.324 | 0.331 |
|       | 0.349 | 0.342 | 0.331 | 0.337 |
|       | 0.362 | 0.354 | 0.342 | 0.349 |

| 6500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 65K-1 | 65K-2 | 65K-3 | 65K-4 |
| CIE X | 0.312 | 0.303 | 0.305 | 0.313 |
|       | 0.313 | 0.305 | 0.307 | 0.315 |
|       | 0.321 | 0.313 | 0.315 | 0.322 |
|       | 0.321 | 0.312 | 0.313 | 0.321 |
| CIE Y | 0.339 | 0.330 | 0.321 | 0.329 |
|       | 0.329 | 0.321 | 0.311 | 0.319 |
|       | 0.337 | 0.329 | 0.319 | 0.326 |
|       | 0.348 | 0.339 | 0.329 | 0.337 |

### Warm-White Bin Coordinates

| 2700K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 27K-1 | 27K-2 | 27K-3 | 27K-4 |
| CIE X | 0.469 | 0.456 | 0.447 | 0.459 |
|       | 0.459 | 0.447 | 0.437 | 0.448 |
|       | 0.470 | 0.459 | 0.448 | 0.459 |
|       | 0.481 | 0.469 | 0.459 | 0.470 |
| CIE Y | 0.429 | 0.426 | 0.408 | 0.410 |
|       | 0.410 | 0.408 | 0.389 | 0.392 |
|       | 0.413 | 0.410 | 0.392 | 0.394 |
|       | 0.432 | 0.429 | 0.410 | 0.413 |

| 3000K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 30K-1 | 30K-2 | 30K-3 | 30K-4 |
| CIE X | 0.443 | 0.430 | 0.422 | 0.435 |
|       | 0.435 | 0.422 | 0.415 | 0.426 |
|       | 0.447 | 0.435 | 0.426 | 0.437 |
|       | 0.456 | 0.443 | 0.435 | 0.447 |
| CIE Y | 0.421 | 0.417 | 0.399 | 0.403 |
|       | 0.403 | 0.399 | 0.381 | 0.385 |
|       | 0.408 | 0.403 | 0.385 | 0.389 |
|       | 0.426 | 0.421 | 0.403 | 0.408 |

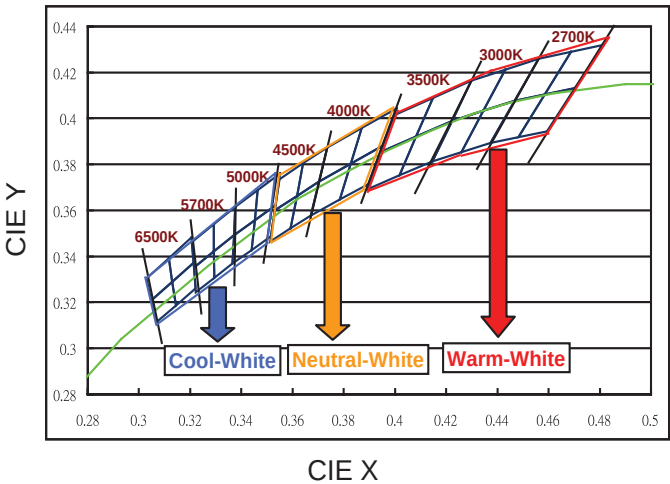
| 3500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 35K-1 | 35K-2 | 35K-3 | 35K-4 |
| CIE X | 0.415 | 0.400 | 0.394 | 0.408 |
|       | 0.408 | 0.394 | 0.389 | 0.402 |
|       | 0.422 | 0.408 | 0.402 | 0.415 |
|       | 0.430 | 0.415 | 0.408 | 0.422 |
| CIE Y | 0.409 | 0.402 | 0.385 | 0.392 |
|       | 0.392 | 0.385 | 0.369 | 0.375 |
|       | 0.399 | 0.392 | 0.375 | 0.381 |
|       | 0.417 | 0.409 | 0.392 | 0.399 |

### Natural-White Bin Coordinates

| 4000K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 40K-1 | 40K-2 | 40K-3 | 40K-4 |
| CIE X | 0.387 | 0.374 | 0.370 | 0.383 |
|       | 0.383 | 0.370 | 0.367 | 0.378 |
|       | 0.395 | 0.383 | 0.378 | 0.390 |
|       | 0.401 | 0.387 | 0.383 | 0.395 |
| CIE Y | 0.396 | 0.387 | 0.373 | 0.380 |
|       | 0.380 | 0.373 | 0.358 | 0.365 |
|       | 0.388 | 0.380 | 0.365 | 0.372 |
|       | 0.404 | 0.396 | 0.380 | 0.388 |

| 4500K |       |       |       |       |
|-------|-------|-------|-------|-------|
| Bin   | 45K-1 | 45K-2 | 45K-3 | 45K-4 |
| CIE X | 0.364 | 0.355 | 0.353 | 0.362 |
|       | 0.362 | 0.353 | 0.351 | 0.359 |
|       | 0.370 | 0.362 | 0.359 | 0.367 |
|       | 0.374 | 0.364 | 0.362 | 0.370 |
| CIE Y | 0.381 | 0.374 | 0.360 | 0.366 |
|       | 0.366 | 0.360 | 0.347 | 0.352 |
|       | 0.373 | 0.366 | 0.352 | 0.358 |
|       | 0.387 | 0.381 | 0.366 | 0.373 |

White Color Bin Structure



Chromaticity specification defined by ANSI

# TECHNICAL DATA

HIGH POWER LED ( SHUEN 炫, SHWO 爍, SHWO (D) 爍 (D), SHWO (N) 爍 (N), HV, JU 炬, XUAN 煊, A22, B05)

## BRIGHTNESS BINNING RANKS

Shuen, Shwo, Shwo (D), HV

Brightness (lm)

Luminous Flux Bins

Shuen, Shwo

Wavelength (nm)

Ju, XUAN

Brightness (lm)

Luminous Flux Bins

| Group | Binning | Minimum Photometric Flux (lm) | Maximum Photometric Flux (lm) | Group             | Binning | Minimum Dominant Wavelength (nm) | Maximum Dominant Wavelength (nm) | Group | Binning | Minimum Photometric Flux (lm) | Maximum Photometric Flux (lm) | Group | Binning | Minimum Photometric Flux (lm) | Maximum Photometric Flux (lm) |
|-------|---------|-------------------------------|-------------------------------|-------------------|---------|----------------------------------|----------------------------------|-------|---------|-------------------------------|-------------------------------|-------|---------|-------------------------------|-------------------------------|
| E     | 1       | 4                             | 5                             | B Blue/Royal-Blue | 1       | 430                              | 435                              | F     | 1       | 27                            | 33                            | S     | 1       | 2200                          | 2400                          |
|       | 2       | 5                             | 6                             |                   | 2       | 435                              | 440                              |       | 2       | 33                            | 39                            |       | 2       | 2400                          | 2600                          |
|       | 3       | 6                             | 8                             |                   | 3       | 440                              | 445                              |       | 3       | 39                            | 45                            |       | 3       | 2600                          | 2800                          |
|       | 4       | 8                             | 10                            |                   | 4       | 445                              | 450                              |       | 4       | 45                            | 52                            |       | 4       | 2800                          | 3000                          |
|       | 5       | 10                            | 13                            |                   | 5       | 450                              | 455                              |       | 5       | 52                            | 60                            |       | 5       | 3000                          | 3200                          |
|       | 6       | 13                            | 17                            |                   | 6       | 455                              | 460                              |       | 6       | 60                            | 70                            |       | 6       | 3200                          | 3400                          |
|       | 7       | 17                            | 20                            |                   | 7       | 460                              | 465                              |       | 7       | 70                            | 80                            |       | 7       | 3400                          | 3600                          |
|       | 8       | 20                            | 23                            |                   | 8       | 465                              | 470                              |       | 8       | 80                            | 90                            |       | 8       | 3600                          | 3800                          |
|       | 9       | 23                            | 27                            |                   | 1       | 520                              | 525                              |       | 9       | 90                            | 100                           |       | 9       | 3800                          | 4000                          |
| F     | 1       | 27                            | 33                            | G Green           | 2       | 525                              | 530                              | J     | 1       | 100                           | 110                           | M     | 1       | 4000                          | 4200                          |
|       | 2       | 33                            | 39                            |                   | 3       | 530                              | 535                              |       | 2       | 110                           | 120                           |       | 2       | 4200                          | 4400                          |
|       | 3       | 39                            | 45                            |                   | 4       | 535                              | 540                              |       | 3       | 120                           | 130                           |       | 3       | 4400                          | 4600                          |
|       | 4       | 45                            | 52                            |                   | 5       | 540                              | 545                              |       | 4       | 130                           | 140                           |       | 4       | 4600                          | 4800                          |
|       | 5       | 52                            | 60                            |                   | 6       | 545                              | 550                              |       | 5       | 140                           | 150                           |       | 5       | 4800                          | 5000                          |
|       | 6       | 60                            | 70                            |                   | 1       | 580                              | 582.5                            |       | 6       | 150                           | 160                           |       | 6       | 5000                          | 5200                          |
|       | 7       | 70                            | 80                            | A Amber           | 2       | 582.5                            | 585                              |       | 7       | 160                           | 180                           |       | 7       | 5200                          | 5400                          |
|       | 8       | 80                            | 90                            |                   | 3       | 585                              | 587.5                            |       | 8       | 180                           | 200                           |       | 8       | 5400                          | 5600                          |
|       | 9       | 90                            | 100                           |                   | 4       | 587.5                            | 590                              | K     | 9       | 200                           | 225                           |       | 9       | 5600                          | 5800                          |
| J     | 1       | 100                           | 110                           | R Red             | 5       | 590                              | 592.5                            |       | 1       | 225                           | 250                           | Q     | 1       | 5800                          | 6000                          |
|       | 2       | 110                           | 120                           |                   | 6       | 592.5                            | 595                              |       | 2       | 250                           | 275                           |       | 2       | 6000                          | 6200                          |
|       | 3       | 120                           | 130                           |                   | 3       | 610                              | 615                              |       | 3       | 275                           | 300                           |       | 3       | 6200                          | 6400                          |
|       | 4       | 130                           | 140                           |                   | 4       | 615                              | 620                              |       | 4       | 300                           | 325                           |       | 4       | 6400                          | 6600                          |
|       | 5       | 140                           | 150                           |                   | 5       | 620                              | 625                              |       | 5       | 325                           | 350                           |       | 5       | 6600                          | 6800                          |
|       | 6       | 150                           | 160                           |                   | 6       | 625                              | 630                              |       | 6       | 350                           | 375                           |       | 6       | 6800                          | 7000                          |
|       | 7       | 160                           | 180                           | D Deep-Red        | 7       | 630                              | 635                              |       | 7       | 375                           | 400                           |       | 7       | 7000                          | 7200                          |
|       | 8       | 180                           | 200                           |                   | 1       | 635                              | 640                              |       | 8       | 400                           | 425                           |       | 8       | 7200                          | 7400                          |
|       | 9       | 200                           | 225                           |                   | 2       | 640                              | 645                              | N     | 9       | 425                           | 450                           |       | 9       | 7400                          | 7600                          |
| K     | 1       | 225                           | 250                           |                   | 3       | 645                              | 650                              |       | 1       | 450                           | 475                           | P     | 1       | 900                           | 1000                          |
|       | 2       | 250                           | 275                           |                   | 4       | 650                              | 655                              |       | 2       | 475                           | 500                           |       | 2       | 1000                          | 1100                          |
|       | 3       | 275                           | 300                           |                   | 5       | 655                              | 660                              |       | 3       | 500                           | 550                           |       | 3       | 1100                          | 1200                          |
|       | 4       | 300                           | 325                           |                   | 6       | 660                              | 665                              |       | 4       | 550                           | 600                           |       | 4       | 1200                          | 1350                          |
|       | 5       | 325                           | 350                           |                   | 7       | 665                              | 670                              |       | 5       | 600                           | 650                           |       | 5       | 1350                          | 1500                          |
|       | 6       | 350                           | 375                           |                   | 8       | 670                              | 675                              |       | 6       | 650                           | 700                           |       | 6       | 1500                          | 1650                          |
|       | 7       | 375                           | 400                           | F Far-Red         | 1       | 700                              | 710                              |       | 7       | 700                           | 750                           |       | 7       | 1650                          | 1800                          |
|       | 8       | 400                           | 425                           |                   | 2       | 710                              | 715                              |       | 8       | 750                           | 800                           |       | 8       | 1800                          | 2000                          |
|       | 9       | 425                           | 450                           |                   | 3       | 715                              | 720                              |       | 9       | 800                           | 900                           |       | 9       | 2000                          | 2200                          |
| N     | 1       | 450                           | 475                           |                   | 4       | 720                              | 725                              | P     | 1       | 900                           | 1000                          |       | 1       | 900                           | 1000                          |
|       | 2       | 475                           | 500                           |                   | 5       | 725                              | 730                              |       | 2       | 1000                          | 1100                          |       | 2       | 1000                          | 1100                          |
|       | 3       | 500                           | 525                           |                   | 6       | 730                              | 735                              |       | 3       | 1100                          | 1200                          |       | 3       | 1100                          | 1200                          |
|       | 4       | 525                           | 550                           |                   | 7       | 735                              | 740                              |       | 4       | 1200                          | 1350                          |       | 4       | 1200                          | 1350                          |
|       |         |                               |                               |                   | 8       | 740                              | 745                              |       | 5       | 1350                          | 1500                          |       | 5       | 1350                          | 1500                          |
|       |         |                               |                               |                   |         |                                  |                                  |       | 6       | 1500                          | 1650                          |       | 6       | 1500                          | 1650                          |
|       |         |                               |                               |                   |         |                                  |                                  |       | 7       | 1650                          | 1800                          |       | 7       | 1650                          | 1800                          |
|       |         |                               |                               |                   |         |                                  |                                  |       | 8       | 1800                          | 2000                          |       | 8       | 1800                          | 2000                          |
|       |         |                               |                               |                   |         |                                  |                                  |       | 9       | 2000                          | 2200                          |       | 9       | 2000                          | 2200                          |



HIGH POWER LED (
SHUEN 炫,
SHWO 樂,
SHWO(D) 樂(D),
SHWO(N) 樂(N),
A22 ,
B05 )

FORWARD VOLTAGE BINNING RANKS

A22, B05  
Brightness (lm)  
Luminous Flux Bins

| Group | Binning | Minimum Photometric Flux (lm) | Maximum Photometric Flux (lm) |
|-------|---------|-------------------------------|-------------------------------|
| E     | 1       | 1.5                           | 3                             |
|       | 2       | 3                             | 4                             |
|       | 3       | 4                             | 5                             |
|       | 4       | 5                             | 6                             |
|       | 5       | 6                             | 8                             |
| F     | 1       | 8                             | 10                            |
|       | 2       | 10                            | 13                            |
|       | 3       | 13                            | 17                            |
|       | 4       | 17                            | 20                            |
|       | 5       | 20                            | 23                            |
| J     | 1       | 23                            | 27                            |
|       | 2       | 27                            | 33                            |
|       | 3       | 33                            | 39                            |
|       | 4       | 39                            | 45                            |
|       | 5       | 45                            | 52                            |
| K     | 1       | 52                            | 60                            |
|       | 2       | 60                            | 70                            |
|       | 31      | 70                            | 75                            |
|       | 32      | 75                            | 80                            |
|       | 33      | 80                            | 85                            |
|       | 41      | 85                            | 90                            |
|       | 42      | 90                            | 95                            |
|       | 43      | 95                            | 100                           |
|       | 51      | 100                           | 110                           |
|       | 52      | 110                           | 120                           |
|       | 53      | 120                           | 130                           |
| N     | 11      | 130                           | 140                           |
|       | 12      | 140                           | 150                           |
|       | 13      | 150                           | 160                           |
|       | 21      | 160                           | 180                           |
|       | 22      | 180                           | 200                           |
|       | 31      | 200                           | 225                           |
|       | 32      | 225                           | 250                           |
|       | 41      | 250                           | 275                           |
|       | 42      | 275                           | 300                           |
|       | 51      | 300                           | 350                           |
|       | 52      | 350                           | 400                           |
| R     | 11      | 400                           | 450                           |
|       | 12      | 450                           | 500                           |
|       | 21      | 500                           | 550                           |
|       | 22      | 550                           | 600                           |
|       | 31      | 600                           | 650                           |
|       | 32      | 650                           | 700                           |
|       | 33      | 700                           | 750                           |
|       | 4       | 750                           | 1000                          |
|       | 5       | 1000                          | 1300                          |

Shuen & Shwo  
Forward Voltage Bins

| Group Name | Bins                        |                             |
|------------|-----------------------------|-----------------------------|
| A          | U1+U2+U3                    |                             |
| B          | U2+U3+U4                    |                             |
| C          | V1+V2+V3                    |                             |
| D          | V2+V3+V4                    |                             |
| E          | V3+V4+V5                    |                             |
| F          | V1+V2                       |                             |
| G          | V1                          |                             |
| Bin        | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
| U1         | 1.75                        | 2.05                        |
| U2         | 2.05                        | 2.35                        |
| U3         | 2.35                        | 2.65                        |
| U4         | 2.65                        | 2.95                        |
| V1         | 2.95                        | 3.25                        |
| V2         | 3.25                        | 3.55                        |
| V3         | 3.55                        | 3.85                        |
| V4         | 3.85                        | 4.15                        |
| V5         | 4.15                        | 4.45                        |

A22 ( 1W )  
Forward Voltage Bins

| Bin | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
|-----|-----------------------------|-----------------------------|
| VD  | 13.5                        | 14.7                        |
| VE  | 14.7                        | 15.9                        |
| VF  | VF-1                        | 15.9                        |
|     | VF-2                        | 16.2                        |
|     | VF-3                        | 16.5                        |
|     | VF-4                        | 16.8                        |
| VG  | VG-1                        | 17.1                        |
|     | VG-2                        | 17.4                        |
|     | VG-3                        | 17.7                        |
|     | VG-4                        | 18.0                        |
|     | 18.0                        | 18.3                        |

Shwo (D)  
Forward Voltage Bins

| Group Name | Bins                        |                             |
|------------|-----------------------------|-----------------------------|
| A          | U1+U2+U3+U4                 |                             |
| B          | U2+U3+U4+V1                 |                             |
| C          | V1+V2+V3                    |                             |
| D          | V1+V2+V3+V4                 |                             |
| Bin        | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
| U1         | 1.75                        | 2.05                        |
| U2         | 2.05                        | 2.35                        |
| U3         | 2.35                        | 2.65                        |
| U4         | 2.65                        | 2.95                        |
| V1         | 2.95                        | 3.25                        |
| V2         | 3.25                        | 3.55                        |
| V3         | 3.55                        | 3.85                        |
| V4         | 3.85                        | 4.15                        |

A22 ( 0.5W )  
Forward Voltage Bins

| Bin | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
|-----|-----------------------------|-----------------------------|
| V1  | 2.95                        | 3.25                        |
| V2  | 3.25                        | 3.55                        |
| V3  | 3.55                        | 3.85                        |
| V4  | 3.85                        | 4.15                        |

B05  
Forward Voltage Bins

| Bin | Minimum Forward Voltage (V) | Maximum Forward Voltage (V) |
|-----|-----------------------------|-----------------------------|
| O1  | 4.5                         | 5.0                         |
| O2  | 5.0                         | 5.5                         |
| O3  | 5.5                         | 6.0                         |
| O4  | 6.0                         | 6.5                         |
| O5  | 6.5                         | 7.0                         |
| O6  | 7.0                         | 7.5                         |
| O7  | 7.5                         | 8.0                         |
| R1  | 8.0                         | 9.0                         |
| R2  | 9.0                         | 10.0                        |
| R3  | 10.0                        | 11.0                        |
| R4  | 11.0                        | 12.0                        |

# TECHNICAL DATA

## HIGH POWER LED ( HV, JU SERIES ) FORWARD VOLTAGE BINNING RANKS

### HV ( 1W )

Forward Voltage Bins For 110V

| Group Name | Bins        |
|------------|-------------|
| A          | A3+A4       |
| B          | A4+A5       |
| C          | A5+A6       |
| D          | A3+A4+A5    |
| E          | A4+A5+A6    |
| F          | A3+A4+A5+A6 |

| Bin | Production Line     |                     |
|-----|---------------------|---------------------|
|     | Minimum Voltage (V) | Maximum Voltage (V) |
| A1  | 43                  | 45                  |
| A2  | 45                  | 47                  |
| A3  | 47                  | 49                  |
| A4  | 49                  | 51                  |
| A5  | 51                  | 53                  |
| A6  | 53                  | 55                  |
| A7  | 55                  | 57                  |
| A8  | 57                  | 59                  |
| A9  | 59                  | 61                  |

### HV ( 2W )

Forward Voltage Bins For 110V

| Group Name | Bins        |
|------------|-------------|
| A          | B3+B4       |
| B          | B4+B5       |
| C          | B5+B6       |
| D          | B3+B4+B5    |
| E          | B4+B5+B6    |
| F          | B3+B4+B5+B6 |

| Bin | Production Line     |                     |
|-----|---------------------|---------------------|
|     | Minimum Voltage (V) | Maximum Voltage (V) |
| B1  | 87                  | 91                  |
| B2  | 91                  | 95                  |
| B3  | 95                  | 99                  |
| B4  | 99                  | 103                 |
| B5  | 103                 | 107                 |
| B6  | 107                 | 111                 |
| B7  | 111                 | 115                 |
| B8  | 115                 | 119                 |
| B9  | 119                 | 123                 |

### Ju ( 1215, 2024 )

Forward Voltage Bins

| Group | Binning | Minimum Forward Voltage(V) | Maximum Forward Voltage(V) |
|-------|---------|----------------------------|----------------------------|
| R     | R1      | 9                          | 10                         |
|       | R2      | 10                         | 11                         |
|       | R3      | 11                         | 12                         |
|       | R4      | 12                         | 13                         |
|       | R5      | 13                         | 14                         |
|       | R6      | 14                         | 15                         |
|       | R7      | 15                         | 16                         |
|       | R8      | 16                         | 17                         |
|       | R9      | 17                         | 18                         |
| T     | T1      | 18                         | 19                         |
|       | T2      | 19                         | 20                         |
|       | T3      | 20                         | 21                         |
|       | T4      | 21                         | 22                         |
|       | T5      | 22                         | 23                         |
|       | T6      | 23                         | 24                         |
|       | T7      | 24                         | 25                         |
|       | T8      | 25                         | 26                         |
|       | T9      | 26                         | 27                         |
| W     | W1      | 27                         | 29                         |
|       | W2      | 29                         | 31                         |
|       | W3      | 31                         | 33                         |
|       | W4      | 33                         | 35                         |
|       | W5      | 35                         | 37                         |
|       | W6      | 37                         | 39                         |
|       | W7      | 39                         | 41                         |
|       | W8      | 41                         | 43                         |
|       | W9      | 43                         | 45                         |
| X     | X1      | 45                         | 47                         |
|       | X2      | 47                         | 50                         |
|       | X3      | 50                         | 53                         |
|       | X4      | 53                         | 56                         |
|       | X5      | 56                         | 59                         |
|       | X6      | 59                         | 63                         |
|       | X7      | 63                         | 67                         |
|       | X8      | 67                         | 71                         |
|       | X9      | 71                         | 75                         |
| Y     | Y1      | 75                         | 79                         |
|       | Y2      | 79                         | 83                         |
|       | Y3      | 83                         | 88                         |
|       | Y4      | 88                         | 93                         |
|       | Y5      | 93                         | 98                         |
|       | Y6      | 98                         | 103                        |
|       | Y7      | 103                        | 108                        |
|       | Y8      | 108                        | 113                        |

For Lighting Application Only

## LOW MIDDLE POWER LED - SMD TYPE CIE BINNING RANKS

### Cool-White Bin Coordinates

| 5000K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3551 | 0.3464 | 0.3371 | 0.3533 | 0.3487 | 0.3482 |
|       | 0.3464 | 0.3376 | 0.3366 | 0.3482 | 0.3425 | 0.3422 |
|       | 0.3456 | 0.3371 | 0.3441 | 0.3477 | 0.3422 | 0.3418 |
|       | 0.3487 | 0.3422 | 0.3448 | 0.3448 | 0.3482 | 0.3477 |
|       | 0.3482 | 0.3425 | 0.3418 | 0.3441 | --     | --     |
|       | 0.3533 | 0.3456 | 0.3422 | 0.3515 | --     | --     |
| CIE Y | 0.3760 | 0.3688 | 0.3493 | 0.3624 | 0.3629 | 0.3583 |
|       | 0.3688 | 0.3616 | 0.3369 | 0.3583 | 0.3579 | 0.3533 |
|       | 0.3604 | 0.3493 | 0.3428 | 0.3530 | 0.3533 | 0.3483 |
|       | 0.3629 | 0.3533 | 0.3507 | 0.3507 | 0.3583 | 0.3530 |
|       | 0.3583 | 0.3579 | 0.3483 | 0.3428 | --     | --     |
|       | 0.3624 | 0.3604 | 0.3533 | 0.3487 | --     | --     |

| 5700K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3376 | 0.3292 | 0.3215 | 0.3371 | 0.3321 | 0.3321 |
|       | 0.3292 | 0.3207 | 0.3222 | 0.3321 | 0.3261 | 0.3262 |
|       | 0.3292 | 0.3215 | 0.3294 | 0.3320 | 0.3262 | 0.3263 |
|       | 0.3321 | 0.3262 | 0.3293 | 0.3321 | 0.3321 | 0.3320 |
|       | 0.3321 | 0.3261 | 0.3263 | 0.3294 | --     | --     |
|       | 0.3371 | 0.3292 | 0.3262 | 0.3366 | --     | --     |
| CIE Y | 0.3616 | 0.3539 | 0.3353 | 0.3493 | 0.3490 | 0.3447 |
|       | 0.3539 | 0.3462 | 0.3243 | 0.3447 | 0.3436 | 0.3395 |
|       | 0.3464 | 0.3353 | 0.3306 | 0.3401 | 0.3395 | 0.3350 |
|       | 0.3490 | 0.3395 | 0.3377 | 0.3377 | 0.3447 | 0.3401 |
|       | 0.3447 | 0.3436 | 0.3350 | 0.3306 | --     | --     |
|       | 0.3493 | 0.3464 | 0.3395 | 0.3369 | --     | --     |

| 6500K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3205 | 0.3117 | 0.3048 | 0.3213 | 0.3157 | 0.3161 |
|       | 0.3117 | 0.3028 | 0.3068 | 0.3161 | 0.3093 | 0.3100 |
|       | 0.3125 | 0.3048 | 0.3145 | 0.3166 | 0.3100 | 0.3106 |
|       | 0.3157 | 0.3100 | 0.3136 | 0.3136 | 0.3161 | 0.3166 |
|       | 0.3161 | 0.3093 | 0.3106 | 0.3145 | --     | --     |
|       | 0.3213 | 0.3125 | 0.3100 | 0.3221 | --     | --     |
| CIE Y | 0.3481 | 0.3393 | 0.3209 | 0.3371 | 0.3360 | 0.3320 |
|       | 0.3393 | 0.3304 | 0.3113 | 0.3320 | 0.3297 | 0.3259 |
|       | 0.3328 | 0.3209 | 0.3187 | 0.3281 | 0.3259 | 0.3222 |
|       | 0.3360 | 0.3259 | 0.3251 | 0.3251 | 0.3320 | 0.3281 |
|       | 0.3320 | 0.3297 | 0.3222 | 0.3187 | --     | --     |
|       | 0.3371 | 0.3328 | 0.3259 | 0.3261 | --     | --     |

### Natural-White Bin Coordinates

| 4000K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4006 | 0.3871 | 0.3703 | 0.3952 | 0.3890 | 0.3873 |
|       | 0.3871 | 0.3736 | 0.3670 | 0.3873 | 0.3793 | 0.3779 |
|       | 0.3843 | 0.3703 | 0.3784 | 0.3854 | 0.3779 | 0.3764 |
|       | 0.3890 | 0.3779 | 0.3810 | 0.3810 | 0.3873 | 0.3854 |
|       | 0.3873 | 0.3793 | 0.3764 | 0.3784 | --     | --     |
|       | 0.3952 | 0.3843 | 0.3779 | 0.3898 | --     | --     |
| CIE Y | 0.4044 | 0.3959 | 0.3726 | 0.3880 | 0.3887 | 0.3831 |
|       | 0.3959 | 0.3874 | 0.3578 | 0.3831 | 0.3828 | 0.3773 |
|       | 0.3858 | 0.3726 | 0.3647 | 0.3768 | 0.3773 | 0.3713 |
|       | 0.3887 | 0.3773 | 0.3741 | 0.3741 | 0.3831 | 0.3768 |
|       | 0.3831 | 0.3828 | 0.3713 | 0.3647 | --     | --     |
|       | 0.3880 | 0.3858 | 0.3773 | 0.3716 | --     | --     |

| 4500K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.3736 | 0.3642 | 0.3530 | 0.3703 | 0.3658 | 0.3648 |
|       | 0.3642 | 0.3548 | 0.3512 | 0.3648 | 0.3592 | 0.3584 |
|       | 0.3626 | 0.3530 | 0.3591 | 0.3637 | 0.3584 | 0.3575 |
|       | 0.3658 | 0.3584 | 0.3607 | 0.3607 | 0.3648 | 0.3637 |
|       | 0.3648 | 0.3592 | 0.3575 | 0.3591 | --     | --     |
|       | 0.3703 | 0.3626 | 0.3584 | 0.3670 | --     | --     |
| CIE Y | 0.3874 | 0.3805 | 0.3601 | 0.3726 | 0.3738 | 0.3686 |
|       | 0.3805 | 0.3736 | 0.3465 | 0.3686 | 0.3689 | 0.3640 |
|       | 0.3714 | 0.3601 | 0.3522 | 0.3630 | 0.3640 | 0.3585 |
|       | 0.3738 | 0.3640 | 0.3608 | 0.3608 | 0.3686 | 0.3630 |
|       | 0.3686 | 0.3689 | 0.3585 | 0.3522 | --     | --     |
|       | 0.3726 | 0.3714 | 0.3640 | 0.3578 | --     | --     |

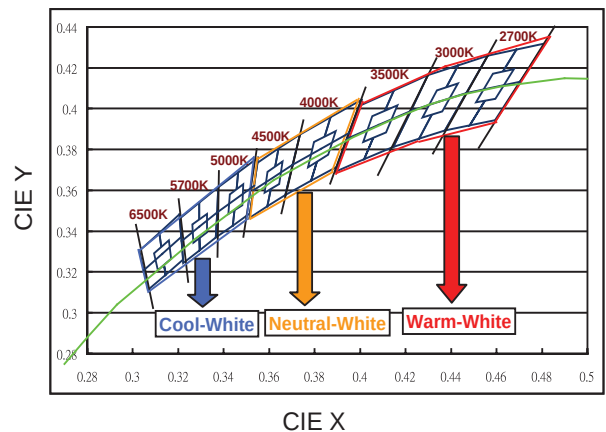
### Warm-White Bin Coordinates

| 2700K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4813 | 0.4687 | 0.4465 | 0.4700 | 0.4667 | 0.4627 |
|       | 0.4687 | 0.4562 | 0.4373 | 0.4627 | 0.4576 | 0.4539 |
|       | 0.4621 | 0.4465 | 0.4483 | 0.4588 | 0.4539 | 0.4502 |
|       | 0.4667 | 0.4539 | 0.4544 | 0.4544 | 0.4627 | 0.4588 |
|       | 0.4627 | 0.4576 | 0.4502 | 0.4483 | --     | --     |
|       | 0.4700 | 0.4621 | 0.4539 | 0.4593 | --     | --     |
| CIE Y | 0.4319 | 0.4289 | 0.4071 | 0.4126 | 0.4180 | 0.4109 |
|       | 0.4289 | 0.4260 | 0.3893 | 0.4109 | 0.4158 | 0.4088 |
|       | 0.4169 | 0.4071 | 0.3919 | 0.4041 | 0.4088 | 0.4020 |
|       | 0.4180 | 0.4088 | 0.4030 | 0.4030 | 0.4109 | 0.4041 |
|       | 0.4109 | 0.4158 | 0.4020 | 0.3919 | --     | --     |
|       | 0.4126 | 0.4169 | 0.4088 | 0.3944 | --     | --     |

| 3000K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4562 | 0.4430 | 0.4221 | 0.4465 | 0.4422 | 0.4388 |
|       | 0.4430 | 0.4299 | 0.4147 | 0.4388 | 0.4328 | 0.4297 |
|       | 0.4375 | 0.4221 | 0.4259 | 0.4355 | 0.4297 | 0.4267 |
|       | 0.4422 | 0.4297 | 0.4311 | 0.4311 | 0.4388 | 0.4355 |
|       | 0.4388 | 0.4328 | 0.4267 | 0.4259 | --     | --     |
|       | 0.4465 | 0.4375 | 0.4297 | 0.4373 | --     | --     |
| CIE Y | 0.4260 | 0.4212 | 0.3984 | 0.4071 | 0.4113 | 0.4043 |
|       | 0.4212 | 0.4165 | 0.3814 | 0.4043 | 0.4079 | 0.4011 |
|       | 0.4096 | 0.3984 | 0.3853 | 0.3977 | 0.4011 | 0.3946 |
|       | 0.4113 | 0.4011 | 0.3962 | 0.3962 | 0.4043 | 0.3977 |
|       | 0.4043 | 0.4079 | 0.3946 | 0.3853 | --     | --     |
|       | 0.4071 | 0.4096 | 0.4011 | 0.3893 | --     | --     |

| 3500K |        |        |        |        |        |        |
|-------|--------|--------|--------|--------|--------|--------|
| Bin   | A      | B      | C      | D      | F      | G      |
| CIE X | 0.4299 | 0.4148 | 0.3943 | 0.4221 | 0.4159 | 0.4134 |
|       | 0.4148 | 0.3996 | 0.3889 | 0.4134 | 0.4051 | 0.4029 |
|       | 0.4106 | 0.3943 | 0.4018 | 0.4108 | 0.4029 | 0.4006 |
|       | 0.4159 | 0.4029 | 0.4057 | 0.4057 | 0.4134 | 0.4108 |
|       | 0.4134 | 0.4051 | 0.4006 | 0.4018 | --     | --     |
|       | 0.4221 | 0.4106 | 0.4029 | 0.4147 | --     | --     |
| CIE Y | 0.4165 | 0.4090 | 0.3853 | 0.3984 | 0.4007 | 0.3943 |
|       | 0.4090 | 0.4015 | 0.3690 | 0.3943 | 0.3954 | 0.3893 |
|       | 0.3981 | 0.3853 | 0.3752 | 0.3878 | 0.3893 | 0.3829 |
|       | 0.4007 | 0.3893 | 0.3853 | 0.3853 | 0.3943 | 0.3878 |
|       | 0.3943 | 0.3954 | 0.3829 | 0.3752 | --     | --     |
|       | 0.3984 | 0.3981 | 0.3893 | 0.3814 | --     | --     |

■ White Color Bin Structure



Chromaticity specification defined by ANSI

# TECHNICAL DATA

For Lighting Application Only

## LOW MIDDLE POWER LED - SURFACE MOUNT PLCC TYPE LED BRIGHTNESS BINNING RANKS

### Luminous Flux Bins

Unit : lm

| Bin code | Range |       |
|----------|-------|-------|
|          | Min.  | Max.  |
| D1       | 0.5   | 1.0   |
| D2       | 1.0   | 1.5   |
| D3       | 1.5   | 2.0   |
| D4       | 2.0   | 2.5   |
| D5       | 2.5   | 3.0   |
| D6       | 3.0   | 3.5   |
| D7       | 3.5   | 4.0   |
| D8       | 4.0   | 4.5   |
| D9       | 4.5   | 5.0   |
| BA       | 5.0   | 5.5   |
| B1       | 5.5   | 6.0   |
| B2       | 6.0   | 6.5   |
| B3       | 6.5   | 7.0   |
| B4       | 7.0   | 7.5   |
| B5       | 7.5   | 8.0   |
| B6       | 8.0   | 8.5   |
| B7       | 8.5   | 9.0   |
| B8       | 9.0   | 9.5   |
| B9       | 9.5   | 10.0  |
| L1       | 10.0  | 11.0  |
| L2       | 11.0  | 12.0  |
| L3       | 12.0  | 13.0  |
| L4       | 13.0  | 14.0  |
| L5       | 14.0  | 15.0  |
| L6       | 15.0  | 16.0  |
| L7       | 16.0  | 17.0  |
| L8       | 17.0  | 18.0  |
| L9       | 18.0  | 19.0  |
| M3       | 19.0  | 21.0  |
| M4       | 21.0  | 24.0  |
| N3       | 24.0  | 27.0  |
| N4       | 27.0  | 33.0  |
| P3       | 33.0  | 39.0  |
| P4       | 39.0  | 45.0  |
| Q3       | 45.0  | 52.0  |
| NB       | 32.0  | 36.0  |
| PA       | 36.0  | 40.0  |
| PB       | 40.0  | 45.0  |
| QA       | 45.0  | 50.0  |
| R1       | 50.0  | 55.0  |
| R2       | 55.0  | 60.0  |
| R3       | 60.0  | 65.0  |
| R4       | 65.0  | 70.0  |
| R5       | 70.0  | 76.0  |
| R6       | 76.0  | 83.0  |
| R7       | 83.0  | 90.0  |
| R8       | 90.0  | 100.0 |
| S1       | 100.0 | 110.0 |
| S2       | 110.0 | 120.0 |
| S3       | 120.0 | 130.0 |
| S4       | 130.0 | 140.0 |
| S5       | 140.0 | 150.0 |
| S6       | 150.0 | 160.0 |
| S7       | 160.0 | 170.0 |

### VF Group Bin Code

Unit : V

| Forward Voltage Group | Bin | Min. | Max. |
|-----------------------|-----|------|------|
| B2                    | B42 | 35   | 2.80 |
|                       |     | 36   | 2.90 |
|                       |     | 37   | 3.00 |
|                       |     | 38   | 3.10 |
|                       |     | 39   | 3.20 |
|                       |     | 40   | 3.30 |
|                       |     | 41   | 3.40 |
|                       |     | 42   | 3.50 |

| Forward Voltage Group | Bin | Min. | Max. |
|-----------------------|-----|------|------|
| 5670                  | 5#6 | 5.6  | 5.7  |
|                       | 5#7 | 5.7  | 5.8  |
|                       | 5#8 | 5.8  | 5.9  |
|                       | 5#9 | 5.9  | 6.0  |
|                       | 6#0 | 6.0  | 6.1  |
|                       | 6#1 | 6.1  | 6.2  |
|                       | 6#2 | 6.2  | 6.3  |
|                       | 6#3 | 6.3  | 6.4  |
|                       | 6#4 | 6.4  | 6.5  |
|                       | 6#5 | 6.5  | 6.6  |
|                       | 6#6 | 6.6  | 6.7  |
|                       | 6#7 | 6.7  | 6.8  |
|                       | 6#8 | 6.8  | 6.9  |
|                       | 6#9 | 6.9  | 7.0  |

| Forward Voltage Group | Bin | Min. | Max. |
|-----------------------|-----|------|------|
| 8499                  | 84C | 8.4  | 8.7  |
|                       | 87C | 8.7  | 9.0  |
|                       | 90C | 9.0  | 9.3  |
|                       | 93C | 9.3  | 9.6  |
|                       | 96C | 9.6  | 9.9  |

SMD LED : SURFACE MOUNT CHIP LED ( PCB TYPE )  
BRIGHTNESS BIN SELECTION

Luminous Intensity Groups

Unit : mcd

|     |                   |     |                   |
|-----|-------------------|-----|-------------------|
|     | C0: 0.28 ... 0.45 | Q ▶ | Q1: 72.0 ... 90.0 |
|     | D0: 0.45 ... 0.70 |     | Q2: 90.0 ... 112  |
|     | E0: 0.70 ... 1.1  | R ▶ | R1: 112 ... 140   |
|     | F0: 1.1 ... 1.8   |     | R2: 140 ... 180   |
|     | G0: 1.8 ... 2.8   | S ▶ | S1: 180 ... 225   |
|     | H0: 2.8 ... 4.5   |     | S2: 225 ... 285   |
|     | J0: 4.5 ... 7.2   | T ▶ | T1: 285 ... 360   |
|     | K0: 7.2 ... 11.5  |     | T2: 360 ... 450   |
| L ▶ | L1: 11.5 ... 14.5 | U ▶ | U1: 450 ... 565   |
|     | L2: 14.5 ... 18.0 |     | U2: 565 ... 715   |
| M ▶ | M1: 18.0 ... 22.5 |     | V0: 715 ... 1120  |
|     | M2: 22.5 ... 28.5 |     | W0: 1120 ... 1800 |
| N ▶ | N1: 28.5 ... 36.0 |     | X0: 1800 ... 2850 |
|     | N2: 36.0 ... 45.0 |     | Y0: 2850 ... 4500 |
| P ▶ | P1: 45.0 ... 57.0 |     |                   |
|     | P2: 57.0 ... 72.0 |     |                   |

Note: The luminous intensity data did not include  $\pm 15\%$  testing tolerance.

$V_F$  (Forward Voltage Spec. Setup)

Unit : V

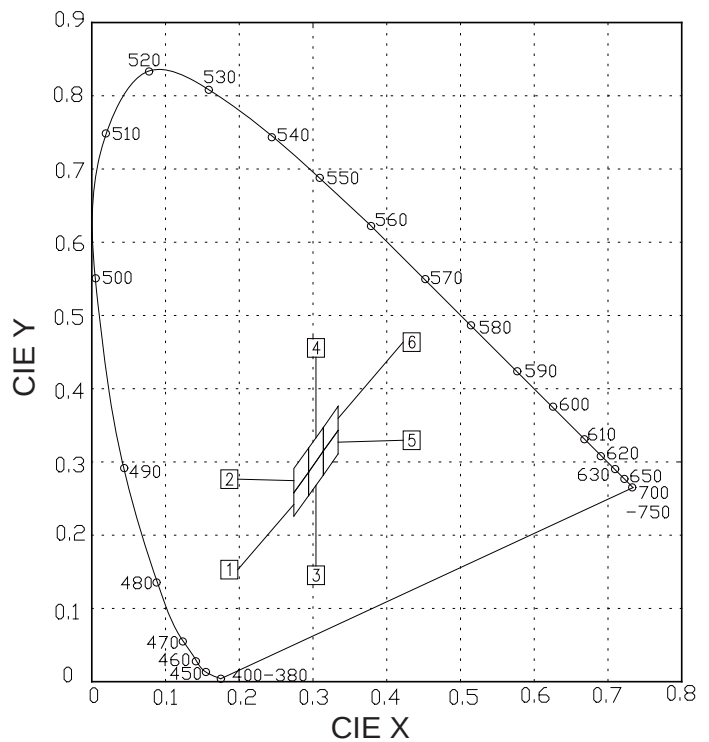
| Forward Voltage Groups |   | Bin | Min. | Max. |
|------------------------|---|-----|------|------|
|                        | A | 00  | 1.55 | 1.75 |
|                        |   | 0   | 1.75 | 1.95 |
|                        |   | 1   | 1.95 | 2.15 |
|                        | B | 2   | 2.15 | 2.35 |
|                        |   | 3   | 2.35 | 2.55 |
|                        |   | 4   | 2.55 | 2.75 |
|                        | C | 5   | 2.75 | 3.05 |
|                        |   | 6   | 3.05 | 3.35 |
|                        |   | 7   | 3.35 | 3.65 |
|                        | D | 8   | 3.65 | 3.95 |
|                        |   | 10  | 2.70 | 2.90 |
|                        |   | 11  | 2.90 | 3.10 |
|                        | E | 12  | 3.10 | 3.30 |
|                        |   | 13  | 3.30 | 3.50 |
|                        |   | 14  | 3.50 | 3.70 |
|                        | F | 15  | 2.70 | 2.85 |
|                        |   | 16  | 2.85 | 3.00 |
|                        |   | 17  | 3.00 | 3.15 |
|                        | G | 18  | 3.15 | 3.30 |
|                        |   |     |      |      |
|                        |   |     |      |      |

Note: The forward voltage data did not include  $\pm 0.1V$  testing tolerance.

Bin Coordinate

| Group | Bin Code | CIE_X | CIE_Y |
|-------|----------|-------|-------|
| A     | 1        | 0.274 | 0.226 |
|       |          | 0.274 | 0.258 |
|       |          | 0.294 | 0.286 |
|       |          | 0.294 | 0.254 |
|       | 2        | 0.274 | 0.258 |
|       |          | 0.274 | 0.291 |
|       |          | 0.294 | 0.319 |
|       |          | 0.294 | 0.286 |
|       | 3        | 0.294 | 0.254 |
|       |          | 0.294 | 0.286 |
|       |          | 0.314 | 0.315 |
|       |          | 0.314 | 0.282 |
|       | 4        | 0.294 | 0.286 |
|       |          | 0.294 | 0.319 |
|       |          | 0.314 | 0.347 |
|       |          | 0.314 | 0.315 |
|       | 5        | 0.314 | 0.282 |
|       |          | 0.314 | 0.315 |
|       |          | 0.334 | 0.343 |
|       |          | 0.334 | 0.311 |
|       | 6        | 0.314 | 0.315 |
|       |          | 0.314 | 0.347 |
|       |          | 0.334 | 0.376 |
|       |          | 0.334 | 0.343 |

Bin Structure ( White Light )



# TECHNICAL DATA

For Lighting Application Only

SMD LED : SURFACE MOUNT PLCC LED ( REFLECTOR ) / LOW POWER LED  
BRIGHTNESS BIN SELECTION

## Luminous Intensity Groups

Unit : mcd

| Bin Code | Min. | Max. | Bin Code | Min.  | Max.  |
|----------|------|------|----------|-------|-------|
| D1       | 0.5  | 1.0  | NB       | 32.0  | 36.0  |
| D2       | 1.0  | 1.5  | PA       | 36.0  | 40.0  |
| D3       | 1.5  | 2.0  | PB       | 40.0  | 45.0  |
| D4       | 2.0  | 2.5  | QA       | 45.0  | 50.0  |
| D5       | 2.5  | 3.0  | R1       | 50.0  | 55.0  |
| D6       | 3.0  | 3.5  | R2       | 55.0  | 60.0  |
| D7       | 3.5  | 4.0  | R3       | 60.0  | 65.0  |
| D8       | 4.0  | 4.5  | R4       | 65.0  | 70.0  |
| D9       | 4.5  | 5.0  | R5       | 70.0  | 76.0  |
| BA       | 5.0  | 5.5  | R6       | 76.0  | 83.0  |
| B1       | 5.5  | 6.0  | R7       | 83.0  | 90.0  |
| B2       | 6.0  | 6.5  | R8       | 90.0  | 100.0 |
| B3       | 6.5  | 7.0  | S1       | 100.0 | 110.0 |
| B4       | 7.0  | 7.5  | S2       | 110.0 | 120.0 |
| B5       | 7.5  | 8.0  | S3       | 120.0 | 130.0 |
| B6       | 8.0  | 8.5  | S4       | 130.0 | 140.0 |
| B7       | 8.5  | 9.0  | S5       | 140.0 | 150.0 |
| B8       | 9.0  | 9.5  | S6       | 150.0 | 160.0 |
| B9       | 9.5  | 10.0 | S7       | 160.0 | 170.0 |
| L1       | 10.0 | 11.0 | S8       | 170.0 | 180.0 |
| L2       | 11.0 | 12.0 | T1       | 180.0 | 190.0 |
| L3       | 12.0 | 13.0 | T2       | 190.0 | 200.0 |
| L4       | 13.0 | 14.0 | T3       | 200.0 | 220.0 |
| L5       | 14.0 | 15.0 | T4       | 220.0 | 240.0 |
| L6       | 15.0 | 16.0 | T5       | 240.0 | 260.0 |
| L7       | 16.0 | 17.0 | T6       | 260.0 | 280.0 |
| L8       | 17.0 | 18.0 | T7       | 280.0 | 300.0 |
| L9       | 18.0 | 19.0 | T8       | 300.0 | 320.0 |
| M3       | 19.0 | 21.0 |          |       |       |
| M4       | 21.0 | 24.0 |          |       |       |
| N3       | 24.0 | 27.0 |          |       |       |
| N4       | 27.0 | 33.0 |          |       |       |
| P3       | 33.0 | 39.0 |          |       |       |
| P4       | 39.0 | 45.0 |          |       |       |
| Q3       | 45.0 | 52.0 |          |       |       |

## V<sub>F</sub> (Forward Voltage Spec. Setup)

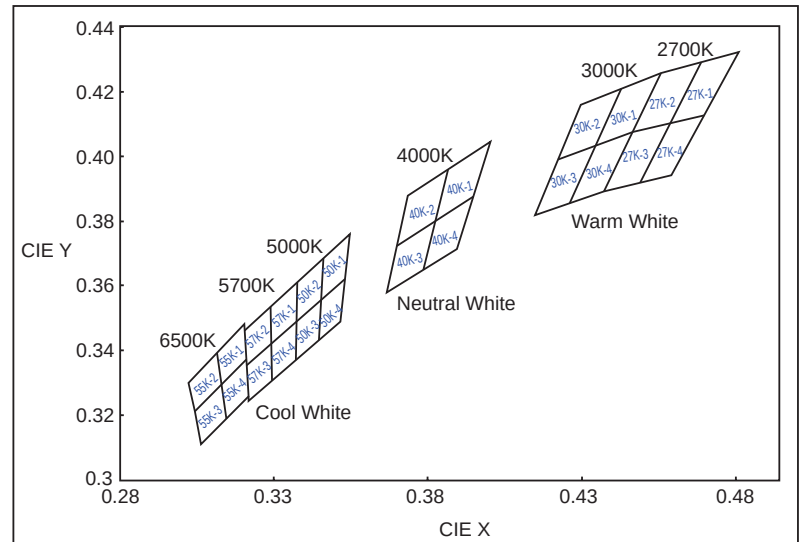
Unit : V ( I<sub>F</sub>=150mA )

| Bin Group | Bin Code | Min. | Max. |
|-----------|----------|------|------|
| B42       | B2       | 35   | 2.8  |
|           |          | 36   | 2.9  |
|           |          | 37   | 3.0  |
|           |          | 38   | 3.1  |
|           |          | 39   | 3.2  |
|           |          | 40   | 3.3  |
|           |          | 41   | 3.4  |
|           |          | 42   | 3.5  |

## Table of Color Rendering Index

| Symbol | Description    |
|--------|----------------|
| M      | CRI(Min.) : 60 |
| N      | CRI(Min.) : 65 |
| L      | CRI(Min.) : 70 |
| Q      | CRI(Min.) : 75 |
| K      | CRI(Min.) : 80 |
| P      | CRI(Min.) : 85 |
| H      | CRI(Min.) : 90 |

## Bin Structure



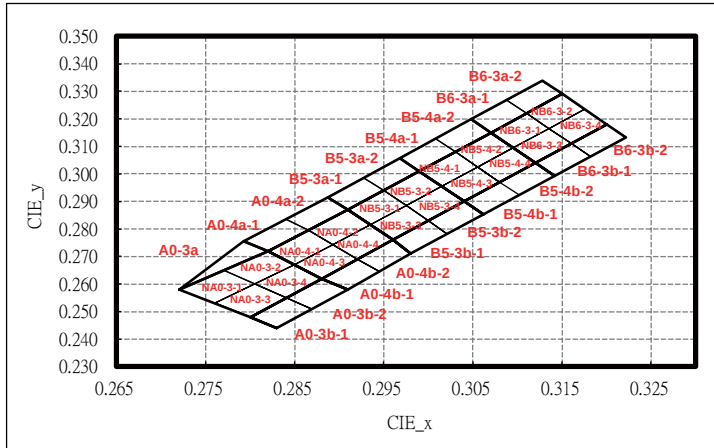
## Bin Coordinate

| CCT   | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  |
|-------|----------|--------|--------|----------|--------|--------|
| 6500K | 65K-1    | 0.3205 | 0.3481 | 65K-3    | 0.3131 | 0.3290 |
|       |          | 0.3117 | 0.3393 |          | 0.3048 | 0.3209 |
|       |          | 0.3131 | 0.3290 |          | 0.3068 | 0.3113 |
|       |          | 0.3213 | 0.3371 |          | 0.3145 | 0.3187 |
|       | 65K-2    | 0.3117 | 0.3393 | 65K-4    | 0.3213 | 0.3371 |
|       |          | 0.3028 | 0.3304 |          | 0.3131 | 0.3290 |
|       |          | 0.3048 | 0.3209 |          | 0.3145 | 0.3187 |
|       |          | 0.3131 | 0.3290 |          | 0.3221 | 0.3261 |
| 5700K | 57K-1    | 0.3376 | 0.3616 | 57K-3    | 0.3293 | 0.3423 |
|       |          | 0.3292 | 0.3539 |          | 0.3215 | 0.3353 |
|       |          | 0.3293 | 0.3423 |          | 0.3222 | 0.3243 |
|       |          | 0.3371 | 0.3493 |          | 0.3294 | 0.3306 |
|       | 57K-2    | 0.3292 | 0.3539 | 57K-4    | 0.3371 | 0.3493 |
|       |          | 0.3207 | 0.3462 |          | 0.3293 | 0.3423 |
|       |          | 0.3215 | 0.3353 |          | 0.3294 | 0.3306 |
|       |          | 0.3293 | 0.3423 |          | 0.3366 | 0.3369 |
| 5000K | 50K-1    | 0.3551 | 0.3760 | 50K-3    | 0.3452 | 0.3558 |
|       |          | 0.3464 | 0.3688 |          | 0.3371 | 0.3493 |
|       |          | 0.3452 | 0.3558 |          | 0.3366 | 0.3369 |
|       |          | 0.3533 | 0.3624 |          | 0.3441 | 0.3428 |
|       | 50K-2    | 0.3464 | 0.3688 | 50K-4    | 0.3533 | 0.3624 |
|       |          | 0.3376 | 0.3616 |          | 0.3452 | 0.3558 |
|       |          | 0.3371 | 0.3493 |          | 0.3441 | 0.3428 |
|       |          | 0.3452 | 0.3558 |          | 0.3515 | 0.3487 |
| 4000K | 40K-1    | 0.4006 | 0.4044 | 40K-3    | 0.3828 | 0.3803 |
|       |          | 0.3871 | 0.3959 |          | 0.3703 | 0.3726 |
|       |          | 0.3828 | 0.3803 |          | 0.3670 | 0.3578 |
|       |          | 0.3952 | 0.3880 |          | 0.3784 | 0.3647 |
|       | 40K-2    | 0.3871 | 0.3959 | 40K-4    | 0.3952 | 0.3880 |
|       |          | 0.3736 | 0.3874 |          | 0.3828 | 0.3803 |
|       |          | 0.3703 | 0.3726 |          | 0.3784 | 0.3647 |
|       |          | 0.3828 | 0.3803 |          | 0.3898 | 0.3716 |
| 3000K | 30K-1    | 0.4562 | 0.4260 | 30K-3    | 0.4345 | 0.4033 |
|       |          | 0.4431 | 0.4213 |          | 0.4223 | 0.3990 |
|       |          | 0.4345 | 0.4033 |          | 0.4147 | 0.3814 |
|       |          | 0.4468 | 0.4077 |          | 0.4260 | 0.3854 |
|       | 30K-2    | 0.4431 | 0.4213 | 30K-4    | 0.4468 | 0.4077 |
|       |          | 0.4299 | 0.4165 |          | 0.4345 | 0.4033 |
|       |          | 0.4223 | 0.3990 |          | 0.4260 | 0.3854 |
|       |          | 0.4345 | 0.4033 |          | 0.4373 | 0.3893 |
| 2700K | 27K-1    | 0.4813 | 0.4319 | 27K-3    | 0.4585 | 0.4104 |
|       |          | 0.4688 | 0.4290 |          | 0.4468 | 0.4077 |
|       |          | 0.4585 | 0.4104 |          | 0.4373 | 0.3893 |
|       |          | 0.4703 | 0.4132 |          | 0.4483 | 0.3919 |
|       | 27K-2    | 0.4688 | 0.4290 | 27K-4    | 0.4703 | 0.4132 |
|       |          | 0.4562 | 0.4260 |          | 0.4585 | 0.4104 |
|       |          | 0.4468 | 0.4077 |          | 0.4483 | 0.3919 |
|       |          |        | 0.4104 |          |        | 0.3944 |

# TECHNICAL DATA

## SMD LED ( 99 SERIES ) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin Code of Chromaticity Coordinates

| Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  |
|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| NA0-3-1  | 0.2760 | 0.2530 | NA0-3-2  | 0.2805 | 0.2600 | NA0-4-1  | 0.2850 | 0.2670 | NA0-4-2  | 0.2893 | 0.2743 |
|          | 0.2720 | 0.2580 |          | 0.2770 | 0.2650 |          | 0.2820 | 0.2720 |          | 0.2865 | 0.2795 |
|          | 0.2770 | 0.2650 |          | 0.2820 | 0.2720 |          | 0.2865 | 0.2795 |          | 0.2910 | 0.2870 |
|          | 0.2805 | 0.2600 |          | 0.2850 | 0.2670 |          | 0.2893 | 0.2743 |          | 0.2935 | 0.2815 |
| NA0-3-3  | 0.2800 | 0.2480 | NA0-3-4  | 0.2840 | 0.2550 | NA0-4-3  | 0.2880 | 0.2620 | NA0-4-4  | 0.2920 | 0.2690 |
|          | 0.2760 | 0.2530 |          | 0.2805 | 0.2600 |          | 0.2850 | 0.2670 |          | 0.2893 | 0.2743 |
|          | 0.2805 | 0.2600 |          | 0.2850 | 0.2670 |          | 0.2893 | 0.2743 |          | 0.2935 | 0.2815 |
|          | 0.2840 | 0.2550 |          | 0.2880 | 0.2620 |          | 0.2920 | 0.2690 |          | 0.2960 | 0.2760 |
| A0-3b-1  | 0.2830 | 0.2440 | A0-3b-2  | 0.2870 | 0.2510 | A0-4b-1  | 0.2910 | 0.2580 | A0-4b-2  | 0.2945 | 0.2645 |
|          | 0.2800 | 0.2480 |          | 0.2840 | 0.2550 |          | 0.2880 | 0.2620 |          | 0.2920 | 0.2690 |
|          | 0.2840 | 0.2550 |          | 0.2880 | 0.2620 |          | 0.2920 | 0.2690 |          | 0.2960 | 0.2760 |
|          | 0.2870 | 0.2510 |          | 0.2910 | 0.2580 |          | 0.2945 | 0.2645 |          | 0.2980 | 0.2710 |
| A0-4a-1  | 0.2820 | 0.2720 | A0-4a-2  | 0.2865 | 0.2795 | B5-3a-1  | 0.2910 | 0.2870 | B5-3a-2  | 0.2950 | 0.2940 |
|          | 0.2793 | 0.2755 |          | 0.2840 | 0.2836 |          | 0.2887 | 0.2916 |          | 0.2928 | 0.2987 |
|          | 0.2840 | 0.2836 |          | 0.2887 | 0.2916 |          | 0.2928 | 0.2987 |          | 0.2968 | 0.3058 |
|          | 0.2865 | 0.2795 |          | 0.2910 | 0.2870 |          | 0.2950 | 0.2940 |          | 0.2990 | 0.3010 |
| A0-3a    | 0.2720 | 0.2580 | NB5-3-1  | 0.2935 | 0.2815 | NB5-3-2  | 0.2910 | 0.2870 | NB5-3-3  | 0.2975 | 0.2885 |
|          | 0.2793 | 0.2755 |          | 0.2910 | 0.2840 |          | 0.2950 | 0.2940 |          | 0.2950 | 0.2940 |
|          | 0.2820 | 0.2720 |          | 0.2935 | 0.2815 |          | 0.2975 | 0.2885 |          | 0.2990 | 0.3010 |
|          | 0.2870 | 0.2580 |          | 0.2910 | 0.2870 |          | 0.2950 | 0.2940 |          | 0.3015 | 0.2955 |
| Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  | Bin Code | CIE_x  | CIE_y  |
| NB5-3-3  | 0.2960 | 0.2760 | NB5-3-4  | 0.3000 | 0.2830 | B5-4b-1  | 0.3062 | 0.2853 | B5-4b-2  | 0.3102 | 0.2923 |
|          | 0.2935 | 0.2815 |          | 0.2975 | 0.2885 |          | 0.3040 | 0.2900 |          | 0.3080 | 0.2970 |
|          | 0.2975 | 0.2885 |          | 0.3015 | 0.2955 |          | 0.3080 | 0.2970 |          | 0.3120 | 0.3040 |
|          | 0.3000 | 0.2830 |          | 0.3040 | 0.2900 |          | 0.3102 | 0.2923 |          | 0.3142 | 0.2993 |
| B5-3b-1  | 0.2980 | 0.2710 | B5-3b-2  | 0.3021 | 0.2782 | B6-3a-1  | 0.3070 | 0.3150 | B6-3a-2  | 0.3110 | 0.3220 |
|          | 0.2960 | 0.2760 |          | 0.3000 | 0.2830 |          | 0.3048 | 0.3198 |          | 0.3088 | 0.3268 |
|          | 0.3000 | 0.2830 |          | 0.3040 | 0.2900 |          | 0.3088 | 0.3268 |          | 0.3128 | 0.3338 |
|          | 0.3021 | 0.2782 |          | 0.3062 | 0.2853 |          | 0.3110 | 0.3220 |          | 0.3150 | 0.3290 |
| B5-4a-1  | 0.2990 | 0.3010 | B5-4a-2  | 0.3030 | 0.3080 | NB6-3-1  | 0.3095 | 0.3095 | NB6-3-2  | 0.3135 | 0.3165 |
|          | 0.2968 | 0.3058 |          | 0.3008 | 0.3128 |          | 0.3070 | 0.3150 |          | 0.3110 | 0.3220 |
|          | 0.3008 | 0.3128 |          | 0.3048 | 0.3198 |          | 0.3110 | 0.3220 |          | 0.3150 | 0.3290 |
|          | 0.3030 | 0.3080 |          | 0.3070 | 0.3150 |          | 0.3135 | 0.3165 |          | 0.3175 | 0.3235 |
| NB5-4-1  | 0.3015 | 0.2955 | NB5-4-2  | 0.3055 | 0.3025 | NB6-3-3  | 0.3120 | 0.3040 | NB6-3-4  | 0.3160 | 0.3110 |
|          | 0.2990 | 0.3010 |          | 0.3030 | 0.3080 |          | 0.3095 | 0.3095 |          | 0.3135 | 0.3165 |
|          | 0.3030 | 0.3080 |          | 0.3070 | 0.3150 |          | 0.3135 | 0.3165 |          | 0.3175 | 0.3235 |
|          | 0.3055 | 0.3025 |          | 0.3095 | 0.3095 |          | 0.3160 | 0.3110 |          | 0.3200 | 0.3180 |
| NB5-4-3  | 0.3040 | 0.2900 | NB5-4-4  | 0.3080 | 0.2970 | B6-3b-1  | 0.3142 | 0.2993 | B6-3b-2  | 0.3182 | 0.3063 |
|          | 0.3015 | 0.2955 |          | 0.3055 | 0.3025 |          | 0.3120 | 0.3040 |          | 0.3160 | 0.3110 |
|          | 0.3055 | 0.3025 |          | 0.3095 | 0.3095 |          | 0.3160 | 0.3110 |          | 0.3200 | 0.3180 |
|          | 0.3080 | 0.2970 |          | 0.3120 | 0.3040 |          | 0.3182 | 0.3063 |          | 0.3222 | 0.3133 |



V<sub>F</sub> (Forward Voltage Spec. Setup)

Unit : V

| Groups |   |  |  |  |  |   |   |       |   | Bin | Min.  | Max. | Groups |   | Bin | Min. | Max. |      |
|--------|---|--|--|--|--|---|---|-------|---|-----|-------|------|--------|---|-----|------|------|------|
| I      | X |  |  |  |  | S | W |       | Y | U   | 4-2-3 | 2.70 | 2.80   | Z | T   | 5-1  | 2.75 | 2.85 |
|        |   |  |  |  |  |   |   | 5-1-3 |   |     | 2.80  | 2.90 | 5-2    |   |     | 2.85 | 2.95 |      |
|        |   |  |  |  |  |   |   | 5-2-3 |   |     | 2.90  | 3.00 | 6-1    |   |     | 2.95 | 3.05 |      |
|        |   |  |  |  |  |   |   | 6-1-3 |   |     | 3.00  | 3.10 | 6-2    |   |     | 3.05 | 3.15 |      |
|        |   |  |  |  |  |   |   | 6-2-3 |   |     | 3.10  | 3.20 | 7-1    |   |     | 3.15 | 3.25 |      |
|        |   |  |  |  |  |   |   | 7-1-3 |   |     | 3.20  | 3.30 | 7-2    |   |     | 3.25 | 3.35 |      |
|        |   |  |  |  |  |   |   | 7-2-3 |   |     | 3.30  | 3.40 | 8-1    |   |     | 3.35 | 3.45 |      |
|        |   |  |  |  |  |   |   |       |   |     |       |      |        |   |     |      |      |      |

Note: Tolerance of Forward Voltage: ±0.05V

Luminous Flux

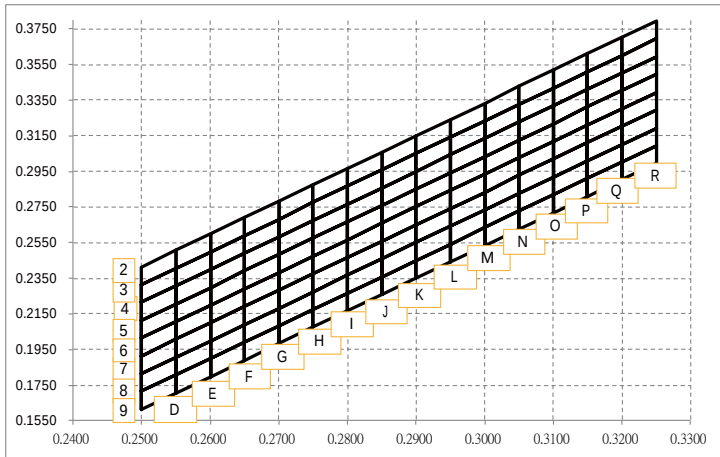
| Bin | Unit: lm |       | Unit: mcd. |      |
|-----|----------|-------|------------|------|
|     | Min      | Max   | Min        | Max  |
| L45 | 4.50     | 4.75  | 1605       | 1695 |
| L47 | 4.75     | 5.00  | 1695       | 1785 |
| L50 | 5.00     | 5.25  | 1785       | 1875 |
| L52 | 5.25     | 5.50  | 1875       | 1965 |
| L55 | 5.50     | 5.75  | 1965       | 2055 |
| L57 | 5.75     | 6.00  | 2055       | 2145 |
| L60 | 6.00     | 6.25  | 2145       | 2235 |
| L62 | 6.25     | 6.50  | 2235       | 2325 |
| L65 | 6.50     | 6.75  | 2325       | 2415 |
| L67 | 6.75     | 7.00  | 2415       | 2505 |
| L70 | 7.00     | 7.25  | 2505       | 2595 |
| L72 | 7.25     | 7.50  | 2595       | 2685 |
| L75 | 7.50     | 7.75  | 2685       | 2775 |
| L77 | 7.75     | 8.00  | 2775       | 2865 |
| L80 | 8.00     | 8.25  | 2865       | 2955 |
| L82 | 8.25     | 8.50  | 2955       | 3045 |
| L85 | 8.50     | 8.75  | 3045       | 3135 |
| L87 | 8.75     | 9.00  | 3135       | 3225 |
| L90 | 9.00     | 9.25  | 3225       | 3315 |
| L92 | 9.25     | 9.50  | 3315       | 3405 |
| L95 | 9.50     | 9.75  | 3405       | 3495 |
| L97 | 9.75     | 10.00 | 3495       | 3585 |

Note: Tolerance of Luminous Flux: ±7%.

# TECHNICAL DATA

## SMD LED (3003,3006 SERIES) BRIGHTNESS BIN SELECTION

Chromaticity Diagram



Bin code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| A1  | 0.2731 | 0.2569 | B1  | 0.2770 | 0.2644 | C1  | 0.2809 | 0.2719 |
|     | 0.2702 | 0.2603 |     | 0.2741 | 0.2678 |     | 0.2780 | 0.2753 |
|     | 0.2741 | 0.2678 |     | 0.2780 | 0.2753 |     | 0.2819 | 0.2828 |
|     | 0.2770 | 0.2644 |     | 0.2809 | 0.2719 |     | 0.2848 | 0.2794 |
| A2  | 0.2760 | 0.2535 | B2  | 0.2799 | 0.2610 | C2  | 0.2838 | 0.2685 |
|     | 0.2731 | 0.2569 |     | 0.2770 | 0.2644 |     | 0.2809 | 0.2719 |
|     | 0.2770 | 0.2644 |     | 0.2809 | 0.2719 |     | 0.2848 | 0.2794 |
|     | 0.2799 | 0.2610 |     | 0.2838 | 0.2685 |     | 0.2877 | 0.2760 |
| A3  | 0.2789 | 0.2501 | B3  | 0.2828 | 0.2576 | C3  | 0.2867 | 0.2651 |
|     | 0.2760 | 0.2535 |     | 0.2799 | 0.2610 |     | 0.2838 | 0.2685 |
|     | 0.2799 | 0.2610 |     | 0.2838 | 0.2685 |     | 0.2877 | 0.2760 |
|     | 0.2828 | 0.2576 |     | 0.2867 | 0.2651 |     | 0.2906 | 0.2726 |
| A4  | 0.2818 | 0.2467 | B4  | 0.2856 | 0.2539 | C4  | 0.2895 | 0.2614 |
|     | 0.2789 | 0.2501 |     | 0.2828 | 0.2576 |     | 0.2867 | 0.2651 |
|     | 0.2828 | 0.2576 |     | 0.2867 | 0.2651 |     | 0.2906 | 0.2726 |
|     | 0.2856 | 0.2539 |     | 0.2895 | 0.2614 |     | 0.2934 | 0.2689 |
| A5  | 0.2847 | 0.2433 | B5  | 0.2885 | 0.2505 | C5  | 0.2924 | 0.2580 |
|     | 0.2818 | 0.2467 |     | 0.2856 | 0.2539 |     | 0.2895 | 0.2614 |
|     | 0.2856 | 0.2539 |     | 0.2895 | 0.2614 |     | 0.2934 | 0.2689 |
|     | 0.2885 | 0.2505 |     | 0.2924 | 0.2580 |     | 0.2963 | 0.2655 |
| A6  | 0.2876 | 0.2399 | B6  | 0.2915 | 0.2474 | C6  | 0.2954 | 0.2549 |
|     | 0.2847 | 0.2433 |     | 0.2885 | 0.2505 |     | 0.2924 | 0.2580 |
|     | 0.2885 | 0.2505 |     | 0.2924 | 0.2580 |     | 0.2963 | 0.2655 |
|     | 0.2915 | 0.2474 |     | 0.2954 | 0.2549 |     | 0.2992 | 0.2621 |
| A7  | 0.2905 | 0.2365 | B7  | 0.2944 | 0.2440 | C7  | 0.2983 | 0.2515 |
|     | 0.2876 | 0.2399 |     | 0.2915 | 0.2474 |     | 0.2954 | 0.2549 |
|     | 0.2915 | 0.2474 |     | 0.2954 | 0.2549 |     | 0.2992 | 0.2621 |
|     | 0.2944 | 0.2440 |     | 0.2983 | 0.2515 |     | 0.3021 | 0.2587 |
| A8  | 0.2934 | 0.2331 | B8  | 0.2973 | 0.2406 | C8  | 0.3012 | 0.2481 |
|     | 0.2905 | 0.2365 |     | 0.2944 | 0.2440 |     | 0.2983 | 0.2515 |
|     | 0.2944 | 0.2440 |     | 0.2983 | 0.2515 |     | 0.3021 | 0.2587 |
|     | 0.2973 | 0.2406 |     | 0.3012 | 0.2481 |     | 0.3051 | 0.2556 |

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| D1  | 0.2848 | 0.2794 | E1  | 0.2887 | 0.2869 | F1  | 0.2926 | 0.2944 | G1  | 0.2965 | 0.3019 | H1  | 0.3004 | 0.3094 | J1  | 0.3043 | 0.3169 |
|     | 0.2819 | 0.2828 |     | 0.2858 | 0.2903 |     | 0.2897 | 0.2978 |     | 0.2936 | 0.3053 |     | 0.2975 | 0.3128 |     | 0.3014 | 0.3203 |
|     | 0.2858 | 0.2903 |     | 0.2897 | 0.2978 |     | 0.2936 | 0.3053 |     | 0.2975 | 0.3128 |     | 0.3014 | 0.3203 |     | 0.3053 | 0.3278 |
|     | 0.2887 | 0.2869 |     | 0.2926 | 0.2944 |     | 0.2965 | 0.3019 |     | 0.3004 | 0.3094 |     | 0.3043 | 0.3169 |     | 0.3082 | 0.3244 |
| D2  | 0.2877 | 0.2760 | E2  | 0.2916 | 0.2835 | F2  | 0.2955 | 0.2910 | G2  | 0.2994 | 0.2985 | H2  | 0.3033 | 0.3060 | J2  | 0.3072 | 0.3135 |
|     | 0.2848 | 0.2794 |     | 0.2887 | 0.2869 |     | 0.2926 | 0.2944 |     | 0.2965 | 0.3019 |     | 0.3004 | 0.3094 |     | 0.3043 | 0.3169 |
|     | 0.2887 | 0.2869 |     | 0.2926 | 0.2944 |     | 0.2965 | 0.3019 |     | 0.3004 | 0.3094 |     | 0.3043 | 0.3169 |     | 0.3082 | 0.3244 |
|     | 0.2916 | 0.2835 |     | 0.2955 | 0.2910 |     | 0.2994 | 0.2985 |     | 0.3033 | 0.3060 |     | 0.3072 | 0.3135 |     | 0.3111 | 0.3210 |
| D3  | 0.2906 | 0.2726 | E3  | 0.2945 | 0.2801 | F3  | 0.2984 | 0.2876 | G3  | 0.3023 | 0.2951 | H3  | 0.3062 | 0.3026 | J3  | 0.3101 | 0.3101 |
|     | 0.2877 | 0.2760 |     | 0.2916 | 0.2835 |     | 0.2955 | 0.2910 |     | 0.2994 | 0.2985 |     | 0.3033 | 0.3060 |     | 0.3072 | 0.3135 |
|     | 0.2916 | 0.2835 |     | 0.2955 | 0.2910 |     | 0.2994 | 0.2985 |     | 0.3033 | 0.3060 |     | 0.3072 | 0.3135 |     | 0.3111 | 0.3210 |
|     | 0.2945 | 0.2801 |     | 0.2984 | 0.2876 |     | 0.3023 | 0.2951 |     | 0.3062 | 0.3026 |     | 0.3101 | 0.3101 |     | 0.3140 | 0.3176 |
| D4  | 0.2934 | 0.2689 | E4  | 0.2973 | 0.2764 | F4  | 0.3012 | 0.2839 | G4  | 0.3051 | 0.2914 | H4  | 0.3090 | 0.2989 | J4  | 0.3129 | 0.3064 |
|     | 0.2906 | 0.2726 |     | 0.2945 | 0.2801 |     | 0.2984 | 0.2876 |     | 0.3023 | 0.2951 |     | 0.3062 | 0.3026 |     | 0.3101 | 0.3101 |
|     | 0.2945 | 0.2801 |     | 0.2984 | 0.2876 |     | 0.3023 | 0.2951 |     | 0.3062 | 0.3026 |     | 0.3101 | 0.3101 |     | 0.3140 | 0.3176 |
|     | 0.2973 | 0.2764 |     | 0.3012 | 0.2839 |     | 0.3051 | 0.2914 |     | 0.3090 | 0.2989 |     | 0.3129 | 0.3064 |     | 0.3168 | 0.3139 |
| D5  | 0.2963 | 0.2655 | E5  | 0.3002 | 0.2730 | F5  | 0.3041 | 0.2805 | G5  | 0.3080 | 0.2880 | H5  | 0.3119 | 0.2955 | J5  | 0.3158 | 0.3030 |
|     | 0.2934 | 0.2689 |     | 0.2973 | 0.2764 |     | 0.3012 | 0.2839 |     | 0.3051 | 0.2914 |     | 0.3090 | 0.2989 |     | 0.3129 | 0.3064 |
|     | 0.2973 | 0.2764 |     | 0.3012 | 0.2839 |     | 0.3051 | 0.2914 |     | 0.3090 | 0.2989 |     | 0.3129 | 0.3064 |     | 0.3168 | 0.3139 |
|     | 0.3002 | 0.2730 |     | 0.3041 | 0.2805 |     | 0.3080 | 0.2880 |     | 0.3119 | 0.2955 |     | 0.3158 | 0.3030 |     | 0.3197 | 0.3105 |
| D6  | 0.2992 | 0.2621 | E6  | 0.3031 | 0.2696 | F6  | 0.3070 | 0.2771 | G6  | 0.3109 | 0.2846 | H6  | 0.3148 | 0.2921 | J6  | 0.3187 | 0.2996 |
|     | 0.2963 | 0.2655 |     | 0.3002 | 0.2730 |     | 0.3041 | 0.2805 |     | 0.3080 | 0.2880 |     | 0.3119 | 0.2955 |     | 0.3158 | 0.3030 |
|     | 0.3002 | 0.2730 |     | 0.3041 | 0.2805 |     | 0.3080 | 0.2880 |     | 0.3119 | 0.2955 |     | 0.3158 | 0.3030 |     | 0.3197 | 0.3105 |
|     | 0.3031 | 0.2696 |     | 0.3070 | 0.2771 |     | 0.3109 | 0.2846 |     | 0.3148 | 0.2921 |     | 0.3187 | 0.2996 |     | 0.3226 | 0.3071 |
| D7  | 0.3021 | 0.2587 | E7  | 0.3060 | 0.2662 | F7  | 0.3099 | 0.2737 | G7  | 0.3138 | 0.2812 | H7  | 0.3177 | 0.2887 | J7  | 0.3216 | 0.2962 |
|     | 0.2992 | 0.2621 |     | 0.3031 | 0.2696 |     | 0.3070 | 0.2771 |     | 0.3109 | 0.2846 |     | 0.3148 | 0.2921 |     | 0.3187 | 0.2996 |
|     | 0.3031 | 0.2696 |     | 0.3070 | 0.2771 |     | 0.3109 | 0.2846 |     | 0.3148 | 0.2921 |     | 0.3187 | 0.2996 |     | 0.3226 | 0.3071 |
|     | 0.3060 | 0.2662 |     | 0.3099 | 0.2737 |     | 0.3138 | 0.2812 |     | 0.3177 | 0.2887 |     | 0.3216 | 0.2962 |     | 0.3255 | 0.3037 |
| D8  | 0.3051 | 0.2556 | E8  | 0.3090 | 0.2631 | F8  | 0.3129 | 0.2706 | G8  | 0.3168 | 0.2781 | H8  | 0.3207 | 0.2856 | J8  | 0.3246 | 0.2931 |
|     | 0.3021 | 0.2587 |     | 0.3060 | 0.2662 |     | 0.3099 | 0.2737 |     | 0.3138 | 0.2812 |     | 0.3177 | 0.2887 |     | 0.3216 | 0.2962 |
|     | 0.3060 | 0.2662 |     | 0.3099 | 0.2737 |     | 0.3138 | 0.2812 |     | 0.3177 | 0.2887 |     | 0.3216 | 0.2962 |     | 0.3255 | 0.3037 |
|     | 0.3090 | 0.2631 |     | 0.3129 | 0.2706 |     | 0.3168 | 0.2781 |     | 0.3207 | 0.2856 |     | 0.3246 | 0.2931 |     | 0.3285 | 0.3006 |

## Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| N2  | 0.3000 | 0.3234 | O2  | 0.3050 | 0.3326 | P2  | 0.3100 | 0.3418 | Q2  | 0.3150 | 0.3510 | R2  | 0.3200 | 0.3602 |
|     | 0.3000 | 0.3334 |     | 0.3050 | 0.3426 |     | 0.3100 | 0.3518 |     | 0.3150 | 0.3610 |     | 0.3200 | 0.3702 |
|     | 0.3050 | 0.3426 |     | 0.3100 | 0.3518 |     | 0.3150 | 0.3610 |     | 0.3200 | 0.3702 |     | 0.3250 | 0.3794 |
|     | 0.3050 | 0.3326 |     | 0.3100 | 0.3418 |     | 0.3150 | 0.3510 |     | 0.3200 | 0.3602 |     | 0.3250 | 0.3694 |
| N3  | 0.3000 | 0.3134 | O3  | 0.3050 | 0.3226 | P3  | 0.3100 | 0.3318 | Q3  | 0.3150 | 0.3410 | R3  | 0.3200 | 0.3502 |
|     | 0.3000 | 0.3234 |     | 0.3050 | 0.3326 |     | 0.3100 | 0.3418 |     | 0.3150 | 0.3510 |     | 0.3200 | 0.3602 |
|     | 0.3050 | 0.3326 |     | 0.3100 | 0.3418 |     | 0.3150 | 0.3510 |     | 0.3200 | 0.3602 |     | 0.3250 | 0.3694 |
|     | 0.3050 | 0.3226 |     | 0.3100 | 0.3318 |     | 0.3150 | 0.3410 |     | 0.3200 | 0.3502 |     | 0.3250 | 0.3594 |
| N4  | 0.3000 | 0.3034 | O4  | 0.3050 | 0.3126 | P4  | 0.3100 | 0.3218 | Q4  | 0.3150 | 0.3310 | R4  | 0.3200 | 0.3402 |
|     | 0.3000 | 0.3134 |     | 0.3050 | 0.3226 |     | 0.3100 | 0.3318 |     | 0.3150 | 0.3410 |     | 0.3200 | 0.3502 |
|     | 0.3050 | 0.3226 |     | 0.3100 | 0.3318 |     | 0.3150 | 0.3410 |     | 0.3200 | 0.3502 |     | 0.3250 | 0.3594 |
|     | 0.3050 | 0.3126 |     | 0.3100 | 0.3218 |     | 0.3150 | 0.3310 |     | 0.3200 | 0.3402 |     | 0.3250 | 0.3494 |
| N5  | 0.3000 | 0.2934 | O5  | 0.3050 | 0.3026 | P5  | 0.3100 | 0.3118 | Q5  | 0.3150 | 0.3210 | R5  | 0.3200 | 0.3302 |
|     | 0.3000 | 0.3034 |     | 0.3050 | 0.3126 |     | 0.3100 | 0.3218 |     | 0.3150 | 0.3310 |     | 0.3200 | 0.3402 |
|     | 0.3050 | 0.3126 |     | 0.3100 | 0.3218 |     | 0.3150 | 0.3310 |     | 0.3200 | 0.3402 |     | 0.3250 | 0.3494 |
|     | 0.3050 | 0.3026 |     | 0.3100 | 0.3118 |     | 0.3150 | 0.3210 |     | 0.3200 | 0.3302 |     | 0.3250 | 0.3394 |
| N6  | 0.3000 | 0.2834 | O6  | 0.3050 | 0.2926 | P6  | 0.3100 | 0.3018 | Q6  | 0.3150 | 0.3110 | R6  | 0.3200 | 0.3202 |
|     | 0.3000 | 0.2934 |     | 0.3050 | 0.3026 |     | 0.3100 | 0.3118 |     | 0.3150 | 0.3210 |     | 0.3200 | 0.3302 |
|     | 0.3050 | 0.3026 |     | 0.3100 | 0.3118 |     | 0.3150 | 0.3210 |     | 0.3200 | 0.3302 |     | 0.3250 | 0.3394 |
|     | 0.3050 | 0.2926 |     | 0.3100 | 0.3018 |     | 0.3150 | 0.3110 |     | 0.3200 | 0.3202 |     | 0.3250 | 0.3294 |
| N7  | 0.3000 | 0.2734 | O7  | 0.3050 | 0.2826 | P7  | 0.3100 | 0.2918 | Q7  | 0.3150 | 0.3010 | R7  | 0.3200 | 0.3102 |
|     | 0.3000 | 0.2834 |     | 0.3050 | 0.2926 |     | 0.3100 | 0.3018 |     | 0.3150 | 0.3110 |     | 0.3200 | 0.3202 |
|     | 0.3050 | 0.2926 |     | 0.3100 | 0.3018 |     | 0.3150 | 0.3110 |     | 0.3200 | 0.3202 |     | 0.3250 | 0.3294 |
|     | 0.3050 | 0.2826 |     | 0.3100 | 0.2918 |     | 0.3150 | 0.3010 |     | 0.3200 | 0.3102 |     | 0.3250 | 0.3194 |
| N8  | 0.3000 | 0.2634 | O8  | 0.3050 | 0.2726 | P8  | 0.3100 | 0.2818 | Q8  | 0.3150 | 0.2910 | R8  | 0.3200 | 0.3002 |
|     | 0.3000 | 0.2734 |     | 0.3050 | 0.2826 |     | 0.3100 | 0.2918 |     | 0.3150 | 0.3010 |     | 0.3200 | 0.3102 |
|     | 0.3050 | 0.2826 |     | 0.3100 | 0.2918 |     | 0.3150 | 0.3010 |     | 0.3200 | 0.3102 |     | 0.3250 | 0.3194 |
|     | 0.3050 | 0.2726 |     | 0.3100 | 0.2818 |     | 0.3150 | 0.2910 |     | 0.3200 | 0.3002 |     | 0.3250 | 0.3094 |
| N9  | 0.3000 | 0.2534 | O9  | 0.3050 | 0.2626 | P9  | 0.3100 | 0.2718 | Q9  | 0.3150 | 0.2810 | R9  | 0.3200 | 0.2902 |
|     | 0.3000 | 0.2634 |     | 0.3050 | 0.2726 |     | 0.3100 | 0.2818 |     | 0.3150 | 0.2910 |     | 0.3200 | 0.3002 |
|     | 0.3050 | 0.2726 |     | 0.3100 | 0.2818 |     | 0.3150 | 0.2910 |     | 0.3200 | 0.3002 |     | 0.3250 | 0.3094 |
|     | 0.3050 | 0.2626 |     | 0.3100 | 0.2718 |     | 0.3150 | 0.2810 |     | 0.3200 | 0.2902 |     | 0.3250 | 0.2994 |

## Luminous Flux

| Bin | Unit: lm |       | Unit: mcd |      |
|-----|----------|-------|-----------|------|
|     | Min.     | Max.  | Min.      | Max. |
| L45 | 4.50     | 4.75  | 1605      | 1695 |
| L47 | 4.75     | 5.00  | 1695      | 1785 |
| L50 | 5.00     | 5.25  | 1785      | 1875 |
| L52 | 5.25     | 5.50  | 1875      | 1965 |
| L55 | 5.50     | 5.75  | 1965      | 2055 |
| L57 | 5.75     | 6.00  | 2055      | 2145 |
| L60 | 6.00     | 6.25  | 2145      | 2235 |
| L62 | 6.25     | 6.50  | 2235      | 2325 |
| L65 | 6.50     | 6.75  | 2325      | 2415 |
| L67 | 6.75     | 7.00  | 2415      | 2505 |
| L70 | 7.00     | 7.25  | 2505      | 2595 |
| L72 | 7.25     | 7.50  | 2595      | 2685 |
| L75 | 7.50     | 7.75  | 2685      | 2775 |
| L77 | 7.75     | 8.00  | 2775      | 2865 |
| L80 | 8.00     | 8.25  | 2865      | 2955 |
| L82 | 8.25     | 8.50  | 2955      | 3045 |
| L85 | 8.50     | 8.75  | 3045      | 3135 |
| L87 | 8.75     | 9.00  | 3135      | 3225 |
| L90 | 9.00     | 9.25  | 3225      | 3315 |
| L92 | 9.25     | 9.50  | 3315      | 3405 |
| L95 | 9.50     | 9.75  | 3405      | 3495 |
| L97 | 9.75     | 10.00 | 3495      | 3585 |

Note: Tolerance of Luminous Flux:  $\pm 7\%$

## V<sub>F</sub> (Forward Voltage Spec. Setup)

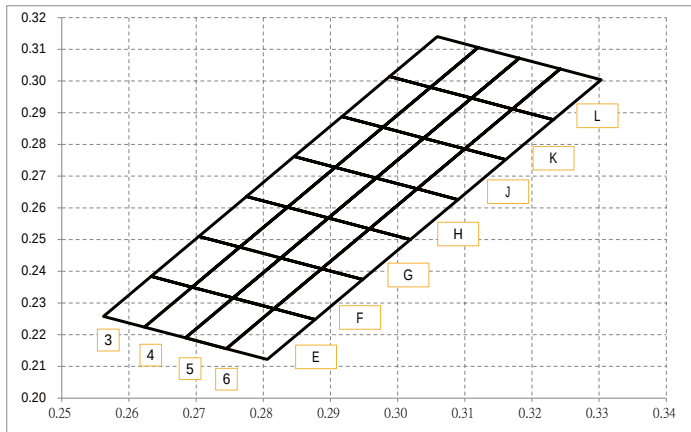
| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| U1  | 2.60    | 2.70 |
| U2  | 2.70    | 2.80 |
| U3  | 2.80    | 2.90 |
| U4  | 2.90    | 3.00 |
| U5  | 3.00    | 3.10 |
| U6  | 3.10    | 3.20 |
| U7  | 3.20    | 3.30 |
| U8  | 3.30    | 3.40 |
| U9  | 3.40    | 3.50 |
| V1  | 2.65    | 2.75 |
| V2  | 2.75    | 2.85 |
| V3  | 2.85    | 2.95 |
| V4  | 2.95    | 3.05 |
| V5  | 3.05    | 3.15 |
| V6  | 3.15    | 3.25 |
| V7  | 3.25    | 3.35 |
| V8  | 3.35    | 3.45 |
| V9  | 3.45    | 3.55 |

Note: Tolerance of Forward Voltage:  $\pm 0.05V$ .

# TECHNICAL DATA

## SMD LED (3004 SERIES) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| E5  | 0.2755 | 0.2316 | E4  | 0.2755 | 0.2316 | E3  | 0.2694 | 0.2350 | E6  | 0.2816 | 0.2282 |
|     | 0.2684 | 0.2190 |     | 0.2684 | 0.2190 |     | 0.2623 | 0.2224 |     | 0.2745 | 0.2156 |
|     | 0.2745 | 0.2156 |     | 0.2623 | 0.2224 |     | 0.2562 | 0.2258 |     | 0.2806 | 0.2122 |
|     | 0.2816 | 0.2282 |     | 0.2694 | 0.2350 |     | 0.2633 | 0.2384 |     | 0.2877 | 0.2248 |
|     | 0.2755 | 0.2316 |     | 0.2755 | 0.2316 |     | 0.2694 | 0.2350 |     | 0.2816 | 0.2282 |
| F5  | 0.2826 | 0.2442 | F4  | 0.2826 | 0.2442 | F3  | 0.2765 | 0.2476 | F6  | 0.2887 | 0.2408 |
|     | 0.2755 | 0.2316 |     | 0.2755 | 0.2316 |     | 0.2694 | 0.2350 |     | 0.2816 | 0.2282 |
|     | 0.2816 | 0.2282 |     | 0.2694 | 0.2350 |     | 0.2633 | 0.2384 |     | 0.2877 | 0.2248 |
|     | 0.2887 | 0.2408 |     | 0.2765 | 0.2476 |     | 0.2704 | 0.2510 |     | 0.2948 | 0.2374 |
|     | 0.2826 | 0.2442 |     | 0.2826 | 0.2442 |     | 0.2765 | 0.2476 |     | 0.2887 | 0.2408 |
| G5  | 0.2897 | 0.2568 | G4  | 0.2897 | 0.2568 | G3  | 0.2836 | 0.2602 | G6  | 0.2958 | 0.2534 |
|     | 0.2826 | 0.2442 |     | 0.2826 | 0.2442 |     | 0.2765 | 0.2476 |     | 0.2887 | 0.2408 |
|     | 0.2887 | 0.2408 |     | 0.2765 | 0.2476 |     | 0.2704 | 0.2510 |     | 0.2948 | 0.2374 |
|     | 0.2958 | 0.2534 |     | 0.2836 | 0.2602 |     | 0.2775 | 0.2636 |     | 0.3019 | 0.2500 |
|     | 0.2897 | 0.2568 |     | 0.2897 | 0.2568 |     | 0.2836 | 0.2602 |     | 0.2958 | 0.2534 |
| H5  | 0.2968 | 0.2694 | H4  | 0.2968 | 0.2694 | H3  | 0.2907 | 0.2728 | H6  | 0.3029 | 0.2660 |
|     | 0.2897 | 0.2568 |     | 0.2897 | 0.2568 |     | 0.2836 | 0.2602 |     | 0.2958 | 0.2534 |
|     | 0.2958 | 0.2534 |     | 0.2836 | 0.2602 |     | 0.2775 | 0.2636 |     | 0.3019 | 0.2500 |
|     | 0.3029 | 0.2660 |     | 0.2907 | 0.2728 |     | 0.2846 | 0.2762 |     | 0.3090 | 0.2626 |
|     | 0.2968 | 0.2694 |     | 0.2968 | 0.2694 |     | 0.2907 | 0.2728 |     | 0.3029 | 0.2660 |
| J5  | 0.3039 | 0.2820 | J4  | 0.3039 | 0.2820 | J3  | 0.2978 | 0.2854 | J6  | 0.3100 | 0.2786 |
|     | 0.2968 | 0.2694 |     | 0.2968 | 0.2694 |     | 0.2907 | 0.2728 |     | 0.3029 | 0.2660 |
|     | 0.3029 | 0.2660 |     | 0.2907 | 0.2728 |     | 0.2846 | 0.2762 |     | 0.3090 | 0.2626 |
|     | 0.3100 | 0.2786 |     | 0.2978 | 0.2854 |     | 0.2917 | 0.2888 |     | 0.3161 | 0.2752 |
|     | 0.3039 | 0.2820 |     | 0.3039 | 0.2820 |     | 0.2978 | 0.2854 |     | 0.3100 | 0.2786 |
| K5  | 0.3110 | 0.2946 | K4  | 0.3110 | 0.2946 | K3  | 0.3049 | 0.2980 | K6  | 0.3171 | 0.2912 |
|     | 0.3039 | 0.2820 |     | 0.3039 | 0.2820 |     | 0.2978 | 0.2854 |     | 0.3100 | 0.2786 |
|     | 0.3100 | 0.2786 |     | 0.2978 | 0.2854 |     | 0.2917 | 0.2888 |     | 0.3161 | 0.2752 |
|     | 0.3171 | 0.2912 |     | 0.3049 | 0.2980 |     | 0.2988 | 0.3014 |     | 0.3232 | 0.2878 |
|     | 0.3110 | 0.2946 |     | 0.3110 | 0.2946 |     | 0.3049 | 0.2980 |     | 0.3171 | 0.2912 |
| L5  | 0.3181 | 0.3072 | L4  | 0.3181 | 0.3072 | L3  | 0.3120 | 0.3106 | L6  | 0.3242 | 0.3038 |
|     | 0.3110 | 0.2946 |     | 0.3110 | 0.2946 |     | 0.3049 | 0.2980 |     | 0.3171 | 0.2912 |
|     | 0.3171 | 0.2912 |     | 0.3049 | 0.2980 |     | 0.2988 | 0.3014 |     | 0.3232 | 0.2878 |
|     | 0.3242 | 0.3038 |     | 0.3120 | 0.3106 |     | 0.3059 | 0.3140 |     | 0.3303 | 0.3004 |
|     | 0.3181 | 0.3072 |     | 0.3181 | 0.3072 |     | 0.3120 | 0.3106 |     | 0.3242 | 0.3038 |

## Luminous Flux

| Bin | Unit: lm |       | Unit: mcd |      |
|-----|----------|-------|-----------|------|
|     | Min.     | Max.  | Min.      | Max. |
| L45 | 4.50     | 4.75  | 1605      | 1695 |
| L47 | 4.75     | 5.00  | 1695      | 1785 |
| L50 | 5.00     | 5.25  | 1785      | 1875 |
| L52 | 5.25     | 5.50  | 1875      | 1965 |
| L55 | 5.50     | 5.75  | 1965      | 2055 |
| L57 | 5.75     | 6.00  | 2055      | 2145 |
| L60 | 6.00     | 6.25  | 2145      | 2235 |
| L62 | 6.25     | 6.50  | 2235      | 2325 |
| L65 | 6.50     | 6.75  | 2325      | 2415 |
| L67 | 6.75     | 7.00  | 2415      | 2505 |
| L70 | 7.00     | 7.25  | 2505      | 2595 |
| L72 | 7.25     | 7.50  | 2595      | 2685 |
| L75 | 7.50     | 7.75  | 2685      | 2775 |
| L77 | 7.75     | 8.00  | 2775      | 2865 |
| L80 | 8.00     | 8.25  | 2865      | 2955 |
| L82 | 8.25     | 8.50  | 2955      | 3045 |
| L85 | 8.50     | 8.75  | 3045      | 3135 |
| L87 | 8.75     | 9.00  | 3135      | 3225 |
| L90 | 9.00     | 9.25  | 3225      | 3315 |
| L92 | 9.25     | 9.50  | 3315      | 3405 |
| L95 | 9.50     | 9.75  | 3405      | 3495 |
| L97 | 9.75     | 10.00 | 3495      | 3585 |

Note: Tolerance of Luminous Flux:  $\pm 7\%$

## $V_F$ (Forward Voltage Spec. Setup)

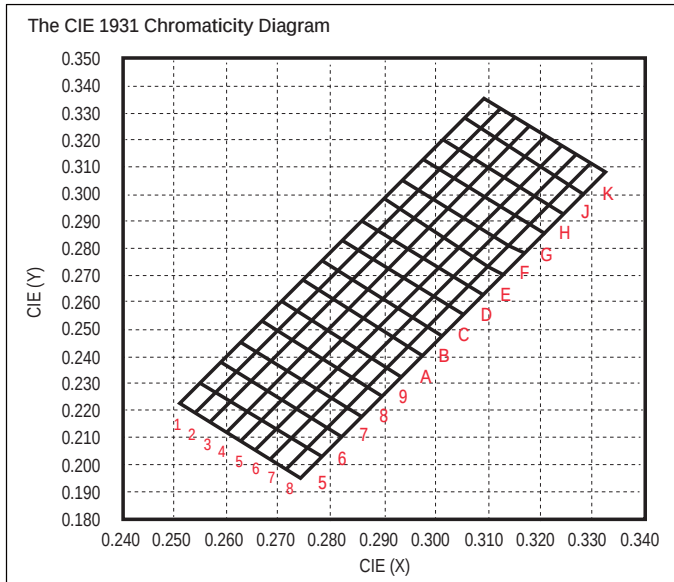
| Bin | Unit: V |      |
|-----|---------|------|
|     | Min.    | Max. |
| U1  | 2.60    | 2.70 |
| U2  | 2.70    | 2.80 |
| U3  | 2.80    | 2.90 |
| U4  | 2.90    | 3.00 |
| U5  | 3.00    | 3.10 |
| U6  | 3.10    | 3.20 |
| U7  | 3.20    | 3.30 |
| U8  | 3.30    | 3.40 |
| U9  | 3.40    | 3.50 |
| V1  | 2.65    | 2.75 |
| V2  | 2.75    | 2.85 |
| V3  | 2.85    | 2.95 |
| V4  | 2.95    | 3.05 |
| V5  | 3.05    | 3.15 |
| V6  | 3.15    | 3.25 |
| V7  | 3.25    | 3.35 |
| V8  | 3.35    | 3.45 |
| V9  | 3.45    | 3.55 |

Note: Tolerance of Forward Voltage:  $\pm 0.05V$ .

# TECHNICAL DATA

## SMD LED ( 50 SERIES ) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| D2  | 0.2500 | 0.2314 | E2  | 0.2550 | 0.2406 | F2  | 0.2600 | 0.2498 |
|     | 0.2500 | 0.2414 |     | 0.2550 | 0.2506 |     | 0.2600 | 0.2598 |
|     | 0.2550 | 0.2506 |     | 0.2600 | 0.2598 |     | 0.2650 | 0.2690 |
| D3  | 0.2550 | 0.2406 | E3  | 0.2600 | 0.2498 | F3  | 0.2650 | 0.2590 |
|     | 0.2550 | 0.2306 |     | 0.2600 | 0.2398 |     | 0.2650 | 0.2490 |
|     | 0.2500 | 0.2214 |     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |
| D4  | 0.2500 | 0.2114 | E4  | 0.2550 | 0.2206 | F4  | 0.2600 | 0.2298 |
|     | 0.2550 | 0.2306 |     | 0.2600 | 0.2398 |     | 0.2650 | 0.2490 |
|     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |     | 0.2650 | 0.2390 |
| D5  | 0.2500 | 0.2014 | E5  | 0.2550 | 0.2106 | F5  | 0.2600 | 0.2198 |
|     | 0.2500 | 0.2114 |     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |
|     | 0.2550 | 0.2206 |     | 0.2600 | 0.2298 |     | 0.2650 | 0.2390 |
| D6  | 0.2550 | 0.2106 | E6  | 0.2600 | 0.2198 | F6  | 0.2650 | 0.2290 |
|     | 0.2500 | 0.1914 |     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |
|     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |     | 0.2650 | 0.2190 |
| D7  | 0.2500 | 0.1814 | E7  | 0.2550 | 0.1906 | F7  | 0.2600 | 0.1998 |
|     | 0.2500 | 0.1914 |     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |
|     | 0.2550 | 0.2006 |     | 0.2600 | 0.2098 |     | 0.2650 | 0.2190 |
| D8  | 0.2550 | 0.1906 | E8  | 0.2600 | 0.1998 | F8  | 0.2650 | 0.2090 |
|     | 0.2500 | 0.1714 |     | 0.2550 | 0.1806 |     | 0.2600 | 0.1898 |
|     | 0.2550 | 0.1806 |     | 0.2600 | 0.1898 |     | 0.2650 | 0.1990 |
| D9  | 0.2500 | 0.1614 | E9  | 0.2550 | 0.1706 | F9  | 0.2600 | 0.1798 |
|     | 0.2500 | 0.1714 |     | 0.2550 | 0.1806 |     | 0.2600 | 0.1898 |
|     | 0.2550 | 0.1806 |     | 0.2600 | 0.1898 |     | 0.2650 | 0.1990 |
|     | 0.2550 | 0.1706 |     | 0.2600 | 0.1798 |     | 0.2650 | 0.1890 |

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| G2  | 0.2650 | 0.2590 | H2  | 0.2700 | 0.2682 | I2  | 0.2750 | 0.2774 | J2  | 0.2800 | 0.2866 | K2  | 0.2850 | 0.2958 | L2  | 0.2900 | 0.3050 |
|     | 0.2650 | 0.2690 |     | 0.2700 | 0.2782 |     | 0.2750 | 0.2874 |     | 0.2800 | 0.2966 |     | 0.2850 | 0.3058 |     | 0.2900 | 0.3150 |
|     | 0.2700 | 0.2782 |     | 0.2750 | 0.2874 |     | 0.2800 | 0.2966 |     | 0.2850 | 0.3058 |     | 0.2900 | 0.3150 |     | 0.2950 | 0.3242 |
| G3  | 0.2700 | 0.2682 | H3  | 0.2750 | 0.2774 | I3  | 0.2800 | 0.2866 | J3  | 0.2850 | 0.2958 | K3  | 0.2900 | 0.3050 | L3  | 0.2950 | 0.3142 |
|     | 0.2650 | 0.2490 |     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |
|     | 0.2650 | 0.2590 |     | 0.2700 | 0.2682 |     | 0.2750 | 0.2774 |     | 0.2800 | 0.2866 |     | 0.2850 | 0.2958 |     | 0.2900 | 0.3050 |
| G4  | 0.2700 | 0.2682 | H4  | 0.2750 | 0.2774 | I4  | 0.2800 | 0.2866 | J4  | 0.2850 | 0.2958 | K4  | 0.2900 | 0.3050 | L4  | 0.2950 | 0.3142 |
|     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |
| G5  | 0.2650 | 0.2490 | H5  | 0.2700 | 0.2582 | I5  | 0.2750 | 0.2674 | J5  | 0.2800 | 0.2766 | K5  | 0.2850 | 0.2858 | L5  | 0.2900 | 0.2950 |
|     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |
| G6  | 0.2700 | 0.2682 | H6  | 0.2750 | 0.2774 | I6  | 0.2800 | 0.2866 | J6  | 0.2850 | 0.2958 | K6  | 0.2900 | 0.3050 | L6  | 0.2950 | 0.3142 |
|     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |
| G7  | 0.2650 | 0.2490 | H7  | 0.2700 | 0.2582 | I7  | 0.2750 | 0.2674 | J7  | 0.2800 | 0.2766 | K7  | 0.2850 | 0.2858 | L7  | 0.2900 | 0.2950 |
|     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |
| G8  | 0.2700 | 0.2682 | H8  | 0.2750 | 0.2774 | I8  | 0.2800 | 0.2866 | J8  | 0.2850 | 0.2958 | K8  | 0.2900 | 0.3050 | L8  | 0.2950 | 0.3142 |
|     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |
| G9  | 0.2650 | 0.2490 | H9  | 0.2700 | 0.2582 | I9  | 0.2750 | 0.2674 | J9  | 0.2800 | 0.2766 | K9  | 0.2850 | 0.2858 | L9  | 0.2900 | 0.2950 |
|     | 0.2700 | 0.2582 |     | 0.2750 | 0.2674 |     | 0.2800 | 0.2766 |     | 0.2850 | 0.2858 |     | 0.2900 | 0.2950 |     | 0.2950 | 0.3042 |
|     | 0.2650 | 0.2390 |     | 0.2700 | 0.2482 |     | 0.2750 | 0.2574 |     | 0.2800 | 0.2666 |     | 0.2850 | 0.2758 |     | 0.2900 | 0.2850 |

## Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| 51  | 0.2507 | 0.2228 | 61  | 0.2575 | 0.2269 | 71  | 0.2585 | 0.2378 | 81  | 0.2653 | 0.2419 | 91  | 0.2692 | 0.2494 |
|     | 0.2536 | 0.2194 |     | 0.2546 | 0.2303 |     | 0.2614 | 0.2344 |     | 0.2624 | 0.2453 |     | 0.2663 | 0.2528 |
|     | 0.2575 | 0.2269 |     | 0.2585 | 0.2378 |     | 0.2653 | 0.2419 |     | 0.2663 | 0.2528 |     | 0.2702 | 0.2603 |
|     | 0.2546 | 0.2303 |     | 0.2614 | 0.2344 |     | 0.2624 | 0.2453 |     | 0.2692 | 0.2494 |     | 0.2731 | 0.2569 |
| 52  | 0.2536 | 0.2194 | 62  | 0.2604 | 0.2235 | 72  | 0.2614 | 0.2344 | 82  | 0.2682 | 0.2385 | 92  | 0.2721 | 0.2460 |
|     | 0.2565 | 0.2160 |     | 0.2575 | 0.2269 |     | 0.2643 | 0.2310 |     | 0.2653 | 0.2419 |     | 0.2692 | 0.2494 |
|     | 0.2604 | 0.2235 |     | 0.2614 | 0.2344 |     | 0.2682 | 0.2385 |     | 0.2692 | 0.2494 |     | 0.2731 | 0.2569 |
|     | 0.2575 | 0.2269 |     | 0.2643 | 0.2310 |     | 0.2653 | 0.2419 |     | 0.2721 | 0.2460 |     | 0.2760 | 0.2535 |
| 53  | 0.2565 | 0.2160 | 63  | 0.2633 | 0.2201 | 73  | 0.2643 | 0.2310 | 83  | 0.2711 | 0.2351 | 93  | 0.2750 | 0.2426 |
|     | 0.2594 | 0.2126 |     | 0.2604 | 0.2235 |     | 0.2672 | 0.2276 |     | 0.2682 | 0.2385 |     | 0.2721 | 0.2460 |
|     | 0.2633 | 0.2201 |     | 0.2643 | 0.2310 |     | 0.2711 | 0.2351 |     | 0.2721 | 0.2460 |     | 0.2760 | 0.2535 |
|     | 0.2604 | 0.2235 |     | 0.2672 | 0.2276 |     | 0.2682 | 0.2385 |     | 0.2750 | 0.2426 |     | 0.2789 | 0.2501 |
| 54  | 0.2594 | 0.2126 | 64  | 0.2662 | 0.2167 | 74  | 0.2672 | 0.2276 | 84  | 0.2740 | 0.2317 | 94  | 0.2779 | 0.2392 |
|     | 0.2623 | 0.2092 |     | 0.2633 | 0.2201 |     | 0.2701 | 0.2242 |     | 0.2711 | 0.2351 |     | 0.2779 | 0.2392 |
|     | 0.2662 | 0.2167 |     | 0.2672 | 0.2276 |     | 0.2740 | 0.2317 |     | 0.2740 | 0.2317 |     | 0.2818 | 0.2467 |
|     | 0.2633 | 0.2201 |     | 0.2701 | 0.2242 |     | 0.2711 | 0.2351 |     | 0.2779 | 0.2392 |     | 0.2818 | 0.2467 |
| 55  | 0.2623 | 0.2092 | 65  | 0.2691 | 0.2133 | 75  | 0.2701 | 0.2242 | 85  | 0.2769 | 0.2283 | 95  | 0.2808 | 0.2358 |
|     | 0.2652 | 0.2058 |     | 0.2662 | 0.2167 |     | 0.2730 | 0.2208 |     | 0.2740 | 0.2317 |     | 0.2808 | 0.2358 |
|     | 0.2691 | 0.2133 |     | 0.2701 | 0.2242 |     | 0.2769 | 0.2283 |     | 0.2779 | 0.2392 |     | 0.2847 | 0.2433 |
|     | 0.2662 | 0.2167 |     | 0.2730 | 0.2208 |     | 0.2740 | 0.2317 |     | 0.2808 | 0.2358 |     | 0.2847 | 0.2433 |
| 56  | 0.2652 | 0.2058 | 66  | 0.2720 | 0.2099 | 76  | 0.2730 | 0.2208 | 86  | 0.2798 | 0.2249 | 96  | 0.2837 | 0.2324 |
|     | 0.2681 | 0.2024 |     | 0.2691 | 0.2133 |     | 0.2759 | 0.2174 |     | 0.2769 | 0.2283 |     | 0.2808 | 0.2358 |
|     | 0.2720 | 0.2099 |     | 0.2730 | 0.2208 |     | 0.2798 | 0.2249 |     | 0.2808 | 0.2358 |     | 0.2847 | 0.2433 |
|     | 0.2691 | 0.2133 |     | 0.2759 | 0.2174 |     | 0.2769 | 0.2283 |     | 0.2837 | 0.2324 |     | 0.2876 | 0.2399 |
| 57  | 0.2681 | 0.2024 | 67  | 0.2749 | 0.2065 | 77  | 0.2759 | 0.2174 | 87  | 0.2827 | 0.2215 | 97  | 0.2866 | 0.2290 |
|     | 0.2710 | 0.1990 |     | 0.2720 | 0.2099 |     | 0.2788 | 0.2140 |     | 0.2798 | 0.2249 |     | 0.2837 | 0.2324 |
|     | 0.2749 | 0.2065 |     | 0.2759 | 0.2174 |     | 0.2827 | 0.2215 |     | 0.2837 | 0.2324 |     | 0.2876 | 0.2399 |
|     | 0.2720 | 0.2099 |     | 0.2788 | 0.2140 |     | 0.2798 | 0.2249 |     | 0.2866 | 0.2290 |     | 0.2905 | 0.2365 |
| 58  | 0.2710 | 0.1990 | 68  | 0.2778 | 0.2031 | 78  | 0.2788 | 0.2140 | 88  | 0.2856 | 0.2181 | 98  | 0.2895 | 0.2256 |
|     | 0.2739 | 0.1956 |     | 0.2749 | 0.2065 |     | 0.2817 | 0.2106 |     | 0.2827 | 0.2215 |     | 0.2866 | 0.2290 |
|     | 0.2778 | 0.2031 |     | 0.2788 | 0.2140 |     | 0.2856 | 0.2181 |     | 0.2866 | 0.2290 |     | 0.2905 | 0.2365 |
|     | 0.2749 | 0.2065 |     | 0.2817 | 0.2106 |     | 0.2827 | 0.2215 |     | 0.2895 | 0.2256 |     | 0.2934 | 0.2331 |

## Luminous Flux

Unit : lm

| Bin | Min.  | Max.  |
|-----|-------|-------|
| L11 | 11.00 | 12.00 |
| L12 | 12.00 | 13.00 |
| L13 | 13.00 | 14.00 |
| L14 | 14.00 | 15.00 |
| L15 | 15.00 | 16.00 |
| L16 | 16.00 | 17.00 |
| L17 | 17.00 | 18.00 |
| L18 | 18.00 | 19.00 |
| L19 | 19.00 | 20.00 |
| L20 | 20.00 | 21.00 |
| L21 | 21.00 | 22.00 |

Note: Tolerance of Luminous Intensity:  $\pm 7\%$ .

## V<sub>F</sub> (Forward Voltage Spec. Setup)

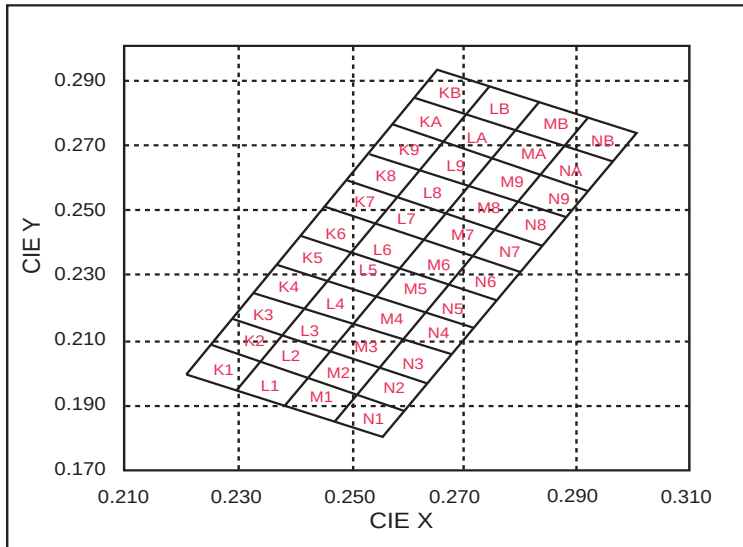
Unit : V

| Groups |   |   |   |   | Bin   | Min.  | Max.  |     |
|--------|---|---|---|---|-------|-------|-------|-----|
|        |   |   |   |   | Y     | 4-2-3 | 2.7   | 2.8 |
|        |   |   |   |   |       | 5-1-3 | 2.8   | 2.9 |
| K      | H | E |   |   |       | 5-2-3 | 2.9   | 3.0 |
|        |   |   |   |   |       | 6-1-3 | 3.0   | 3.1 |
|        |   |   | Q | F |       | 6-2-3 | 3.1   | 3.2 |
|        |   |   |   |   |       |       | 7-1-3 | 3.2 |
|        |   |   |   |   | 7-2-3 | 3.3   | 3.4   |     |

# TECHNICAL DATA

## SMD LED ( 62 SERIES ) BRIGHTNESS BIN SELECTION

### Chromaticity Diagram



### Bin Code of Chromaticity Coordinates

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| K1  | 0.2247 | 0.2082 | K2  | 0.2288 | 0.2166 | K3  | 0.2329 | 0.2250 | K4  | 0.2457 | 0.2287 | K5  | 0.2410 | 0.2419 | K6  | 0.2451 | 0.2504 | K7  | 0.2492 | 0.2588 |
|     | 0.2206 | 0.1997 |     | 0.2247 | 0.2082 |     | 0.2288 | 0.2166 |     | 0.2416 | 0.2202 |     | 0.2370 | 0.2335 |     | 0.2410 | 0.2419 |     | 0.2451 | 0.2504 |
|     | 0.2293 | 0.1949 |     | 0.2334 | 0.2034 |     | 0.2375 | 0.2118 |     | 0.2329 | 0.2250 |     | 0.2457 | 0.2288 |     | 0.2497 | 0.2371 |     | 0.2538 | 0.2456 |
|     | 0.2334 | 0.2034 |     | 0.2375 | 0.2118 |     | 0.2416 | 0.2202 |     | 0.2370 | 0.2335 |     | 0.2497 | 0.2371 |     | 0.2538 | 0.2456 |     | 0.2579 | 0.2540 |
| L1  | 0.2334 | 0.2034 | L2  | 0.2375 | 0.2118 | L3  | 0.2416 | 0.2202 | L4  | 0.2544 | 0.2239 | L5  | 0.2497 | 0.2371 | L6  | 0.2538 | 0.2456 | L7  | 0.2579 | 0.2540 |
|     | 0.2293 | 0.1949 |     | 0.2334 | 0.2034 |     | 0.2375 | 0.2118 |     | 0.2503 | 0.2154 |     | 0.2457 | 0.2287 |     | 0.2497 | 0.2371 |     | 0.2538 | 0.2456 |
|     | 0.2380 | 0.1901 |     | 0.2421 | 0.1986 |     | 0.2462 | 0.2070 |     | 0.2416 | 0.2202 |     | 0.2544 | 0.2239 |     | 0.2584 | 0.2323 |     | 0.2625 | 0.2408 |
|     | 0.2421 | 0.1986 |     | 0.2462 | 0.2070 |     | 0.2503 | 0.2154 |     | 0.2457 | 0.2287 |     | 0.2584 | 0.2323 |     | 0.2625 | 0.2408 |     | 0.2666 | 0.2492 |
| M1  | 0.2421 | 0.1986 | M2  | 0.2462 | 0.2070 | M3  | 0.2503 | 0.2154 | M4  | 0.2631 | 0.2191 | M5  | 0.2584 | 0.2323 | M6  | 0.2625 | 0.2408 | M7  | 0.2666 | 0.2492 |
|     | 0.2380 | 0.1901 |     | 0.2421 | 0.1986 |     | 0.2462 | 0.2070 |     | 0.2590 | 0.2106 |     | 0.2544 | 0.2239 |     | 0.2584 | 0.2323 |     | 0.2625 | 0.2408 |
|     | 0.2467 | 0.1853 |     | 0.2508 | 0.1938 |     | 0.2549 | 0.2022 |     | 0.2503 | 0.2154 |     | 0.2631 | 0.2191 |     | 0.2671 | 0.2275 |     | 0.2712 | 0.2360 |
|     | 0.2508 | 0.1938 |     | 0.2549 | 0.2022 |     | 0.2590 | 0.2106 |     | 0.2544 | 0.2239 |     | 0.2671 | 0.2275 |     | 0.2712 | 0.2360 |     | 0.2753 | 0.2444 |
| N1  | 0.2508 | 0.1938 | N2  | 0.2549 | 0.2022 | N3  | 0.2590 | 0.2106 | N4  | 0.2718 | 0.2143 | N5  | 0.2671 | 0.2275 | N6  | 0.2712 | 0.2360 | N7  | 0.2753 | 0.2444 |
|     | 0.2467 | 0.1853 |     | 0.2508 | 0.1938 |     | 0.2549 | 0.2022 |     | 0.2677 | 0.2058 |     | 0.2631 | 0.2191 |     | 0.2671 | 0.2275 |     | 0.2712 | 0.2360 |
|     | 0.2554 | 0.1805 |     | 0.2595 | 0.1890 |     | 0.2636 | 0.1974 |     | 0.2590 | 0.2106 |     | 0.2718 | 0.2143 |     | 0.2758 | 0.2227 |     | 0.2799 | 0.2312 |
|     | 0.2595 | 0.1890 |     | 0.2636 | 0.1974 |     | 0.2677 | 0.2058 |     | 0.2631 | 0.2191 |     | 0.2758 | 0.2227 |     | 0.2799 | 0.2312 |     | 0.2840 | 0.2396 |

| Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  | Bin | CIE_x  | CIE_y  |
|-----|--------|--------|-----|--------|--------|-----|--------|--------|-----|--------|--------|
| K8  | 0.2533 | 0.2672 | K9  | 0.2574 | 0.2757 | KA  | 0.2615 | 0.2842 | KB  | 0.2656 | 0.2927 |
|     | 0.2492 | 0.2588 |     | 0.2533 | 0.2672 |     | 0.2574 | 0.2757 |     | 0.2615 | 0.2842 |
|     | 0.2579 | 0.2540 |     | 0.2620 | 0.2624 |     | 0.2661 | 0.2709 |     | 0.2702 | 0.2794 |
|     | 0.2620 | 0.2624 |     | 0.2661 | 0.2709 |     | 0.2702 | 0.2794 |     | 0.2743 | 0.2879 |
| L8  | 0.2620 | 0.2624 | L9  | 0.2661 | 0.2709 | LA  | 0.2702 | 0.2794 | LB  | 0.2743 | 0.2879 |
|     | 0.2579 | 0.2540 |     | 0.2620 | 0.2624 |     | 0.2661 | 0.2709 |     | 0.2702 | 0.2794 |
|     | 0.2666 | 0.2492 |     | 0.2707 | 0.2576 |     | 0.2748 | 0.2661 |     | 0.2789 | 0.2746 |
|     | 0.2707 | 0.2576 |     | 0.2748 | 0.2661 |     | 0.2789 | 0.2746 |     | 0.2830 | 0.2831 |
| M8  | 0.2707 | 0.2576 | M9  | 0.2748 | 0.2661 | MA  | 0.2789 | 0.2746 | MB  | 0.2830 | 0.2831 |
|     | 0.2666 | 0.2492 |     | 0.2707 | 0.2576 |     | 0.2748 | 0.2661 |     | 0.2789 | 0.2746 |
|     | 0.2753 | 0.2444 |     | 0.2794 | 0.2528 |     | 0.2835 | 0.2613 |     | 0.2876 | 0.2698 |
|     | 0.2794 | 0.2528 |     | 0.2835 | 0.2613 |     | 0.2876 | 0.2698 |     | 0.2917 | 0.2783 |
| N8  | 0.2794 | 0.2528 | N9  | 0.2835 | 0.2613 | NA  | 0.2876 | 0.2698 | NB  | 0.2917 | 0.2783 |
|     | 0.2753 | 0.2444 |     | 0.2794 | 0.2528 |     | 0.2835 | 0.2613 |     | 0.2876 | 0.2698 |
|     | 0.2840 | 0.2396 |     | 0.2881 | 0.2480 |     | 0.2922 | 0.2565 |     | 0.2963 | 0.2650 |
|     | 0.2881 | 0.2480 |     | 0.2922 | 0.2565 |     | 0.2963 | 0.2650 |     | 0.3004 | 0.2735 |



## Luminous Flux

Unit : lm

| 1 lm / Bin |       |       |     |       |       |     |       |       | 2 lm / Bin |       |       |     |       |       |
|------------|-------|-------|-----|-------|-------|-----|-------|-------|------------|-------|-------|-----|-------|-------|
| Bin        | CIE_x | CIE_y | Bin | CIE_x | CIE_y | Bin | CIE_x | CIE_y | Bin        | CIE_x | CIE_y | Bin | CIE_x | CIE_y |
| 18         | 18    | 19    | 18  | 18    | 19    | 18  | 18    | 19    | T18        | 18    | 20    | T50 | 50    | 52    |
| 19         | 19    | 20    | 19  | 19    | 20    | 19  | 19    | 20    | T20        | 20    | 22    | T52 | 52    | 54    |
| 20         | 20    | 21    | 20  | 20    | 21    | 20  | 20    | 21    | T22        | 22    | 24    | T54 | 54    | 56    |
| 21         | 21    | 22    | 21  | 21    | 22    | 21  | 21    | 22    | T24        | 24    | 26    | T56 | 56    | 58    |
| 22         | 22    | 23    | 22  | 22    | 23    | 22  | 22    | 23    | T26        | 26    | 28    | T58 | 58    | 60    |
| 23         | 23    | 24    | 23  | 23    | 24    | 23  | 23    | 24    | T28        | 28    | 30    | T60 | 60    | 62    |
| 24         | 24    | 25    | 24  | 24    | 25    | 24  | 24    | 25    | T30        | 30    | 32    | T62 | 62    | 64    |
| 25         | 25    | 26    | 25  | 25    | 26    | 25  | 25    | 26    | T32        | 32    | 34    | T64 | 64    | 66    |
| 26         | 26    | 27    | 26  | 26    | 27    | 26  | 26    | 27    | T34        | 34    | 36    | T66 | 66    | 68    |
| 27         | 27    | 28    | 27  | 27    | 28    | 27  | 27    | 28    | T36        | 36    | 38    | T68 | 68    | 70    |
| 28         | 28    | 29    | 28  | 28    | 29    | 28  | 28    | 29    | T38        | 38    | 40    | T70 | 70    | 72    |
| 29         | 29    | 30    | 29  | 29    | 30    | 29  | 29    | 30    | T40        | 40    | 42    | T72 | 72    | 74    |
| 30         | 30    | 31    | 30  | 30    | 31    | 30  | 30    | 31    | T42        | 42    | 44    | T74 | 74    | 76    |
| 31         | 31    | 32    | 31  | 31    | 32    | 31  | 31    | 32    | T44        | 44    | 46    | T76 | 76    | 78    |
| 32         | 32    | 33    | 32  | 32    | 33    | 32  | 32    | 33    | T46        | 46    | 48    | T78 | 78    | 80    |
| 33         | 33    | 34    | 33  | 33    | 34    | 33  | 33    | 34    | T48        | 48    | 50    | T80 | 80    | 82    |

Note: Tolerance of Luminous Intensity:  $\pm 7\%$ .

## $V_F$ (Forward Voltage Spec. Setup)

Unit : V

| Single Chip |      |      | Two Chips |      |      |        |      |      |
|-------------|------|------|-----------|------|------|--------|------|------|
|             |      |      | Parallel  |      |      | Serial |      |      |
| Bin         | Min. | Max. | Bin       | Min. | Max. | Bin    | Min. | Max. |
| A           | 2.9  | 3.0  | PA        | 2.9  | 3.0  | S8     | 5.8  | 6.0  |
| B           | 3.0  | 3.1  | PB        | 3.0  | 3.1  | S9     | 6.0  | 6.2  |
| C           | 3.1  | 3.2  | PC        | 3.1  | 3.2  | SA     | 6.2  | 6.4  |
| D           | 3.2  | 3.3  | PD        | 3.2  | 3.3  | SB     | 6.4  | 6.6  |
| E           | 3.3  | 3.4  | PE        | 3.3  | 3.4  | SC     | 6.6  | 6.8  |
| F           | 3.4  | 3.5  | PF        | 3.4  | 3.5  | SD     | 6.8  | 7.0  |
| G           | 3.5  | 3.6  | PG        | 3.5  | 3.6  | SE     | 7.0  | 7.2  |

Note: Tolerance of Forward Voltage:  $\pm 0.05V$ .

# TECHNICAL DATA

## LED LAMPs BRIGHTNESS BIN SELECTION

### Brightness Bin Selection

Unit : mcd

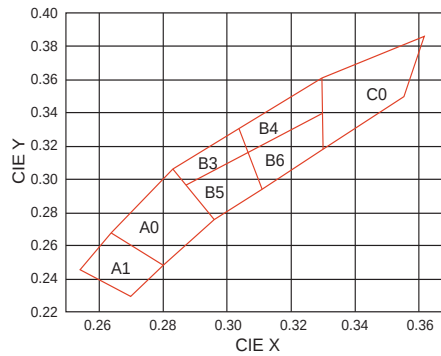
| Item     | Intensity Iv (mcd) |        |
|----------|--------------------|--------|
| Bin Code | Min.               | Max.   |
| a7       | 6.0                | 8.0    |
| a6       | 8.0                | 10.0   |
| a5       | 10.0               | 12.0   |
| a4       | 12.0               | 15.0   |
| a3       | 15.0               | 18.0   |
| a2       | 18.0               | 22.0   |
| a1       | 22.0               | 28.0   |
| 0        | 28.0               | 35.0   |
| 1        | 35.0               | 42.0   |
| 2        | 42.0               | 50.0   |
| 3        | 50.0               | 60.0   |
| 4        | 60.0               | 70.0   |
| 5        | 70.0               | 85.0   |
| 6        | 85.0               | 100    |
| 7        | 100                | 120    |
| 8        | 120                | 140    |
| 9        | 140                | 170    |
| A        | 170                | 200    |
| B        | 200                | 240    |
| C        | 240                | 285    |
| D        | 285                | 360    |
| E        | 360                | 450    |
| F        | 450                | 565    |
| G        | 565                | 715    |
| H        | 715                | 900    |
| J        | 900                | 1,125  |
| K        | 1,125              | 1,425  |
| L        | 1,425              | 1,800  |
| M        | 1,800              | 2,250  |
| N        | 2,250              | 2,850  |
| P        | 2,850              | 3,600  |
| Q        | 3,600              | 4,500  |
| R        | 4,500              | 5,650  |
| S        | 5,650              | 7,150  |
| T        | 7,150              | 9,000  |
| U        | 9,000              | 11,250 |
| V        | 11,250             | 14,250 |
| W        | 14,250             | 18,000 |
| X        | 18,000             | 22,500 |
| Y        | 22,500             | 28,500 |
| Z        | 28,500             | 36,000 |

### Cool White / CIE Chromaticity Diagram

( $I_F=20\text{mA}$  /  $T_a=25^\circ\text{C}$ )

| Color Ranks | CIE |       |       |       |       |
|-------------|-----|-------|-------|-------|-------|
| A1          | X   | 0.255 | 0.264 | 0.280 | 0.270 |
|             | Y   | 0.245 | 0.267 | 0.248 | 0.230 |
| A0          | X   | 0.264 | 0.283 | 0.296 | 0.280 |
|             | Y   | 0.267 | 0.305 | 0.267 | 0.248 |
| B3          | X   | 0.283 | 0.304 | 0.307 | 0.287 |
|             | Y   | 0.305 | 0.330 | 0.315 | 0.295 |
| B4          | X   | 0.304 | 0.330 | 0.330 | 0.307 |
|             | Y   | 0.330 | 0.360 | 0.339 | 0.315 |
| B5          | X   | 0.287 | 0.307 | 0.311 | 0.296 |
|             | Y   | 0.295 | 0.315 | 0.294 | 0.276 |
| B6          | X   | 0.307 | 0.330 | 0.330 | 0.311 |
|             | Y   | 0.315 | 0.339 | 0.318 | 0.294 |
| C0          | X   | 0.330 | 0.361 | 0.355 | 0.330 |
|             | Y   | 0.360 | 0.385 | 0.350 | 0.318 |

Note: Measurement uncertainty of the color coordinates  $\pm 0.01$ .

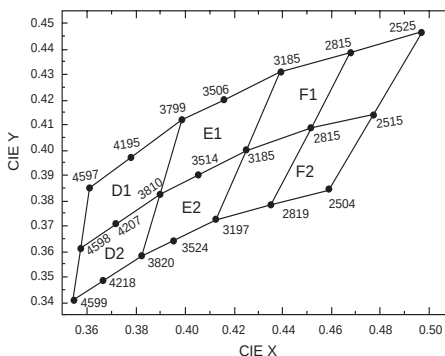


### Warm White / CIE Chromaticity Diagram

( $I_F=20\text{mA}$  /  $T_a=25^\circ\text{C}$ )

| Color Ranks | CIE |       |       |       |       |
|-------------|-----|-------|-------|-------|-------|
| D1          | X   | 0.357 | 0.361 | 0.398 | 0.389 |
|             | Y   | 0.361 | 0.385 | 0.411 | 0.382 |
| D2          | X   | 0.354 | 0.357 | 0.389 | 0.382 |
|             | Y   | 0.340 | 0.361 | 0.382 | 0.358 |
| E1          | X   | 0.389 | 0.398 | 0.439 | 0.425 |
|             | Y   | 0.382 | 0.411 | 0.431 | 0.400 |
| E2          | X   | 0.382 | 0.389 | 0.425 | 0.412 |
|             | Y   | 0.358 | 0.382 | 0.400 | 0.372 |
| F1          | X   | 0.425 | 0.439 | 0.497 | 0.477 |
|             | Y   | 0.400 | 0.431 | 0.466 | 0.413 |
| F2          | X   | 0.412 | 0.425 | 0.477 | 0.458 |
|             | Y   | 0.372 | 0.400 | 0.413 | 0.383 |

Note: Measurement uncertainty of the color coordinates  $\pm 0.01$ .

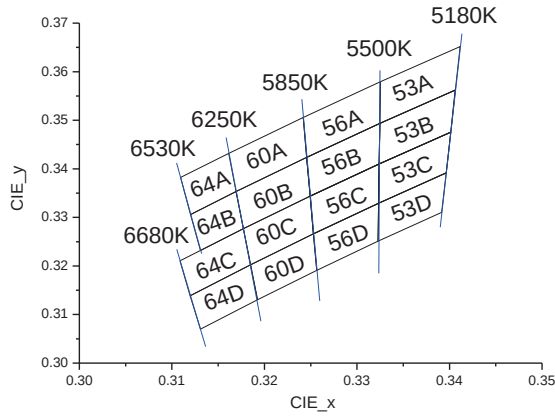


## DIGITAL DISPLAY BRIGHTNESS BIN SELECTION

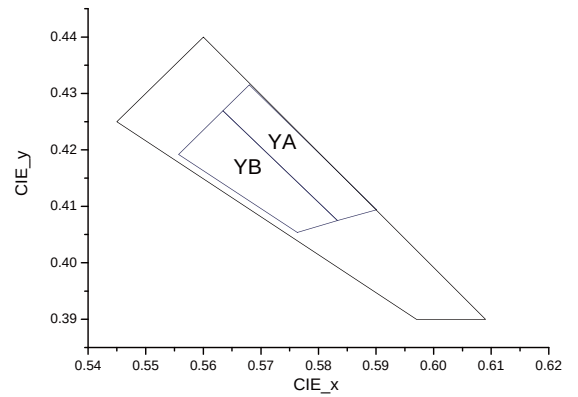
| Bin Code | Brightness Range ( $\mu\text{cd}$ ) |        |
|----------|-------------------------------------|--------|
|          | Min.                                | Max.   |
| C        | 70                                  | 140    |
| D        | 110                                 | 220    |
| E        | 180                                 | 360    |
| F        | 280                                 | 560    |
| G        | 450                                 | 900    |
| H        | 750                                 | 1200   |
| J        | 1050                                | 1680   |
| K        | 1400                                | 2300   |
| L        | 2000                                | 3200   |
| M        | 2800                                | 4500   |
| N        | 4000                                | 6400   |
| P        | 5600                                | 8900   |
| Q        | 7800                                | 12500  |
| R        | 11000                               | 17600  |
| S        | 15000                               | 24000  |
| T        | 21000                               | 34000  |
| U        | 30000                               | 48000  |
| V        | 42000                               | 67000  |
| W        | 59000                               | 94000  |
| X        | 83000                               | 133000 |
| Y        | 116000                              | 186000 |
| Z        | 158800                              | 254000 |

## AUTOMOTIVE BIN SELECTION

### Exterior White / Cool-White Bin Structure



### Amber Bin Structure



### Cool-White Bin Coordinates

| Bin                         | CIE X  | CIE Y  | Bin                         | CIE X  | CIE Y  | Bin                         | CIE X  | CIE Y  |
|-----------------------------|--------|--------|-----------------------------|--------|--------|-----------------------------|--------|--------|
| 64A                         | 0.3109 | 0.3382 | 60C                         | 0.3177 | 0.3277 | 53A                         | 0.3325 | 0.3579 |
|                             | 0.3161 | 0.3432 |                             | 0.3249 | 0.3344 |                             | 0.3412 | 0.3652 |
|                             | 0.3169 | 0.3353 |                             | 0.3253 | 0.3266 |                             | 0.3406 | 0.3562 |
|                             | 0.3120 | 0.3306 |                             | 0.3185 | 0.3203 |                             | 0.3325 | 0.3493 |
| Reference Range: 6240~6530K |        |        | Reference Range: 5850~6240K |        |        | Reference Range: 5180~5500K |        |        |
| 64B                         | 0.3120 | 0.3306 | 60D                         | 0.3185 | 0.3203 | 53B                         | 0.3325 | 0.3493 |
|                             | 0.3169 | 0.3353 |                             | 0.3253 | 0.3266 |                             | 0.3406 | 0.3562 |
|                             | 0.3177 | 0.3277 |                             | 0.3256 | 0.3191 |                             | 0.3401 | 0.3476 |
|                             | 0.3131 | 0.3232 |                             | 0.3192 | 0.3131 |                             | 0.3324 | 0.3410 |
| Reference Range: 6240~6530K |        |        | Reference Range: 5850~6240K |        |        | Reference Range: 5180~5500K |        |        |
| 64C                         | 0.3109 | 0.3211 | 56A                         | 0.3242 | 0.3506 | 53C                         | 0.3324 | 0.3410 |
|                             | 0.3177 | 0.3277 |                             | 0.3325 | 0.3579 |                             | 0.3401 | 0.3476 |
|                             | 0.3185 | 0.3203 |                             | 0.3325 | 0.3493 |                             | 0.3396 | 0.3392 |
|                             | 0.3120 | 0.3139 |                             | 0.3246 | 0.3424 |                             | 0.3323 | 0.3329 |
| Reference Range: 6240~6680K |        |        | Reference Range: 5500~5850K |        |        | Reference Range: 5180~5500K |        |        |
| 64D                         | 0.3120 | 0.3139 | 56B                         | 0.3246 | 0.3424 | 53D                         | 0.3323 | 0.3329 |
|                             | 0.3185 | 0.3203 |                             | 0.3325 | 0.3493 |                             | 0.3396 | 0.3392 |
|                             | 0.3192 | 0.3131 |                             | 0.3324 | 0.3410 |                             | 0.3392 | 0.3310 |
|                             | 0.3131 | 0.3070 |                             | 0.3249 | 0.3344 |                             | 0.3323 | 0.3251 |
| Reference Range: 6240~6680K |        |        | Reference Range: 5500~5850K |        |        | Reference Range: 5180~5500K |        |        |
| 60A                         | 0.3161 | 0.3432 | 56C                         | 0.3249 | 0.3344 |                             |        |        |
|                             | 0.3242 | 0.3506 |                             | 0.3324 | 0.3410 |                             |        |        |
|                             | 0.3246 | 0.3424 |                             | 0.3323 | 0.3329 |                             |        |        |
|                             | 0.3169 | 0.3353 |                             | 0.3253 | 0.3266 |                             |        |        |
| Reference Range: 5850~6240K |        |        | Reference Range: 5500~5850K |        |        | Reference Range: 5180~5500K |        |        |
| 60B                         | 0.3169 | 0.3353 | 56D                         | 0.3253 | 0.3266 |                             |        |        |
|                             | 0.3246 | 0.3424 |                             | 0.3323 | 0.3329 |                             |        |        |
|                             | 0.3249 | 0.3344 |                             | 0.3323 | 0.3251 |                             |        |        |
|                             | 0.3177 | 0.3277 |                             | 0.3256 | 0.3191 |                             |        |        |
| Reference Range: 5850~6240K |        |        | Reference Range: 5500~5850K |        |        | Reference Range: 5180~5500K |        |        |

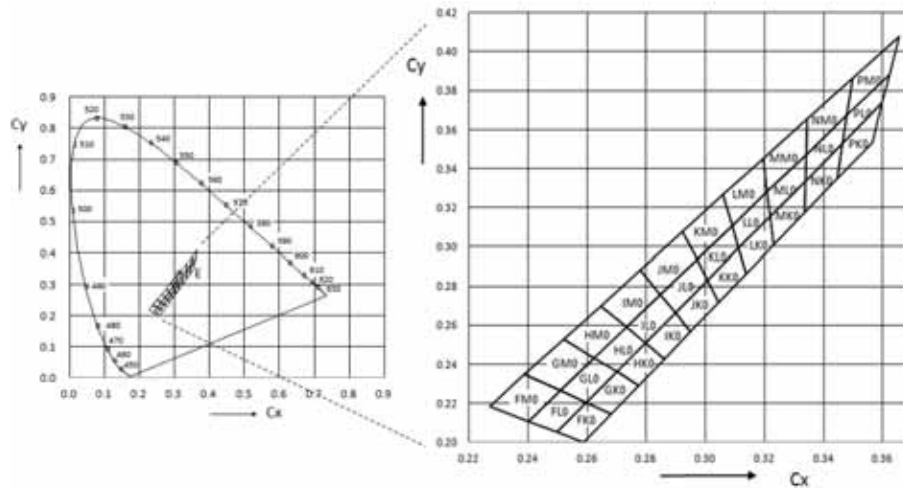
### Amber Bin Coordinates

| Bin | CIE X  | CIE Y  |
|-----|--------|--------|
| YA  | 0.5680 | 0.4315 |
|     | 0.5634 | 0.4269 |
|     | 0.5833 | 0.4075 |
|     | 0.5901 | 0.4094 |
| YB  | 0.5763 | 0.4054 |
|     | 0.5833 | 0.4075 |
|     | 0.5634 | 0.4269 |
|     | 0.5557 | 0.4192 |

## TECHNICAL DATA

## AUTOMOTIVE BIN SELECTION

Interior / White



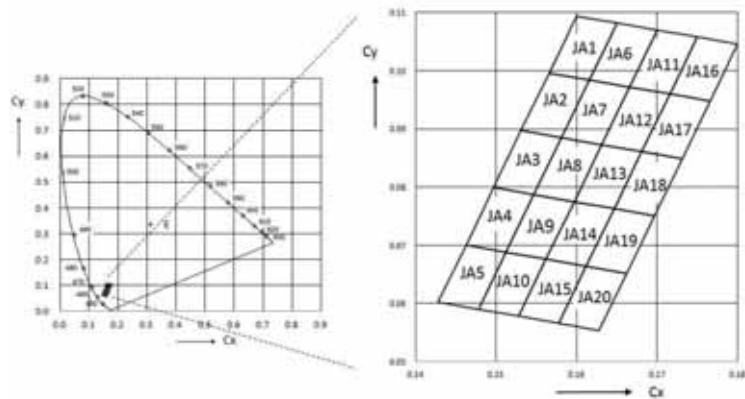
## Bin Range of Chromaticity Coordinates Specifications

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| FK0      | 0.2589 | 0.2000 | NK0      | 0.3339 | 0.3336 | LL0      | 0.3113 | 0.2992 | JM0      | 0.2848 | 0.2757 |
|          | 0.2498 | 0.2053 |          | 0.3335 | 0.3172 |          | 0.3090 | 0.3108 |          | 0.2780 | 0.2883 |
|          | 0.2597 | 0.2204 |          | 0.3447 | 0.3347 |          | 0.3209 | 0.3281 |          | 0.2922 | 0.3077 |
|          | 0.2682 | 0.2146 |          | 0.3465 | 0.3530 |          | 0.3219 | 0.3154 |          | 0.2971 | 0.2935 |
| GK0      | 0.2682 | 0.2146 | PK0      | 0.3465 | 0.3530 | ML0      | 0.3341 | 0.3472 | KM0      | 0.2971 | 0.2935 |
|          | 0.2597 | 0.2204 |          | 0.3447 | 0.3347 |          | 0.3209 | 0.3281 |          | 0.2922 | 0.3077 |
|          | 0.2700 | 0.2361 |          | 0.3567 | 0.3535 |          | 0.3219 | 0.3154 |          | 0.3060 | 0.3266 |
|          | 0.2775 | 0.2292 |          | 0.3599 | 0.3735 |          | 0.3339 | 0.3336 |          | 0.3090 | 0.3108 |
| HK0      | 0.2775 | 0.2292 | FL0      | 0.2498 | 0.2053 | NL0      | 0.3341 | 0.3472 | LM0      | 0.3090 | 0.3108 |
|          | 0.2700 | 0.2361 |          | 0.2402 | 0.2108 |          | 0.3339 | 0.3336 |          | 0.3060 | 0.3266 |
|          | 0.2797 | 0.2509 |          | 0.2509 | 0.2264 |          | 0.3465 | 0.3530 |          | 0.3196 | 0.3451 |
|          | 0.2861 | 0.2427 |          | 0.2597 | 0.2204 |          | 0.3479 | 0.3673 |          | 0.3209 | 0.3281 |
| IK0      | 0.2861 | 0.2427 | GL0      | 0.2597 | 0.2204 | PL0      | 0.3479 | 0.3673 | MM0      | 0.3345 | 0.3654 |
|          | 0.2797 | 0.2509 |          | 0.2509 | 0.2264 |          | 0.3465 | 0.3530 |          | 0.3196 | 0.3451 |
|          | 0.2898 | 0.2664 |          | 0.2624 | 0.2431 |          | 0.3599 | 0.3735 |          | 0.3209 | 0.3281 |
|          | 0.2950 | 0.2568 |          | 0.2700 | 0.2361 |          | 0.3623 | 0.3882 |          | 0.3341 | 0.3472 |
| JK0      | 0.2950 | 0.2568 | HL0      | 0.2700 | 0.2361 | FM0      | 0.2388 | 0.2348 | NM0      | 0.3345 | 0.3654 |
|          | 0.2898 | 0.2664 |          | 0.2624 | 0.2431 |          | 0.2269 | 0.2185 |          | 0.3341 | 0.3472 |
|          | 0.3007 | 0.2830 |          | 0.2733 | 0.2590 |          | 0.2402 | 0.2108 |          | 0.3479 | 0.3673 |
|          | 0.3045 | 0.2717 |          | 0.2797 | 0.2509 |          | 0.2509 | 0.2264 |          | 0.3498 | 0.3863 |
| KK0      | 0.3045 | 0.2717 | ILO      | 0.2797 | 0.2509 | GM0      | 0.2509 | 0.2264 | PM0      | 0.3498 | 0.3863 |
|          | 0.3007 | 0.2830 |          | 0.2733 | 0.2590 |          | 0.2388 | 0.2348 |          | 0.3479 | 0.3673 |
|          | 0.3113 | 0.2992 |          | 0.2848 | 0.2757 |          | 0.2520 | 0.2527 |          | 0.3623 | 0.3882 |
|          | 0.3138 | 0.2862 |          | 0.2898 | 0.2664 |          | 0.2624 | 0.2431 |          | 0.3655 | 0.4079 |
| LK0      | 0.3138 | 0.2862 | JL0      | 0.2898 | 0.2664 | HM0      | 0.2624 | 0.2431 |          |        |        |
|          | 0.3113 | 0.2992 |          | 0.2848 | 0.2757 |          | 0.2530 | 0.2527 |          |        |        |
|          | 0.3219 | 0.3154 |          | 0.2971 | 0.2935 |          | 0.2646 | 0.2700 |          |        |        |
|          | 0.3231 | 0.3008 |          | 0.3007 | 0.2830 |          | 0.2733 | 0.2590 |          |        |        |
| MK0      | 0.3339 | 0.3336 | KL0      | 0.3007 | 0.2830 | IM0      | 0.2733 | 0.2590 |          |        |        |
|          | 0.3219 | 0.3154 |          | 0.2971 | 0.2935 |          | 0.2646 | 0.2700 |          |        |        |
|          | 0.3231 | 0.3008 |          | 0.3090 | 0.3108 |          | 0.2780 | 0.2883 |          |        |        |
|          | 0.3335 | 0.3172 |          | 0.3113 | 0.2992 |          | 0.2848 | 0.2757 |          |        |        |

Notes: Tolerance of Chromaticity Coordinates:  $\pm 0.01$

AUTOMOTIVE  
BIN SELECTION

Interior / Sky Blue

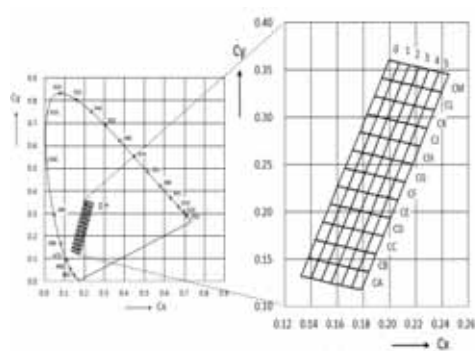


Bin Range of Chromaticity Coordinates Specifications

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|----------|--------|--------|
| JA1      | 0.1600 | 0.1094 | JA9      | 0.1547 | 0.0787 | JA17     | 0.1716 | 0.0960 |
|          | 0.1650 | 0.1082 |          | 0.1597 | 0.0775 |          | 0.1766 | 0.0948 |
|          | 0.1616 | 0.0984 |          | 0.1562 | 0.0676 |          | 0.1731 | 0.0849 |
|          | 0.1566 | 0.0996 |          | 0.1512 | 0.0688 |          | 0.1681 | 0.0861 |
| JA2      | 0.1566 | 0.0996 | JA10     | 0.1512 | 0.0688 | JA18     | 0.1681 | 0.0861 |
|          | 0.1616 | 0.0984 |          | 0.1562 | 0.0676 |          | 0.1731 | 0.0849 |
|          | 0.1581 | 0.0885 |          | 0.1528 | 0.0578 |          | 0.1697 | 0.0751 |
|          | 0.1531 | 0.0897 |          | 0.1478 | 0.0590 |          | 0.1647 | 0.0763 |
| JA3      | 0.1531 | 0.0897 | JA11     | 0.1700 | 0.1070 | JA19     | 0.1647 | 0.0763 |
|          | 0.1581 | 0.0885 |          | 0.1750 | 0.1058 |          | 0.1697 | 0.0751 |
|          | 0.1547 | 0.0787 |          | 0.1716 | 0.0960 |          | 0.1662 | 0.0652 |
|          | 0.1497 | 0.0799 |          | 0.1666 | 0.0972 |          | 0.1612 | 0.0664 |
| JA4      | 0.1497 | 0.0799 | JA12     | 0.1666 | 0.0972 | JA20     | 0.1612 | 0.0664 |
|          | 0.1547 | 0.0787 |          | 0.1716 | 0.0960 |          | 0.1662 | 0.0652 |
|          | 0.1512 | 0.0688 |          | 0.1681 | 0.0861 |          | 0.1628 | 0.0554 |
|          | 0.1463 | 0.0700 |          | 0.1631 | 0.0873 |          | 0.1578 | 0.0566 |
| JA5      | 0.1463 | 0.0700 | JA13     | 0.1631 | 0.0873 |          |        |        |
|          | 0.1512 | 0.0688 |          | 0.1681 | 0.0861 |          |        |        |
|          | 0.1478 | 0.0590 |          | 0.1647 | 0.0763 |          |        |        |
|          | 0.1428 | 0.0602 |          | 0.1597 | 0.0775 |          |        |        |
| JA6      | 0.1650 | 0.1082 | JA14     | 0.1597 | 0.0775 |          |        |        |
|          | 0.1700 | 0.1070 |          | 0.1647 | 0.0763 |          |        |        |
|          | 0.1666 | 0.0972 |          | 0.1612 | 0.0664 |          |        |        |
|          | 0.1616 | 0.0984 |          | 0.1562 | 0.0676 |          |        |        |
| JA7      | 0.1616 | 0.0984 | JA15     | 0.1562 | 0.0676 |          |        |        |
|          | 0.1666 | 0.0972 |          | 0.1612 | 0.0664 |          |        |        |
|          | 0.1631 | 0.0873 |          | 0.1578 | 0.0566 |          |        |        |
|          | 0.1581 | 0.0885 |          | 0.1528 | 0.0578 |          |        |        |
| JA8      | 0.1581 | 0.0885 | JA16     | 0.1750 | 0.1058 |          |        |        |
|          | 0.1631 | 0.0873 |          | 0.1800 | 0.1046 |          |        |        |
|          | 0.1597 | 0.0775 |          | 0.1766 | 0.0948 |          |        |        |
|          | 0.1547 | 0.0787 |          | 0.1716 | 0.0960 |          |        |        |

AUTOMOTIVE  
BIN SELECTION

Interior / Ice Blue



Bin Range of Chromaticity Coordinates Specifications

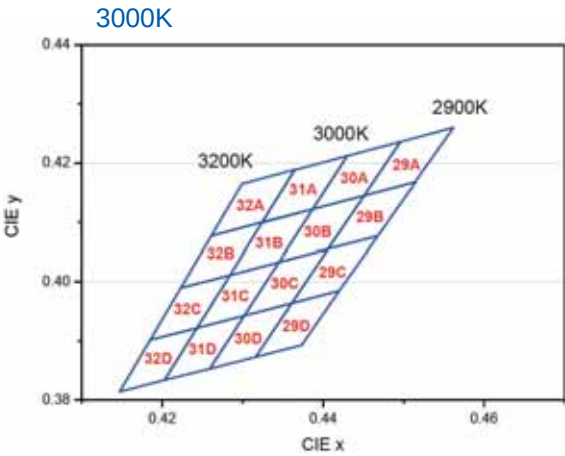
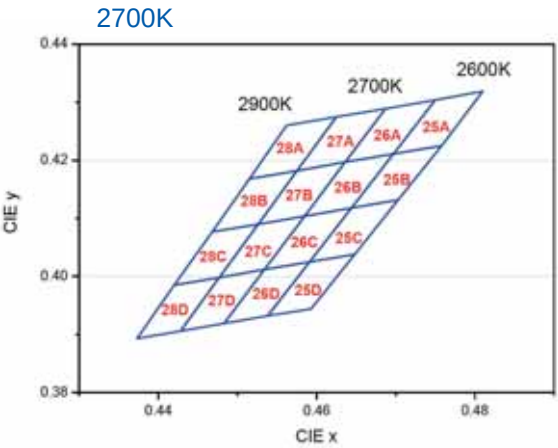
| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CM0      | 0.1940 | 0.3415 | CL1      | 0.1960 | 0.3200 |
|          | 0.1996 | 0.3605 |          | 0.2016 | 0.3390 |
|          | 0.2072 | 0.3580 |          | 0.2092 | 0.3366 |
|          | 0.2016 | 0.3390 |          | 0.2036 | 0.3176 |
| CM1      | 0.2016 | 0.3390 | CL2      | 0.2036 | 0.3176 |
|          | 0.2072 | 0.3580 |          | 0.2092 | 0.3366 |
|          | 0.2148 | 0.3556 |          | 0.2168 | 0.3341 |
|          | 0.2092 | 0.3366 |          | 0.2112 | 0.3151 |
| CM2      | 0.2092 | 0.3366 | CL3      | 0.2112 | 0.3151 |
|          | 0.2148 | 0.3556 |          | 0.2168 | 0.3341 |
|          | 0.2224 | 0.3531 |          | 0.2244 | 0.3316 |
|          | 0.2168 | 0.3341 |          | 0.2188 | 0.3126 |
| CM3      | 0.2168 | 0.3341 | CL4      | 0.2188 | 0.3126 |
|          | 0.2224 | 0.3531 |          | 0.2244 | 0.3316 |
|          | 0.2299 | 0.3506 |          | 0.2319 | 0.3291 |
|          | 0.2244 | 0.3316 |          | 0.2264 | 0.3101 |
| CM4      | 0.2244 | 0.3316 | CL5      | 0.2264 | 0.3101 |
|          | 0.2299 | 0.3506 |          | 0.2319 | 0.3291 |
|          | 0.2375 | 0.3481 |          | 0.2395 | 0.3267 |
|          | 0.2319 | 0.3291 |          | 0.2340 | 0.3077 |
| CM5      | 0.2319 | 0.3291 | CK0      | 0.1828 | 0.3035 |
|          | 0.2375 | 0.3481 |          | 0.1884 | 0.3225 |
|          | 0.2451 | 0.3457 |          | 0.1960 | 0.3200 |
|          | 0.2395 | 0.3267 |          | 0.1904 | 0.3010 |
| CL0      | 0.1884 | 0.3225 | CK1      | 0.1904 | 0.3010 |
|          | 0.1940 | 0.3415 |          | 0.1960 | 0.3200 |
|          | 0.2016 | 0.3390 |          | 0.2036 | 0.3176 |
|          | 0.1960 | 0.3200 |          | 0.1980 | 0.2986 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| CK2      | 0.1980 | 0.2986 | CH1      | 0.1792 | 0.2630 |
|          | 0.2036 | 0.3176 |          | 0.1848 | 0.2820 |
|          | 0.2112 | 0.3151 |          | 0.1924 | 0.2796 |
|          | 0.2056 | 0.2961 |          | 0.1869 | 0.2606 |
| CK3      | 0.2056 | 0.2961 | CH2      | 0.1869 | 0.2606 |
|          | 0.2112 | 0.3151 |          | 0.1924 | 0.2796 |
|          | 0.2188 | 0.3126 |          | 0.2000 | 0.2771 |
|          | 0.2132 | 0.2936 |          | 0.1945 | 0.2581 |
| CK4      | 0.2132 | 0.2936 | CH3      | 0.1945 | 0.2581 |
|          | 0.2188 | 0.3126 |          | 0.2000 | 0.2771 |
|          | 0.2264 | 0.3101 |          | 0.2077 | 0.2746 |
|          | 0.2208 | 0.2911 |          | 0.2021 | 0.2556 |
| CK5      | 0.2208 | 0.2911 | CH4      | 0.2021 | 0.2556 |
|          | 0.2264 | 0.3101 |          | 0.2077 | 0.2746 |
|          | 0.2340 | 0.3077 |          | 0.2153 | 0.2721 |
|          | 0.2284 | 0.2887 |          | 0.2097 | 0.2531 |
| CJ0      | 0.1772 | 0.2845 | CH5      | 0.2097 | 0.2531 |
|          | 0.1828 | 0.3035 |          | 0.2153 | 0.2721 |
|          | 0.1904 | 0.3010 |          | 0.2229 | 0.2697 |
|          | 0.1848 | 0.2820 |          | 0.2173 | 0.2507 |
| CJ1      | 0.1848 | 0.2820 | CG0      | 0.1660 | 0.2465 |
|          | 0.1904 | 0.3010 |          | 0.1716 | 0.2655 |
|          | 0.1980 | 0.2986 |          | 0.1792 | 0.2630 |
|          | 0.1924 | 0.2796 |          | 0.1736 | 0.2440 |
| CJ2      | 0.1924 | 0.2796 | CG1      | 0.1736 | 0.2440 |
|          | 0.1980 | 0.2986 |          | 0.1792 | 0.2630 |
|          | 0.2056 | 0.2961 |          | 0.1869 | 0.2606 |
|          | 0.2000 | 0.2771 |          | 0.1813 | 0.2416 |
| CJ3      | 0.2000 | 0.2771 | CG2      | 0.1813 | 0.2416 |
|          | 0.2056 | 0.2961 |          | 0.1869 | 0.2606 |
|          | 0.2132 | 0.2936 |          | 0.1945 | 0.2581 |
|          | 0.2077 | 0.2746 |          | 0.1889 | 0.2391 |
| CJ4      | 0.2077 | 0.2746 | CG3      | 0.1889 | 0.2391 |
|          | 0.2132 | 0.2936 |          | 0.1945 | 0.2581 |
|          | 0.2208 | 0.2911 |          | 0.2021 | 0.2556 |
|          | 0.2153 | 0.2721 |          | 0.1965 | 0.2366 |
| CJ5      | 0.2153 | 0.2721 | CG4      | 0.1965 | 0.2366 |
|          | 0.2208 | 0.2911 |          | 0.2021 | 0.2556 |
|          | 0.2284 | 0.2887 |          | 0.2097 | 0.2531 |
|          | 0.2229 | 0.2697 |          | 0.2043 | 0.2341 |
| CH0      | 0.1716 | 0.2655 | CG5      | 0.2043 | 0.2341 |
|          | 0.1772 | 0.2845 |          | 0.2097 | 0.2531 |
|          | 0.1848 | 0.2820 |          | 0.2173 | 0.2507 |
|          | 0.1792 | 0.2630 |          | 0.2118 | 0.2317 |



AUTOMOTIVE  
BIN SELECTION

Interior / 5630/2835

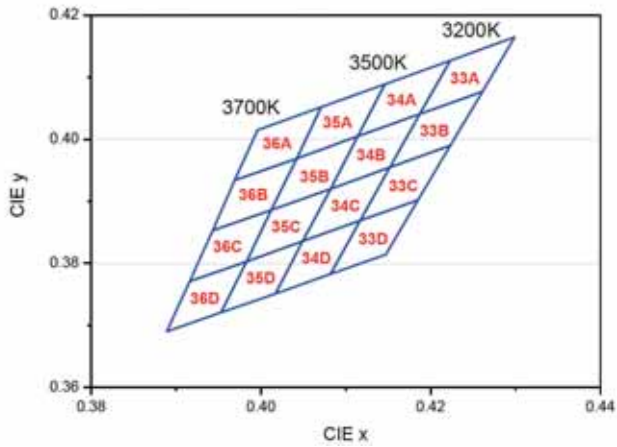


Bin Range of Chromaticity Coordinates Specifications

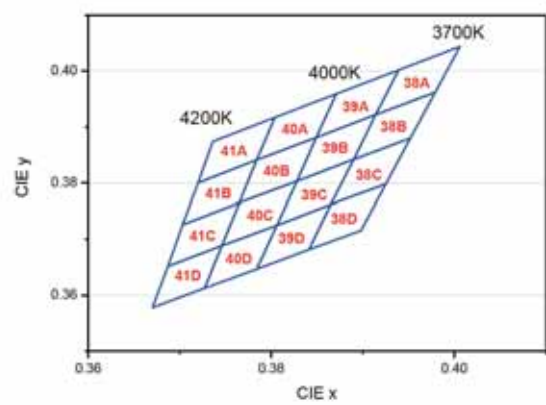
| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 2700K | 25A      | 0.4750 | 0.4304 | 25B      | 0.4697 | 0.4211 |
|       |          | 0.4697 | 0.4211 |          | 0.4644 | 0.4118 |
|       |          | 0.4758 | 0.4225 |          | 0.4703 | 0.4132 |
|       |          | 0.4810 | 0.4319 |          | 0.4758 | 0.4225 |
|       | 25C      | 0.4644 | 0.4118 | 25D      | 0.4591 | 0.4025 |
|       |          | 0.4591 | 0.4025 |          | 0.4538 | 0.3932 |
|       |          | 0.4648 | 0.4038 |          | 0.4593 | 0.3944 |
|       |          | 0.4703 | 0.4132 |          | 0.4648 | 0.4038 |
|       | 26A      | 0.4687 | 0.4289 | 26B      | 0.4636 | 0.4197 |
|       |          | 0.4636 | 0.4197 |          | 0.4585 | 0.4104 |
|       |          | 0.4697 | 0.4211 |          | 0.4644 | 0.4118 |
|       |          | 0.4750 | 0.4304 |          | 0.4697 | 0.4211 |
|       | 26C      | 0.4585 | 0.4104 | 26D      | 0.4534 | 0.4012 |
|       |          | 0.4534 | 0.4012 |          | 0.4483 | 0.3919 |
|       |          | 0.4591 | 0.4025 |          | 0.4538 | 0.3932 |
|       |          | 0.4644 | 0.4118 |          | 0.4591 | 0.4025 |
|       | 27A      | 0.4625 | 0.4275 | 27B      | 0.4575 | 0.4182 |
|       |          | 0.4575 | 0.4182 |          | 0.4526 | 0.4090 |
|       |          | 0.4636 | 0.4197 |          | 0.4585 | 0.4104 |
|       |          | 0.4687 | 0.4289 |          | 0.4636 | 0.4197 |
|       | 27C      | 0.4526 | 0.4090 | 27D      | 0.4477 | 0.3998 |
|       |          | 0.4477 | 0.3998 |          | 0.4428 | 0.3906 |
|       |          | 0.4534 | 0.4012 |          | 0.4483 | 0.3919 |
|       |          | 0.4585 | 0.4104 |          | 0.4534 | 0.4012 |
|       | 28A      | 0.4562 | 0.4260 | 28B      | 0.4515 | 0.4168 |
|       |          | 0.4515 | 0.4168 |          | 0.4468 | 0.4077 |
|       |          | 0.4575 | 0.4182 |          | 0.4526 | 0.4090 |
|       |          | 0.4625 | 0.4275 |          | 0.4575 | 0.4182 |
|       | 28C      | 0.4468 | 0.4077 | 28D      | 0.4420 | 0.3985 |
|       |          | 0.4420 | 0.3985 |          | 0.4373 | 0.3893 |
|       |          | 0.4477 | 0.3998 |          | 0.4428 | 0.3906 |
|       |          | 0.4526 | 0.4090 |          | 0.4477 | 0.3998 |
| 3000K | 29A      | 0.4496 | 0.4236 | 29B      | 0.4451 | 0.4145 |
|       |          | 0.4451 | 0.4145 |          | 0.4406 | 0.4055 |
|       |          | 0.4514 | 0.4168 |          | 0.4468 | 0.4077 |
|       |          | 0.4562 | 0.4260 |          | 0.4515 | 0.4168 |
|       | 29C      | 0.4406 | 0.4055 | 29D      | 0.4361 | 0.3964 |
|       |          | 0.4361 | 0.3964 |          | 0.4316 | 0.3873 |
|       |          | 0.4420 | 0.3985 |          | 0.4373 | 0.3893 |
|       |          | 0.4468 | 0.4077 |          | 0.4420 | 0.3985 |
|       | 30A      | 0.4430 | 0.4212 | 30B      | 0.4387 | 0.4122 |
|       |          | 0.4387 | 0.4122 |          | 0.4345 | 0.4033 |
|       |          | 0.4451 | 0.4145 |          | 0.4406 | 0.4055 |
|       |          | 0.4496 | 0.4236 |          | 0.4451 | 0.4145 |
|       | 30C      | 0.4345 | 0.4033 | 30D      | 0.4302 | 0.3943 |
|       |          | 0.4302 | 0.3943 |          | 0.4259 | 0.3853 |
|       |          | 0.4361 | 0.3964 |          | 0.4316 | 0.3873 |
|       |          | 0.4406 | 0.4055 |          | 0.4361 | 0.3964 |
|       | 31A      | 0.4364 | 0.4188 | 31B      | 0.4324 | 0.4100 |
|       |          | 0.4324 | 0.4099 |          | 0.4284 | 0.4011 |
|       |          | 0.4387 | 0.4122 |          | 0.4345 | 0.4033 |
|       |          | 0.4430 | 0.4212 |          | 0.4387 | 0.4122 |
|       | 31C      | 0.4284 | 0.4011 | 31D      | 0.4302 | 0.3943 |
|       |          | 0.4243 | 0.3922 |          | 0.4259 | 0.3853 |
|       |          | 0.4302 | 0.3943 |          | 0.4203 | 0.3834 |
|       |          | 0.4345 | 0.4033 |          | 0.4243 | 0.3922 |
|       | 32A      | 0.4299 | 0.4165 | 32B      | 0.4261 | 0.4077 |
|       |          | 0.4261 | 0.4077 |          | 0.4223 | 0.3990 |
|       |          | 0.4324 | 0.4100 |          | 0.4284 | 0.4011 |
|       |          | 0.4365 | 0.4189 |          | 0.4324 | 0.4100 |
|       | 32C      | 0.4223 | 0.3990 | 32D      | 0.4243 | 0.3922 |
|       |          | 0.4185 | 0.3902 |          | 0.4203 | 0.3834 |
|       |          | 0.4243 | 0.3922 |          | 0.4147 | 0.3814 |
|       |          | 0.4284 | 0.4011 |          | 0.4185 | 0.3902 |



3500K



4000K



Bin Range of Chromaticity Coordinates Specifications

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 3500K | 33A      | 0.4223 | 0.4127 | 33B      | 0.4187 | 0.4041 |
|       |          | 0.4187 | 0.4041 |          | 0.4152 | 0.3955 |
|       |          | 0.4261 | 0.4077 |          | 0.4223 | 0.3990 |
|       |          | 0.4299 | 0.4165 |          | 0.4261 | 0.4077 |
|       | 33C      | 0.4152 | 0.3955 | 33D      | 0.4117 | 0.3869 |
|       |          | 0.4117 | 0.3869 |          | 0.4082 | 0.3783 |
|       |          | 0.4185 | 0.3902 |          | 0.4147 | 0.3814 |
|       |          | 0.4223 | 0.3990 |          | 0.4185 | 0.3902 |
|       | 34A      | 0.4146 | 0.4089 | 34B      | 0.4114 | 0.4005 |
|       |          | 0.4114 | 0.4005 |          | 0.4082 | 0.3920 |
|       |          | 0.4187 | 0.4041 |          | 0.4152 | 0.3955 |
|       |          | 0.4223 | 0.4127 |          | 0.4187 | 0.4041 |
|       | 34C      | 0.4082 | 0.3920 | 34D      | 0.4049 | 0.3836 |
|       |          | 0.4049 | 0.3836 |          | 0.4017 | 0.3751 |
|       |          | 0.4117 | 0.3869 |          | 0.4082 | 0.3783 |
|       |          | 0.4152 | 0.3955 |          | 0.4117 | 0.3869 |
|       | 35A      | 0.4071 | 0.4052 | 35B      | 0.4042 | 0.3969 |
|       |          | 0.4042 | 0.3969 |          | 0.4012 | 0.3886 |
|       |          | 0.4114 | 0.4005 |          | 0.4082 | 0.3920 |
|       |          | 0.4146 | 0.4089 |          | 0.4114 | 0.4005 |
|       | 35C      | 0.4012 | 0.3886 | 35D      | 0.3983 | 0.3803 |
|       |          | 0.3983 | 0.3803 |          | 0.3953 | 0.3721 |
|       |          | 0.4049 | 0.3836 |          | 0.4017 | 0.3751 |
|       |          | 0.4082 | 0.3920 |          | 0.4049 | 0.3836 |
|       | 36A      | 0.3996 | 0.4015 | 36B      | 0.3969 | 0.3934 |
|       |          | 0.3969 | 0.3934 |          | 0.3943 | 0.3853 |
|       |          | 0.4042 | 0.3969 |          | 0.4012 | 0.3886 |
|       |          | 0.4071 | 0.4052 |          | 0.4042 | 0.3969 |
|       | 36C      | 0.3943 | 0.3853 | 36D      | 0.3916 | 0.3771 |
|       |          | 0.3916 | 0.3771 |          | 0.3889 | 0.3690 |
|       |          | 0.3983 | 0.3803 |          | 0.3953 | 0.3721 |
|       |          | 0.4012 | 0.3886 |          | 0.3983 | 0.3803 |

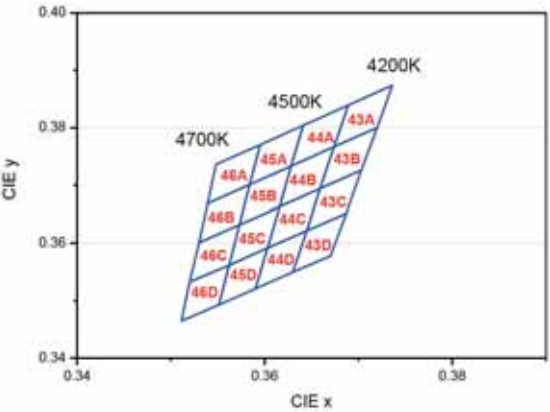
Bin Range of Chromaticity Coordinates Specifications

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 4000K | 38A      | 0.3939 | 0.4002 | 38B      | 0.3914 | 0.3922 |
|       |          | 0.3914 | 0.3922 |          | 0.3890 | 0.3842 |
|       |          | 0.3979 | 0.3962 |          | 0.3952 | 0.3880 |
|       |          | 0.4006 | 0.4044 |          | 0.3979 | 0.3962 |
|       | 38C      | 0.3890 | 0.3842 | 38D      | 0.3865 | 0.3762 |
|       |          | 0.3865 | 0.3762 |          | 0.3841 | 0.3682 |
|       |          | 0.3925 | 0.3798 |          | 0.3898 | 0.3716 |
|       |          | 0.3952 | 0.3880 |          | 0.3925 | 0.3798 |
|       | 39A      | 0.3871 | 0.3959 | 39B      | 0.3849 | 0.3881 |
|       |          | 0.3849 | 0.3881 |          | 0.3828 | 0.3803 |
|       |          | 0.3914 | 0.3922 |          | 0.3890 | 0.3842 |
|       |          | 0.3939 | 0.4002 |          | 0.3914 | 0.3922 |
|       | 39C      | 0.3828 | 0.3803 | 39D      | 0.3806 | 0.3725 |
|       |          | 0.3806 | 0.3725 |          | 0.3784 | 0.3647 |
|       |          | 0.3865 | 0.3762 |          | 0.3841 | 0.3682 |
|       |          | 0.3890 | 0.3842 |          | 0.3865 | 0.3762 |
|       | 40A      | 0.3804 | 0.3917 | 40B      | 0.3784 | 0.3841 |
|       |          | 0.3784 | 0.3841 |          | 0.3765 | 0.3765 |
|       |          | 0.3849 | 0.3881 |          | 0.3828 | 0.3803 |
|       |          | 0.3871 | 0.3959 |          | 0.3849 | 0.3881 |
|       | 40C      | 0.3765 | 0.3765 | 40D      | 0.3746 | 0.3689 |
|       |          | 0.3746 | 0.3689 |          | 0.3727 | 0.3613 |
|       |          | 0.3806 | 0.3725 |          | 0.3784 | 0.3647 |
|       |          | 0.3828 | 0.3803 |          | 0.3806 | 0.3725 |
|       | 41A      | 0.3736 | 0.3874 | 41B      | 0.3720 | 0.3800 |
|       |          | 0.3720 | 0.3800 |          | 0.3703 | 0.3726 |
|       |          | 0.3784 | 0.3841 |          | 0.3765 | 0.3765 |
|       |          | 0.3804 | 0.3917 |          | 0.3784 | 0.3841 |
|       | 41C      | 0.3703 | 0.3726 | 41D      | 0.3687 | 0.3652 |
|       |          | 0.3687 | 0.3652 |          | 0.3670 | 0.3578 |
|       |          | 0.3746 | 0.3689 |          | 0.3727 | 0.3613 |
|       |          | 0.3765 | 0.3765 |          | 0.3746 | 0.3689 |

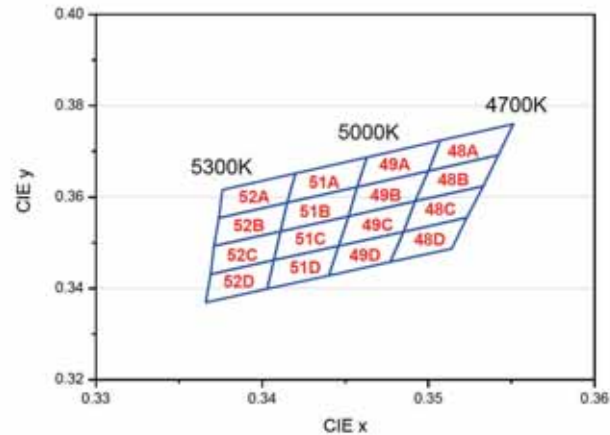
AUTOMOTIVE  
BIN SELECTION

Interior / 5630/2835

4500K

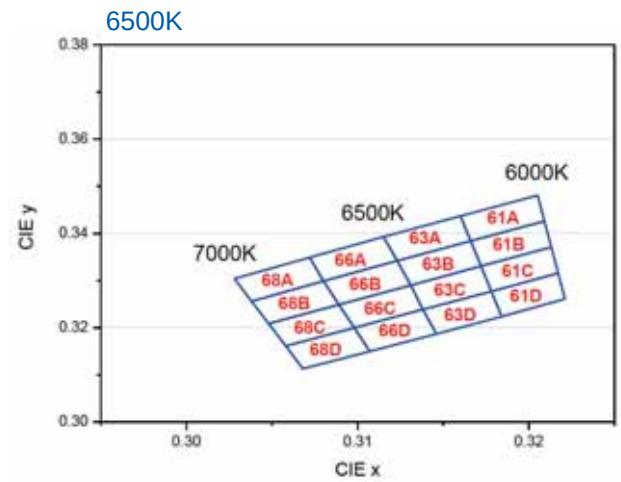
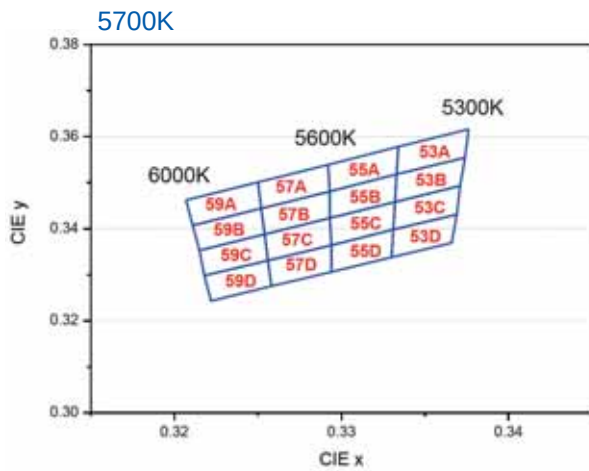


5000K



| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 4500K | 43A      | 0.3689 | 0.3839 | 43B      | 0.3674 | 0.3767 |
|       |          | 0.3674 | 0.3767 |          | 0.3659 | 0.3694 |
|       |          | 0.3720 | 0.3800 |          | 0.3703 | 0.3726 |
|       |          | 0.3736 | 0.3874 |          | 0.3720 | 0.3800 |
|       | 43C      | 0.3659 | 0.3694 | 43D      | 0.3645 | 0.3622 |
|       |          | 0.3645 | 0.3622 |          | 0.3630 | 0.3550 |
|       |          | 0.3687 | 0.3652 |          | 0.3670 | 0.3578 |
|       |          | 0.3703 | 0.3726 |          | 0.3687 | 0.3652 |
|       | 44A      | 0.3641 | 0.3804 | 44B      | 0.3628 | 0.3733 |
|       |          | 0.3628 | 0.3733 |          | 0.3616 | 0.3663 |
|       |          | 0.3674 | 0.3767 |          | 0.3659 | 0.3694 |
|       |          | 0.3689 | 0.3839 |          | 0.3674 | 0.3767 |
|       | 44C      | 0.3616 | 0.3663 | 44D      | 0.3603 | 0.3592 |
|       |          | 0.3603 | 0.3592 |          | 0.3590 | 0.3521 |
|       |          | 0.3645 | 0.3622 |          | 0.3630 | 0.3550 |
|       |          | 0.3659 | 0.3694 |          | 0.3645 | 0.3622 |
|       | 45A      | 0.3595 | 0.3770 | 45B      | 0.3584 | 0.3701 |
|       |          | 0.3584 | 0.3701 |          | 0.3573 | 0.3632 |
|       |          | 0.3628 | 0.3733 |          | 0.3616 | 0.3663 |
|       |          | 0.3641 | 0.3804 |          | 0.3628 | 0.3733 |
|       | 45C      | 0.3573 | 0.3632 | 45D      | 0.3562 | 0.3562 |
|       |          | 0.3562 | 0.3562 |          | 0.3551 | 0.3493 |
|       |          | 0.3603 | 0.3592 |          | 0.3590 | 0.3521 |
|       |          | 0.3616 | 0.3663 |          | 0.3603 | 0.3592 |
|       | 46A      | 0.3548 | 0.3736 | 46B      | 0.3539 | 0.3668 |
|       |          | 0.3539 | 0.3668 |          | 0.3530 | 0.3601 |
|       |          | 0.3584 | 0.3701 |          | 0.3573 | 0.3632 |
|       |          | 0.3595 | 0.3770 |          | 0.3584 | 0.3701 |
|       | 46C      | 0.3530 | 0.3601 | 46D      | 0.3520 | 0.3533 |
|       |          | 0.3520 | 0.3533 |          | 0.3511 | 0.3465 |
|       |          | 0.3562 | 0.3562 |          | 0.3551 | 0.3493 |
|       |          | 0.3573 | 0.3632 |          | 0.3562 | 0.3562 |

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 5000K | 48A      | 0.3507 | 0.3724 | 48B      | 0.3500 | 0.3657 |
|       |          | 0.3500 | 0.3657 |          | 0.3492 | 0.3591 |
|       |          | 0.3542 | 0.3692 |          | 0.3533 | 0.3624 |
|       |          | 0.3551 | 0.3760 |          | 0.3542 | 0.3692 |
|       | 48C      | 0.3492 | 0.3591 | 48D      | 0.3485 | 0.3524 |
|       |          | 0.3485 | 0.3524 |          | 0.3477 | 0.3458 |
|       |          | 0.3523 | 0.3555 |          | 0.3514 | 0.3487 |
|       |          | 0.3533 | 0.3624 |          | 0.3523 | 0.3555 |
|       | 49A      | 0.3463 | 0.3687 | 49B      | 0.3457 | 0.3622 |
|       |          | 0.3457 | 0.3622 |          | 0.3452 | 0.3558 |
|       |          | 0.3500 | 0.3657 |          | 0.3492 | 0.3591 |
|       |          | 0.3507 | 0.3724 |          | 0.3500 | 0.3657 |
|       | 49C      | 0.3452 | 0.3558 | 49D      | 0.3446 | 0.3493 |
|       |          | 0.3446 | 0.3493 |          | 0.3440 | 0.3428 |
|       |          | 0.3485 | 0.3524 |          | 0.3477 | 0.3458 |
|       |          | 0.3492 | 0.3591 |          | 0.3485 | 0.3524 |
|       | 51A      | 0.3420 | 0.3652 | 51B      | 0.3415 | 0.3588 |
|       |          | 0.3415 | 0.3588 |          | 0.3411 | 0.3525 |
|       |          | 0.3457 | 0.3622 |          | 0.3452 | 0.3558 |
|       |          | 0.3463 | 0.3687 |          | 0.3457 | 0.3622 |
|       | 51C      | 0.3411 | 0.3525 | 51D      | 0.3407 | 0.3462 |
|       |          | 0.3407 | 0.3462 |          | 0.3403 | 0.3399 |
|       |          | 0.3446 | 0.3493 |          | 0.3440 | 0.3428 |
|       |          | 0.3452 | 0.3558 |          | 0.3446 | 0.3493 |
|       | 52A      | 0.3376 | 0.3616 | 52B      | 0.3374 | 0.3554 |
|       |          | 0.3374 | 0.3554 |          | 0.3371 | 0.3493 |
|       |          | 0.3415 | 0.3588 |          | 0.3411 | 0.3525 |
|       |          | 0.3420 | 0.3652 |          | 0.3415 | 0.3588 |
|       | 52C      | 0.3371 | 0.3493 | 52D      | 0.3369 | 0.3431 |
|       |          | 0.3369 | 0.3431 |          | 0.3366 | 0.3369 |
|       |          | 0.3407 | 0.3462 |          | 0.3403 | 0.3399 |
|       |          | 0.3411 | 0.3525 |          | 0.3407 | 0.3462 |



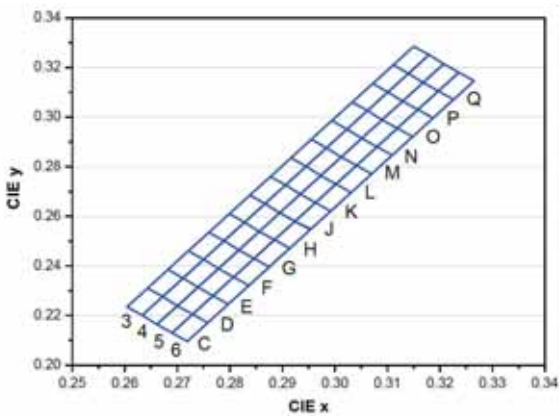
Bin Range of Chromaticity Coordinates Specifications

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 5700K | 53A      | 0.3334 | 0.3578 | 53B      | 0.3333 | 0.3518 |
|       |          | 0.3333 | 0.3518 |          | 0.3332 | 0.3458 |
|       |          | 0.3374 | 0.3554 |          | 0.3371 | 0.3493 |
|       |          | 0.3376 | 0.3616 |          | 0.3374 | 0.3554 |
|       | 53C      | 0.3332 | 0.3458 | 53D      | 0.3331 | 0.3398 |
|       |          | 0.3331 | 0.3398 |          | 0.3330 | 0.3338 |
|       |          | 0.3369 | 0.3431 |          | 0.3366 | 0.3369 |
|       |          | 0.3371 | 0.3493 |          | 0.3369 | 0.3431 |
|       | 55A      | 0.3292 | 0.3539 | 55B      | 0.3293 | 0.3481 |
|       |          | 0.3293 | 0.3481 |          | 0.3293 | 0.3423 |
|       |          | 0.3333 | 0.3518 |          | 0.3332 | 0.3458 |
|       |          | 0.3334 | 0.3578 |          | 0.3333 | 0.3518 |
|       | 55C      | 0.3293 | 0.3423 | 55D      | 0.3294 | 0.3364 |
|       |          | 0.3294 | 0.3364 |          | 0.3294 | 0.3306 |
|       |          | 0.3331 | 0.3398 |          | 0.3330 | 0.3338 |
|       |          | 0.3332 | 0.3458 |          | 0.3331 | 0.3398 |
|       | 57A      | 0.3250 | 0.3501 | 57B      | 0.3252 | 0.3444 |
|       |          | 0.3252 | 0.3444 |          | 0.3254 | 0.3388 |
|       |          | 0.3293 | 0.3481 |          | 0.3293 | 0.3423 |
|       |          | 0.3292 | 0.3539 |          | 0.3293 | 0.3481 |
|       | 57C      | 0.3254 | 0.3388 | 57D      | 0.3256 | 0.3331 |
|       |          | 0.3256 | 0.3331 |          | 0.3258 | 0.3275 |
|       |          | 0.3294 | 0.3364 |          | 0.3294 | 0.3306 |
|       |          | 0.3293 | 0.3423 |          | 0.3294 | 0.3364 |
|       | 59A      | 0.3207 | 0.3462 | 59B      | 0.3211 | 0.3407 |
|       |          | 0.3211 | 0.3407 |          | 0.3215 | 0.3353 |
|       |          | 0.3252 | 0.3444 |          | 0.3254 | 0.3388 |
|       |          | 0.3250 | 0.3501 |          | 0.3252 | 0.3444 |
|       | 59C      | 0.3215 | 0.3353 | 59D      | 0.3218 | 0.3298 |
|       |          | 0.3218 | 0.3298 |          | 0.3222 | 0.3243 |
|       |          | 0.3256 | 0.3331 |          | 0.3258 | 0.3275 |
|       |          | 0.3254 | 0.3388 |          | 0.3256 | 0.3331 |

| CCT   | Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|-------|----------|--------|--------|----------|--------|--------|
| 6500K | 61A      | 0.3160 | 0.3437 | 61B      | 0.3166 | 0.3384 |
|       |          | 0.3166 | 0.3384 |          | 0.3172 | 0.3331 |
|       |          | 0.3209 | 0.3426 |          | 0.3213 | 0.3371 |
|       |          | 0.3205 | 0.3481 |          | 0.3209 | 0.3426 |
|       | 61C      | 0.3172 | 0.3331 | 61D      | 0.3178 | 0.3277 |
|       |          | 0.3178 | 0.3277 |          | 0.3184 | 0.3224 |
|       |          | 0.3217 | 0.3316 |          | 0.3221 | 0.3261 |
|       |          | 0.3213 | 0.3371 |          | 0.3217 | 0.3316 |
|       | 63A      | 0.3115 | 0.3393 | 63B      | 0.3123 | 0.3342 |
|       |          | 0.3123 | 0.3342 |          | 0.3131 | 0.3290 |
|       |          | 0.3166 | 0.3384 |          | 0.3172 | 0.3331 |
|       |          | 0.3160 | 0.3437 |          | 0.3166 | 0.3384 |
|       | 63C      | 0.3131 | 0.3290 | 63D      | 0.3138 | 0.3239 |
|       |          | 0.3138 | 0.3239 |          | 0.3146 | 0.3187 |
|       |          | 0.3178 | 0.3277 |          | 0.3184 | 0.3224 |
|       |          | 0.3172 | 0.3331 |          | 0.3178 | 0.3277 |
|       | 66A      | 0.3072 | 0.3349 | 66B      | 0.3080 | 0.3299 |
|       |          | 0.3080 | 0.3299 |          | 0.3089 | 0.3249 |
|       |          | 0.3123 | 0.3342 |          | 0.3131 | 0.3290 |
|       |          | 0.3115 | 0.3393 |          | 0.3123 | 0.3342 |
|       | 66C      | 0.3089 | 0.3249 | 66D      | 0.3098 | 0.3200 |
|       |          | 0.3098 | 0.3200 |          | 0.3107 | 0.3150 |
|       |          | 0.3138 | 0.3239 |          | 0.3146 | 0.3187 |
|       |          | 0.3131 | 0.3290 |          | 0.3138 | 0.3239 |
|       | 68A      | 0.3028 | 0.3304 | 68B      | 0.3038 | 0.3256 |
|       |          | 0.3038 | 0.3256 |          | 0.3048 | 0.3209 |
|       |          | 0.3080 | 0.3299 |          | 0.3089 | 0.3249 |
|       |          | 0.3072 | 0.3349 |          | 0.3080 | 0.3299 |
|       | 68C      | 0.3048 | 0.3209 | 68D      | 0.3058 | 0.3161 |
|       |          | 0.3058 | 0.3161 |          | 0.3068 | 0.3113 |
|       |          | 0.3098 | 0.3200 |          | 0.3107 | 0.3150 |
|       |          | 0.3089 | 0.3249 |          | 0.3098 | 0.3200 |

AUTOMOTIVE  
BIN SELECTION

Interior / Backlight



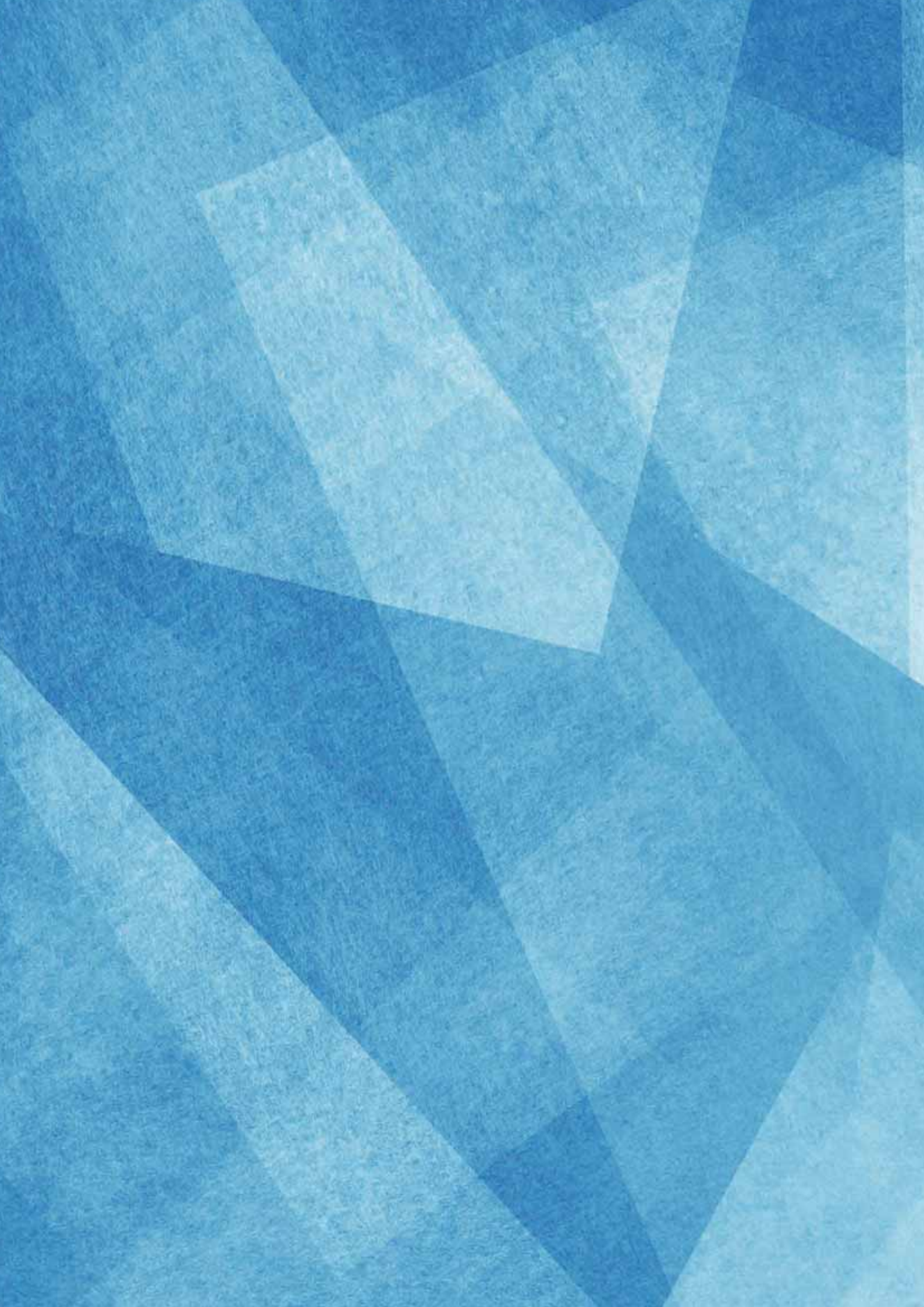
Bin Range of Chromaticity Coordinates Specifications

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| Q3       | 0.3140 | 0.3176 | J3       | 0.2867 | 0.2651 |
|          | 0.3111 | 0.3210 |          | 0.2838 | 0.2685 |
|          | 0.3150 | 0.3285 |          | 0.2877 | 0.2760 |
|          | 0.3179 | 0.3251 |          | 0.2906 | 0.2726 |
| P3       | 0.3101 | 0.3101 | Q4       | 0.3168 | 0.3139 |
|          | 0.3072 | 0.3135 |          | 0.3140 | 0.3176 |
|          | 0.3111 | 0.3210 |          | 0.3179 | 0.3251 |
|          | 0.3140 | 0.3176 |          | 0.3207 | 0.3214 |
| O3       | 0.3062 | 0.3026 | P4       | 0.3129 | 0.3064 |
|          | 0.3033 | 0.3060 |          | 0.3101 | 0.3101 |
|          | 0.3072 | 0.3135 |          | 0.3140 | 0.3176 |
|          | 0.3101 | 0.3101 |          | 0.3168 | 0.3139 |
| N3       | 0.3023 | 0.2951 | O4       | 0.3090 | 0.2989 |
|          | 0.2994 | 0.2985 |          | 0.3062 | 0.3026 |
|          | 0.3033 | 0.3060 |          | 0.3101 | 0.3101 |
|          | 0.3062 | 0.3026 |          | 0.3129 | 0.3064 |
| M3       | 0.2984 | 0.2876 | N4       | 0.3051 | 0.2914 |
|          | 0.2955 | 0.2910 |          | 0.3023 | 0.2951 |
|          | 0.2994 | 0.2985 |          | 0.3062 | 0.3026 |
|          | 0.3023 | 0.2951 |          | 0.3090 | 0.2989 |
| L3       | 0.2945 | 0.2801 | M4       | 0.3012 | 0.2839 |
|          | 0.2916 | 0.2835 |          | 0.2984 | 0.2876 |
|          | 0.2955 | 0.2910 |          | 0.3023 | 0.2951 |
|          | 0.2984 | 0.2876 |          | 0.3051 | 0.2914 |
| K3       | 0.2906 | 0.2726 | L4       | 0.2973 | 0.2764 |
|          | 0.2877 | 0.2760 |          | 0.2945 | 0.2801 |
|          | 0.2916 | 0.2835 |          | 0.2984 | 0.2876 |
|          | 0.2945 | 0.2801 |          | 0.3012 | 0.2839 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| K4       | 0.2934 | 0.2689 | P6       | 0.3187 | 0.2996 |
|          | 0.2906 | 0.2726 |          | 0.3158 | 0.3030 |
|          | 0.2945 | 0.2801 |          | 0.3197 | 0.3105 |
|          | 0.2973 | 0.2764 |          | 0.3226 | 0.3071 |
| J4       | 0.2895 | 0.2614 | O6       | 0.3148 | 0.2921 |
|          | 0.2867 | 0.2651 |          | 0.3119 | 0.2955 |
|          | 0.2906 | 0.2726 |          | 0.3158 | 0.3030 |
|          | 0.2934 | 0.2689 |          | 0.3187 | 0.2996 |
| Q5       | 0.3197 | 0.3105 | N6       | 0.3109 | 0.2846 |
|          | 0.3168 | 0.3139 |          | 0.3080 | 0.2880 |
|          | 0.3207 | 0.3214 |          | 0.3119 | 0.2955 |
|          | 0.3236 | 0.3180 |          | 0.3148 | 0.2921 |
| P5       | 0.3158 | 0.3030 | M6       | 0.3070 | 0.2771 |
|          | 0.3129 | 0.3064 |          | 0.3041 | 0.2805 |
|          | 0.3168 | 0.3139 |          | 0.3080 | 0.2880 |
|          | 0.3197 | 0.3105 |          | 0.3109 | 0.2846 |
| O5       | 0.3119 | 0.2955 | L6       | 0.3031 | 0.2696 |
|          | 0.3090 | 0.2989 |          | 0.3002 | 0.2730 |
|          | 0.3129 | 0.3064 |          | 0.3041 | 0.2805 |
|          | 0.3158 | 0.3030 |          | 0.3070 | 0.2771 |
| N5       | 0.3080 | 0.2880 | K6       | 0.2992 | 0.2621 |
|          | 0.3051 | 0.2914 |          | 0.2963 | 0.2655 |
|          | 0.3090 | 0.2989 |          | 0.3002 | 0.2730 |
|          | 0.3119 | 0.2955 |          | 0.3031 | 0.2696 |
| M5       | 0.3041 | 0.2805 | J6       | 0.2953 | 0.2546 |
|          | 0.3012 | 0.2839 |          | 0.2924 | 0.2580 |
|          | 0.3051 | 0.2914 |          | 0.2963 | 0.2655 |
|          | 0.3080 | 0.2880 |          | 0.2992 | 0.2621 |
| L5       | 0.3002 | 0.2730 | H3       | 0.2828 | 0.2576 |
|          | 0.2973 | 0.2764 |          | 0.2799 | 0.2610 |
|          | 0.3012 | 0.2839 |          | 0.2838 | 0.2685 |
|          | 0.3041 | 0.2805 |          | 0.2867 | 0.2651 |
| K5       | 0.2963 | 0.2655 | G3       | 0.2789 | 0.2501 |
|          | 0.2934 | 0.2689 |          | 0.2760 | 0.2535 |
|          | 0.2973 | 0.2764 |          | 0.2799 | 0.2610 |
|          | 0.3002 | 0.2730 |          | 0.2828 | 0.2576 |
| J5       | 0.2924 | 0.2580 | F3       | 0.2750 | 0.2426 |
|          | 0.2895 | 0.2614 |          | 0.2721 | 0.2460 |
|          | 0.2934 | 0.2689 |          | 0.2760 | 0.2535 |
|          | 0.2963 | 0.2655 |          | 0.2789 | 0.2501 |
| Q6       | 0.3226 | 0.3071 | E3       | 0.2711 | 0.2351 |
|          | 0.3197 | 0.3105 |          | 0.2682 | 0.2385 |
|          | 0.3236 | 0.3180 |          | 0.2721 | 0.2460 |
|          | 0.3265 | 0.3146 |          | 0.2750 | 0.2426 |

| Bin Code | CIE X  | CIE Y  | Bin Code | CIE X  | CIE Y  |
|----------|--------|--------|----------|--------|--------|
| D3       | 0.2672 | 0.2276 | E5       | 0.2768 | 0.2280 |
|          | 0.2643 | 0.2310 |          | 0.2739 | 0.2314 |
|          | 0.2682 | 0.2385 |          | 0.2778 | 0.2389 |
|          | 0.2711 | 0.2351 |          | 0.2807 | 0.2355 |
| C3       | 0.2633 | 0.2201 | D5       | 0.2729 | 0.2205 |
|          | 0.2604 | 0.2235 |          | 0.2700 | 0.2239 |
|          | 0.2643 | 0.2310 |          | 0.2739 | 0.2314 |
|          | 0.2672 | 0.2276 |          | 0.2768 | 0.2280 |
| H4       | 0.2856 | 0.2539 | C5       | 0.2690 | 0.2130 |
|          | 0.2828 | 0.2576 |          | 0.2661 | 0.2164 |
|          | 0.2867 | 0.2651 |          | 0.2700 | 0.2239 |
|          | 0.2895 | 0.2614 |          | 0.2729 | 0.2205 |
| G4       | 0.2817 | 0.2464 | H6       | 0.2914 | 0.2471 |
|          | 0.2789 | 0.2501 |          | 0.2885 | 0.2505 |
|          | 0.2828 | 0.2576 |          | 0.2924 | 0.2580 |
|          | 0.2856 | 0.2539 |          | 0.2953 | 0.2546 |
| F4       | 0.2778 | 0.2389 | G6       | 0.2875 | 0.2396 |
|          | 0.2750 | 0.2426 |          | 0.2846 | 0.2430 |
|          | 0.2789 | 0.2501 |          | 0.2885 | 0.2505 |
|          | 0.2817 | 0.2464 |          | 0.2914 | 0.2471 |
| E4       | 0.2739 | 0.2314 | F6       | 0.2836 | 0.2321 |
|          | 0.2711 | 0.2351 |          | 0.2807 | 0.2355 |
|          | 0.2750 | 0.2426 |          | 0.2846 | 0.2430 |
|          | 0.2778 | 0.2389 |          | 0.2875 | 0.2396 |
| D4       | 0.2700 | 0.2239 | E6       | 0.2797 | 0.2246 |
|          | 0.2672 | 0.2276 |          | 0.2768 | 0.2280 |
|          | 0.2711 | 0.2351 |          | 0.2807 | 0.2355 |
|          | 0.2739 | 0.2314 |          | 0.2836 | 0.2321 |
| C4       | 0.2661 | 0.2164 | D6       | 0.2758 | 0.2171 |
|          | 0.2633 | 0.2201 |          | 0.2729 | 0.2205 |
|          | 0.2672 | 0.2276 |          | 0.2768 | 0.2280 |
|          | 0.2700 | 0.2239 |          | 0.2797 | 0.2246 |
| H5       | 0.2885 | 0.2505 | C6       | 0.2719 | 0.2096 |
|          | 0.2856 | 0.2539 |          | 0.2690 | 0.2130 |
|          | 0.2895 | 0.2614 |          | 0.2729 | 0.2205 |
|          | 0.2924 | 0.2580 |          | 0.2758 | 0.2171 |
| G5       | 0.2846 | 0.2430 |          |        |        |
|          | 0.2817 | 0.2464 |          |        |        |
|          | 0.2856 | 0.2539 |          |        |        |
|          | 0.2885 | 0.2505 |          |        |        |
| F5       | 0.2807 | 0.2355 |          |        |        |
|          | 0.2778 | 0.2389 |          |        |        |
|          | 0.2817 | 0.2464 |          |        |        |
|          | 0.2846 | 0.2430 |          |        |        |







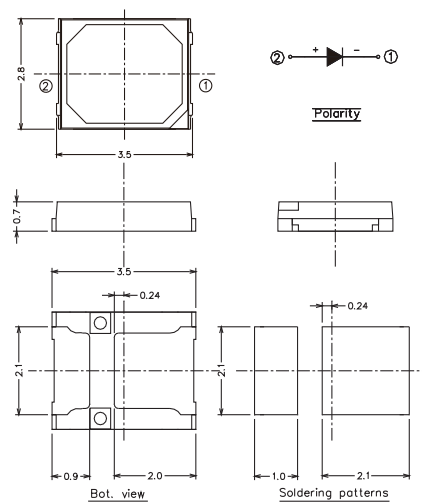
## VISIBLE LED

- 50** COLOR
- 55** HIGH POWER
- 57** DRIVER ON BOARD
- 60** Filament
- 61** Low Middle Power LED
- 79** UV
- 84** Flash LED
- 90** SMD LED
- 121** LED Lamps
- 133** LED Digital Displays
- 147** Signage LED
- 153** Automotive LED
- 166** Backlighting LED

Color ■ 2835



UNIT : mm

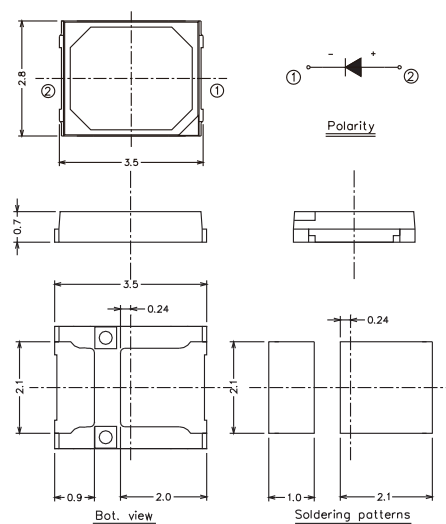


2835 / 0.2W / 60mA

| Product                         | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color      | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|---------------------------------|----------------|---------------------|----------------------|------------|---------------------------|-------------------------------------------|
| 67-21S/B3C-D4555D5D72936Z6/2T   | 2.8x3.5x0.7    | 2.9-3.6             | 60mA                 | Royal Blue | 445-455nm                 | 2.5lm                                     |
| 67-21S/NDR2C-P5080B2C12029Z6/2T | 2.8x3.5x0.7    | 2.0-2.9             | 60mA                 | Deep Red   | 650-680nm                 | 40lm                                      |
| 67-21S/NFR2C-P2050A3B21522Z6/2T | 2.8x3.5x0.7    | 1.5-2.2             | 60mA                 | Far Red    | 720-750nm                 | 15lm                                      |
| 67-21S/G1C-D1530D5D83039Z2/2T   | 2.8x3.5x0.7    | 3.0-3.9             | 60mA                 | Green      | 515-530nm                 | 2.5lm                                     |



UNIT : mm



2835 / 0.5W / 150mA

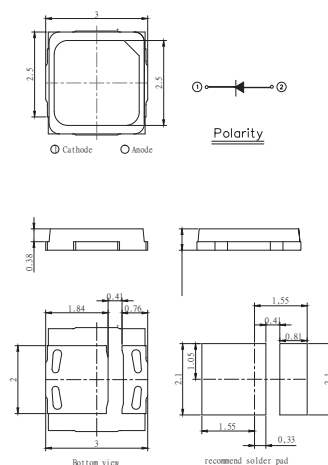
| Product                          | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color      | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|----------------------------------|----------------|---------------------|----------------------|------------|---------------------------|-------------------------------------------|
| 67-21S/NB3C-D4555B4L12835Z15/2T  | 2.8x3.5x0.7    | 2.8-3.5             | 150mA                | Royal Blue | 445-455nm                 | 7.0lm                                     |
| 67-21S/NDR3C-P5080C1C51827Z15/2T | 2.8x3.5x0.7    | 1.8-2.7             | 150mA                | Deep Red   | 650-680nm                 | 80mW                                      |
| 67-21S/NFR3C-P2050B2C41829Z15/2T | 2.8x3.5x0.7    | 1.8-2.9             | 150mA                | Far Red    | 720-750nm                 | 40mW                                      |
| 67-21S/RK3C-P5080C1C52834Z15/2T  | 2.8x3.5x0.7    | 2.8-3.4             | 150mA                | Deep Red   | 640-670nm                 | 80mW                                      |



# Color I XI3030



UNIT : mm



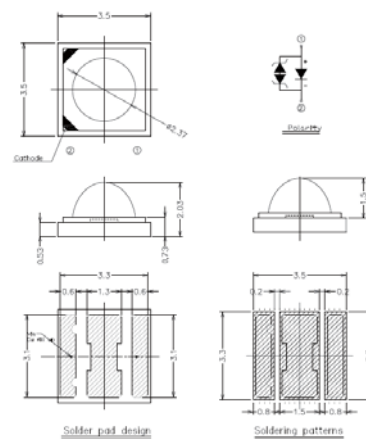
## XI3030 / 0.5W / 150mA

| Product                          | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color      | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|----------------------------------|----------------|---------------------|----------------------|------------|---------------------------|-------------------------------------------|
| XI3030P/B3C-D5060T2T625312Z15/2N | 3.0x3.0x0.63   | 2.5~3.1             | 150                  | Royal Blue | 450-460nm                 | 190mW                                     |
| XI3030P/D3C-P4575S1S621271Z15/2N | 3.0x3.0x0.63   | 2.1~2.7             | 150                  | Deep Red   | 645-675nm                 | 100mW                                     |
| XI3030P/F3C-P1545R5S115251Z15/2N | 3.0x3.0x0.63   | 1.4~2.5             | 150                  | Far Red    | 715-745nm                 | 70mW                                      |

Color ■ Shwo/Monochromatic LED



UNIT : mm



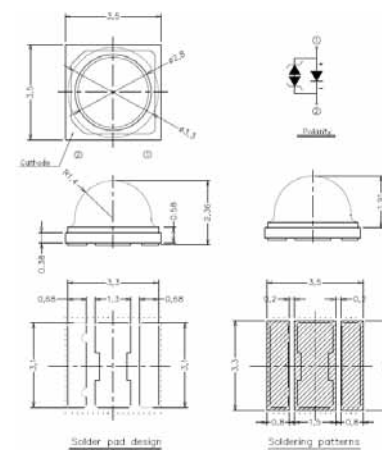
3535 / 1W / 350mA

| Product                | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color        | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|------------------------|----------------|---------------------|----------------------|--------------|---------------------------|-------------------------------------------|
| ELSW-Q91F1-0LPNM-AF3F8 | 3.5x3.5x2.03   | 1.75-2.95           | 350                  | ● Far Red    | 715-745nm                 | 275mW                                     |
| ELSW-R21E1-0EPNM-AD3D8 | 3.5x3.5x2.03   | 1.75-2.95           | 350                  | ● Deep Red   | 645-675nm                 | 380mW                                     |
| ELSW-RA1E1-0LPNM-AD3D8 | 3.5x3.5x2.03   | 1.75-2.95           | 350                  | ● Deep Red   | 645-675nm                 | 420mW                                     |
| ELSW-R51L1-0EPNM-CB4B6 | 3.5x3.5x2.03   | 2.65-3.85           | 350                  | ● Royal Blue | 445-460nm                 | 530mW                                     |

• Above spec is based on 85°C



UNIT : mm



3535 / 1W / 350mA

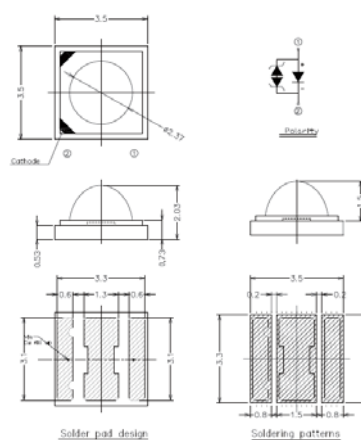
| Product                 | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color        | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|-------------------------|----------------|---------------------|----------------------|--------------|---------------------------|-------------------------------------------|
| ELSWF-R61L1-6FPNM-CB4B6 | 3.5x3.5x2.36   | 2.65-3.85           | 350                  | ● Royal Blue | 445-460nm                 | 600mW                                     |

• Above spec is based on 85°C

# Color ■ Shwo/Monochromatic LED



UNIT : mm

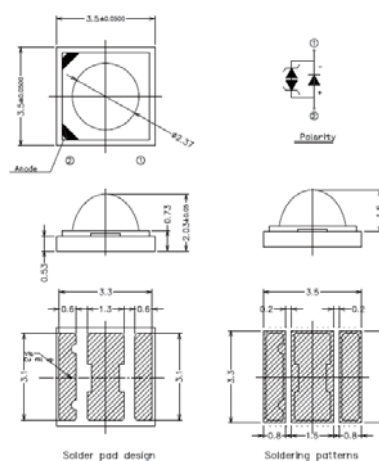


3535 / 1W / 350mA

| Product                | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color   | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|------------------------|----------------|---------------------|----------------------|---------|---------------------------|-------------------------------------------|
| ELSW-J31G1-0LPNM-CG1G2 | 3.5x3.5x2.03   | 2.65-3.85           | 350                  | ● Green | 520~530nm                 | 120lm                                     |
| ELSW-J31G1-0LPNM-CG2G3 | 3.5x3.5x2.03   | 2.65-3.85           | 350                  | ● Green | 525~535nm                 | 120lm                                     |
| ELSW-E91B1-0LPNM-CB7B8 | 3.5x3.5x2.03   | 2.65-3.85           | 350                  | ● Blue  | 460~470nm                 | 23lm                                      |
| ELSW-F11B1-0LPNM-CB8B9 | 3.5x3.5x2.03   | 2.65-3.85           | 350                  | ● Blue  | 465~475nm                 | 27lm                                      |
| ELSW-F21B1-0LPNM-CBABB | 3.5x3.5x2.03   | 2.65-3.85           | 350                  | ● Blue  | 475~485nm                 | 33lm                                      |



UNIT : mm



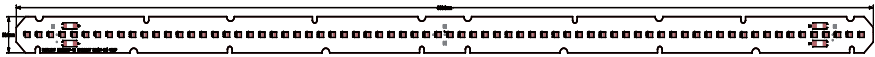
3535 / 1W / 350mA

| Product                | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color    | Wavelength / CCT (nm) (K) | Luminous Flux / Radiometric Power (lm/mW) |
|------------------------|----------------|---------------------|----------------------|----------|---------------------------|-------------------------------------------|
| ELSW-F61R1-0PPNM-AR5R6 | 3.5x3.5x2.03   | 1.75-2.95           | 350                  | ● Red    | 620~630nm                 | 60lm                                      |
| ELSW-F91O1-0EPNM-AR3R4 | 3.5x3.5x2.03   | 1.75-2.95           | 350                  | ● Orange | 610~620nm                 | 90lm                                      |
| ELSW-F61Y1-0EPNM-AA3A6 | 3.5x3.5x2.03   | 1.75-2.95           | 350                  | ● Amber  | 585~595nm                 | 60lm                                      |

Color I DOB



UNIT : mm



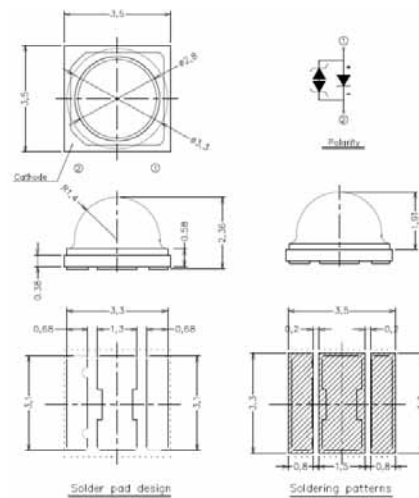
DOB

| Product                     | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color         | Wavelength / CCT<br>(nm) (K) | Luminous Flux /<br>Radiometric Power<br>(lm/mW) |
|-----------------------------|-------------------|---------------------------|----------------------------|---------------|------------------------------|-------------------------------------------------|
| TSAN562P-M-A000-DC011-0001T | 560x20            | 24~36                     | 350/900                    | Blue+Deep Red | 450+660nm                    | 8800/25000mW                                    |

# High power I Shwo (F)



UNIT : mm



1W / 3V / 350mA

| Product                 | Size (LxWxHmm) | Forward Voltage(V) | Forward Current(mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (TYP) | CRI (min.) |
|-------------------------|----------------|--------------------|---------------------|-----------------|---------|----------------------|---------------------|------------|
| ELSWF-JJ1C1-6FPGS-C6500 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ○ Cool White    | 6500K   | 158                  | 169                 | 70         |
| ELSWF-JJ1C1-6FPGS-C5700 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ○ Cool White    | 5700K   | 158                  | 169                 | 70         |
| ELSWF-JJ1C1-6FPGS-C5000 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ○ Cool White    | 5000K   | 158                  | 169                 | 70         |
| ELSWF-J71N1-6FPGS-C4000 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ○ Neutral White | 4000K   | 145                  | 155                 | 70         |
| ELSWF-J61M1-6FPGS-C3500 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ● Warm White    | 3500K   | 135                  | 146                 | 70         |
| ELSWF-J61M1-6FPGS-C3000 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ● Warm White    | 3000K   | 135                  | 146                 | 70         |
| ELSWF-J61M1-6FPGS-C2700 | 3.5x3.5x2.36   | 2.65~3.55          | 350                 | ● Warm White    | 2700K   | 135                  | 146                 | 70         |

• Above spec is based on 85°C

3W / 3V / 700mA

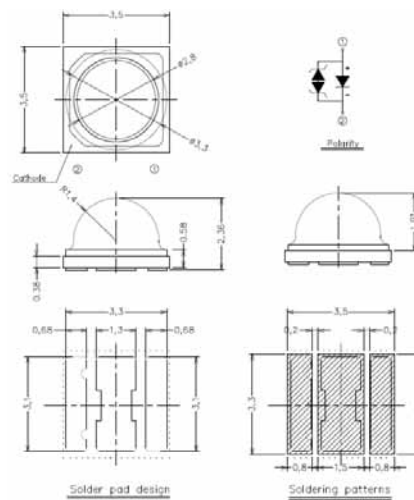
| Product                 | Size (LxWxHmm) | Forward Voltage(V) | Forward Current(mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (TYP) | CRI (min.) |
|-------------------------|----------------|--------------------|---------------------|-----------------|---------|----------------------|---------------------|------------|
| ELSWF-JJ1C1-6FPGS-C6500 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ○ Cool White    | 6500K   | 283                  | 304                 | 70         |
| ELSWF-JJ1C1-6FPGS-C5700 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ○ Cool White    | 5700K   | 283                  | 304                 | 70         |
| ELSWF-JJ1C1-6FPGS-C5000 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ○ Cool White    | 5000K   | 283                  | 304                 | 70         |
| ELSWF-J71N1-6FPGS-C4000 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ○ Neutral White | 4000K   | 260                  | 278                 | 70         |
| ELSWF-J61M1-6FPGS-C3500 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ● Warm White    | 3500K   | 243                  | 262                 | 70         |
| ELSWF-J61M1-6FPGS-C3000 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ● Warm White    | 3000K   | 243                  | 262                 | 70         |
| ELSWF-J61M1-6FPGS-C2700 | 3.5x3.5x2.36   | 2.65~3.85          | 700                 | ● Warm White    | 2700K   | 243                  | 262                 | 70         |

• Above spec is based on 85°C

# High power ■ Shwo (F)



UNIT : mm

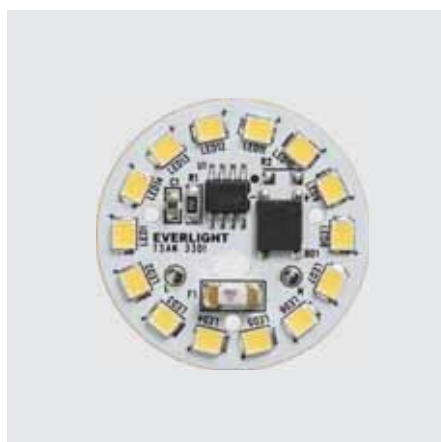


4W / 3V / 1000mA

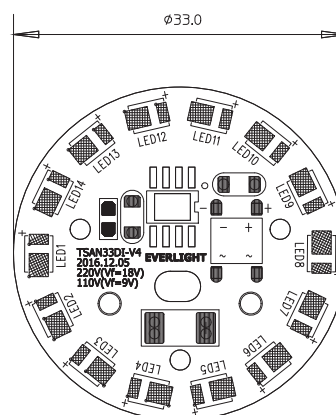
| Product                 | Size (LxWxHmm) | Forward Voltage(V) | Forward Current(mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (TYP) | CRI (min.) |
|-------------------------|----------------|--------------------|---------------------|-----------------|---------|----------------------|---------------------|------------|
| ELSWF-JJ1C1-6FPGS-C6500 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ○ Cool White    | 6500K   | 378                  | 406                 | 70         |
| ELSWF-JJ1C1-6FPGS-C5700 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ○ Cool White    | 5700K   | 378                  | 406                 | 70         |
| ELSWF-JJ1C1-6FPGS-C5000 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ○ Cool White    | 5000K   | 378                  | 406                 | 70         |
| ELSWF-J71N1-6FPGS-C4000 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ○ Neutral White | 4000K   | 345                  | 371                 | 70         |
| ELSWF-J61M1-6FPGS-C3500 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ● Warm White    | 3500K   | 323                  | 348                 | 70         |
| ELSWF-J61M1-6FPGS-C3000 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ● Warm White    | 3000K   | 323                  | 348                 | 70         |
| ELSWF-J61M1-6FPGS-C2700 | 3.5x3.5x2.36   | 2.95~4.15          | 1000                | ● Warm White    | 2700K   | 323                  | 348                 | 70         |

• Above spec is based on 85°C

## Driver on Board | TSAN33DI



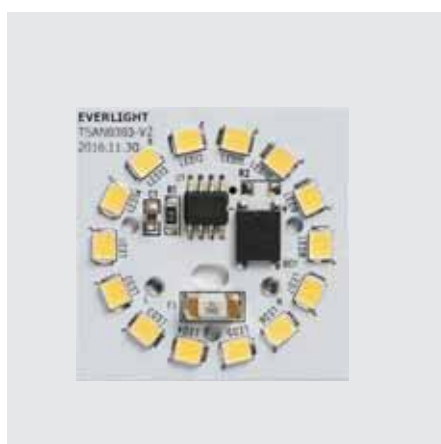
UNIT : mm



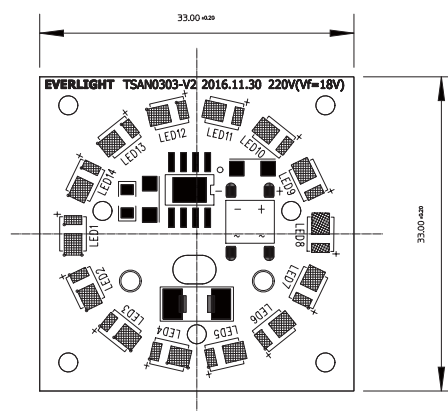
8W

| Product                     | Diameter (mm) | CCT (K) | Flux (lm) | CRI (Ra) | SDCM | Dimming      |
|-----------------------------|---------------|---------|-----------|----------|------|--------------|
| TSAN33DI-M-K277-EU008-D001T | 33x33         | 2700K   | 720       | Typ. 80  | 7    | Non-dimmable |
| TSAN33DI-M-K307-EU008-D001T |               | 3000K   |           |          |      |              |
| TSAN33DI-M-K407-EU008-D001T |               | 4000K   |           |          |      |              |
| TSAN33DI-M-K507-EU008-E001T |               | 5000K   | 800       |          |      |              |
| TSAN33DI-M-K577-EU008-E001T |               | 5700K   |           |          |      |              |
| TSAN33DI-M-K657-EU008-E001T |               | 6500K   |           |          |      |              |

## Driver on Board | TSAN0303



UNIT : mm



10W

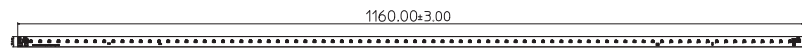
| Product                     | Diameter (mm) | CCT (K) | Flux (lm) | CRI (Ra) | SDCM | Dimming      |
|-----------------------------|---------------|---------|-----------|----------|------|--------------|
| TSAN0303-M-K277-EU010-D001T | 33x33         | 2700K   | 900       | Typ. 80  | 7    | Non-dimmable |
| TSAN0303-M-K307-EU010-D001T |               | 3000K   |           |          |      |              |
| TSAN0303-M-K407-EU010-D001T |               | 4000K   |           |          |      |              |
| TSAN0303-M-K507-EU010-E001T |               | 5000K   | 1,000     |          |      |              |
| TSAN0303-M-K577-EU010-E001T |               | 5700K   |           |          |      |              |
| TSAN0303-M-K657-EU010-E001T |               | 6500K   |           |          |      |              |



## Driver on Board | TSAN4FFA



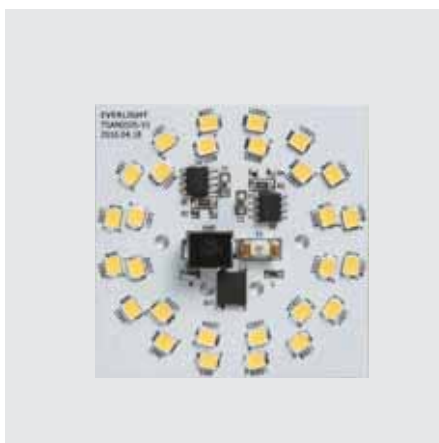
UNIT : mm



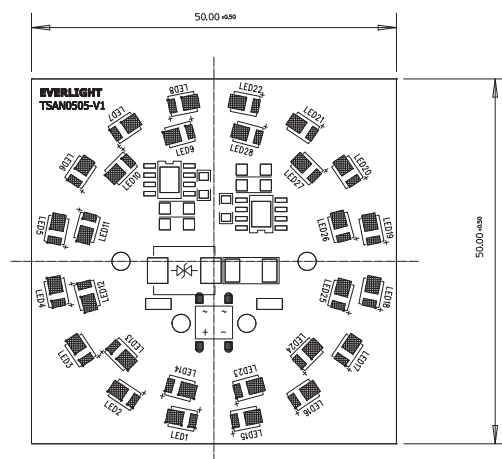
16W

| Product                     | Diameter<br>(mm) | CCT<br>(K) | Flux<br>(lm) | CRI<br>(Ra) | SDCM | Dimming      |
|-----------------------------|------------------|------------|--------------|-------------|------|--------------|
| TSAN4FFA-M-K277-EU016-E001C | 1160x15          | 2700K      | 1,680        | Typ. 80     | 7    | Non-dimmable |
| TSAN4FFA-M-K307-EU016-E001C |                  | 3000K      |              |             |      |              |
| TSAN4FFA-M-K407-EU016-E001C |                  | 4000K      |              |             |      |              |
| TSAN4FFA-M-K507-EU016-F001C |                  | 5000K      | 1,840        |             |      |              |
| TSAN4FFA-M-K577-EU016-F001C |                  | 5700K      |              |             |      |              |
| TSAN4FFA-M-K657-EU016-F001C |                  | 6500K      |              |             |      |              |

## Driver on Board | TSAN0505



UNIT : mm



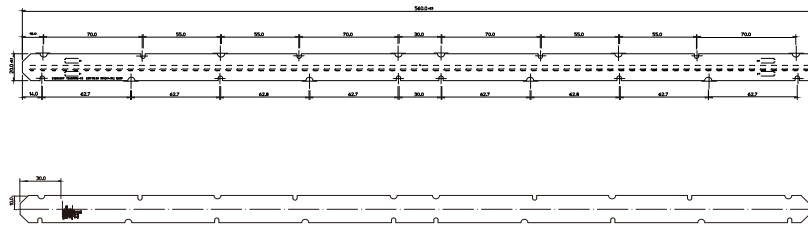
25W

| Product                     | Diameter<br>(mm) | CCT<br>(K) | Flux<br>(lm) | CRI<br>(Ra) | SDCM | Dimming      |
|-----------------------------|------------------|------------|--------------|-------------|------|--------------|
| TSAN0505-M-K277-EU016-D001T | 50x50            | 2700K      | 2,250        | Typ. 80     | 7    | Non-dimmable |
| TSAN0505-M-K307-EU016-D001T |                  | 3000K      |              |             |      |              |
| TSAN0505-M-K407-EU016-D001T |                  | 4000K      |              |             |      |              |
| TSAN0505-M-K507-EU016-E001T |                  | 5000K      | 2,500        |             |      |              |
| TSAN0505-M-K577-EU016-E001T |                  | 5700K      |              |             |      |              |
| TSAN0505-M-K657-EU016-E001T |                  | 6500K      |              |             |      |              |

## Driver on Board ■ TSAN-5602



UNIT : mm



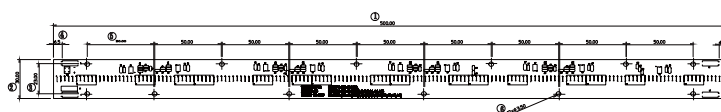
14W

| Product                      | Diameter (mm) | CCT (K) | Flux (lm) | CRI (Ra) | SDCM | Dimming      |
|------------------------------|---------------|---------|-----------|----------|------|--------------|
| TSAN-5602-M-K307-DC014-F001T | 560x20        | 3000K   | 1540      | Typ. 80  | 7    | Non-dimmable |
| TSAN-5602-M-K407-DC014-F001T |               | 4000K   | 1540      |          |      |              |
| TSAN-5602-M-K657-DC014-G001T |               | 6500K   | 1680      |          |      |              |

## Driver on Board ■ TSAN5003



UNIT : mm



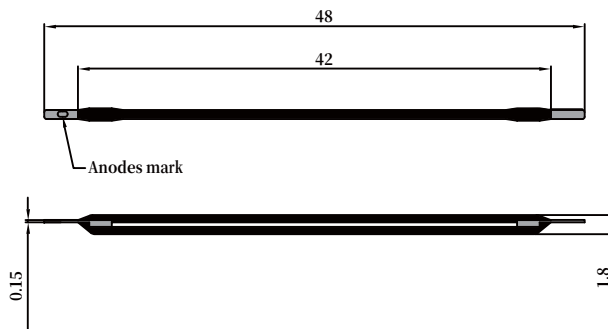
40W / 60W

| Product                     | Diameter (mm) | CCT (K) | Flux (lm) | CRI (Ra) | SDCM | Dimming      |
|-----------------------------|---------------|---------|-----------|----------|------|--------------|
| TSAN5003-M-K307-US040-F001C | 500x30        | 3000K   | 4400      | Typ. 80  | 7    | Non-dimmable |
| TSAN5003-M-K307-US060-F001C |               | 3000K   | 6600      |          |      |              |

## Filament



UNIT : mm



### 1.0W / 68V

| Product                    | Size (LxWxHmm)                                     | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (lm) |     | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|----------------------------------------------------|---------------------|----------------------|-----------------|---------|--------------------|-----|------------|--------------------------|
|                            |                                                    |                     |                      |                 |         | Min.               | TYP |            |                          |
| JHU3802-KM275J1-68101-800T | Total Length (including pins): 38<br>Diameter:1.8" | 60~70               | 13                   | ● Warm White    | 2700K   | 145                | 150 | 80         | 170                      |
| JHU3802-KM405J1-68101-800T | Total Length (including pins): 38<br>Diameter:1.8" | 60~70               | 13                   | ○ Neutral White | 4000K   | 150                | 155 | 80         | 180                      |

### 1.05W / 74V

| Product                    | Size (LxWxHmm)                                     | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (lm) |     | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|----------------------------------------------------|---------------------|----------------------|-----------------|---------|--------------------|-----|------------|--------------------------|
|                            |                                                    |                     |                      |                 |         | Min.               | TYP |            |                          |
| JHU3802-KM275J5-75101-000T | Total Length (including pins): 38<br>Diameter:1.8" | 70~80               | 13                   | ● Warm White    | 2700K   | 155                | 160 | 80         | 160                      |
| JHU3802-KM405J5-75101-000T | Total Length (including pins): 38<br>Diameter:1.8" | 70~80               | 13                   | ○ Neutral White | 4000K   | 160                | 170 | 80         | 170                      |

### 1.25W / 82V

| Product                    | Size (LxWxHmm)                                    | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (lm) |     | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|---------------------------------------------------|---------------------|----------------------|-----------------|---------|--------------------|-----|------------|--------------------------|
|                            |                                                   |                     |                      |                 |         | Min.               | TYP |            |                          |
| JHU4802-KM275J2-821W2-800T | Total Length (including pins):52<br>Diameter:1.8" | 80~90               | 15                   | ● Warm White    | 2700K   | 200                | 210 | 80         | 170                      |
| JHU4802-KM405J2-821W2-800T | Total Length (including pins):52<br>Diameter:1.8" | 80~90               | 15                   | ○ Neutral White | 4000K   | 220                | 230 | 80         | 180                      |

### 1.75W / 135V

| Product                    | Size (LxWxHmm)                                    | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (lm) |     | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|---------------------------------------------------|---------------------|----------------------|-----------------|---------|--------------------|-----|------------|--------------------------|
|                            |                                                   |                     |                      |                 |         | Min.               | TYP |            |                          |
| JHU4802-KM275J3-D51W8-000T | Total Length (including pins):52<br>Diameter:1.8" | 130~145             | 13                   | ● Warm White    | 2700K   | 260                | 280 | 80         | 155                      |
| JHU4802-KM405J3-D51W8-000T | Total Length (including pins):52<br>Diameter:1.8" | 130~145             | 13                   | ○ Neutral White | 4000K   | 280                | 290 | 80         | 160                      |

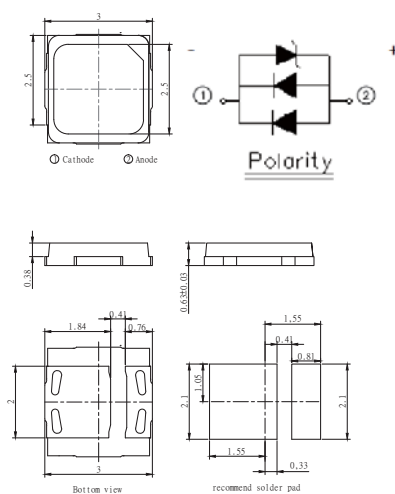
### 1.87W / 145V

| Product                    | Size (LxWxHmm)                                    | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (lm) |     | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|---------------------------------------------------|---------------------|----------------------|-----------------|---------|--------------------|-----|------------|--------------------------|
|                            |                                                   |                     |                      |                 |         | Min.               | TYP |            |                          |
| JHU4802-KM275J4-E51W8-000T | Total Length (including pins):48<br>Diameter:1.8" | 135~150             | 13                   | ● Warm White    | 2700K   | 275                | 290 | 80         | 155                      |
| JHU4802-KM405J4-E51W8-000T | Total Length (including pins):48<br>Diameter:1.8" | 135~150             | 13                   | ○ Neutral White | 4000K   | 290                | 300 | 80         | 160                      |

# Low Middle Power LED | XI3030



UNIT : mm



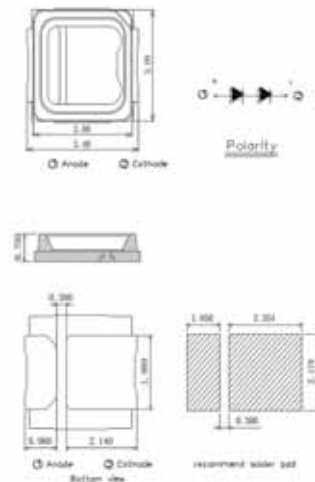
0.2W / 3V / 65mA

| Product                           | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color      | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------------|----------------|---------------------|----------------------|------------|---------|----------------------|----------------------|------------|--------------------------|
| GXI3030P/KK6C-M2727X2X826292U6/2T | 3.0x3.0x0.63   | 2.6~2.9             | 65                   | Warm White | 2700K   | 32                   | 34                   | 80         | 190                      |
| GXI3030P/KK6C-M3030X3X926292U6/2T | 3.0x3.0x0.63   | 2.6~2.9             | 65                   | Warm White | 3000K   | 33                   | 35                   | 80         | 196                      |
| GXI3030P/KK6C-M3535X3X926292U6/2T | 3.0x3.0x0.63   | 2.6~2.9             | 65                   | Warm White | 3500K   | 33                   | 35                   | 80         | 196                      |
| GXI3030P/KK6C-M5050X5Y126292U6/2T | 3.0x3.0x0.63   | 2.6~2.9             | 65                   | Cool White | 5000K   | 35                   | 37                   | 80         | 208                      |
| GXI3030P/KK6C-M6262X4Y026292U6/2T | 3.0x3.0x0.63   | 2.6~2.9             | 65                   | Cool White | 6200K   | 34                   | 36                   | 80         | 202                      |
| GXI3030P/KK6C-M6565X4Y026292U6/2T | 3.0x3.0x0.63   | 2.6~2.9             | 65                   | Cool White | 6500K   | 34                   | 36                   | 80         | 202                      |

## Low Middle Power LED | XI3030



UNIT : mm



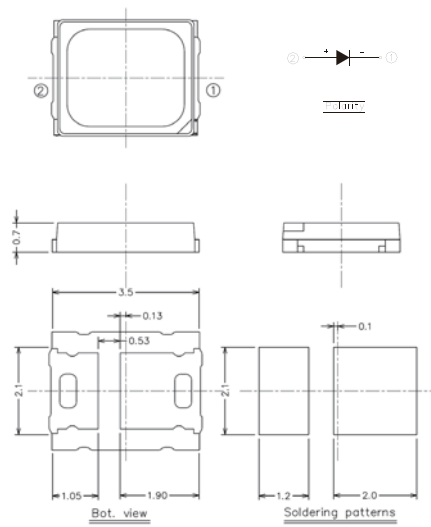
1W / 6V / 150mA

| Product                     | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| XI3030P/KK5C-H2712566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ● Warm White    | 2700K   | 125                  | 131                  | 80         | 140                      |
| XI3030P/KK5C-H3013066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ● Warm White    | 3000K   | 130                  | 136                  | 80         | 145                      |
| XI3030P/KK5C-H4013566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Neutral White | 4000K   | 135                  | 141                  | 80         | 150                      |
| XI3030P/KK5C-H5013566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 5000K   | 135                  | 141                  | 80         | 150                      |
| XI3030P/KK5C-H5713566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 5700K   | 135                  | 141                  | 80         | 150                      |
| XI3030P/KK5C-H6513566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 6500K   | 135                  | 141                  | 80         | 150                      |
| XI3030P/KK6C-H2713066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ● Warm White    | 2700K   | 130                  | 136                  | 80         | 145                      |
| XI3030P/KK6C-H3013566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ● Warm White    | 3000K   | 135                  | 141                  | 80         | 150                      |
| XI3030P/KK6C-H4014066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Neutral White | 4000K   | 140                  | 147                  | 80         | 155                      |
| XI3030P/KK6C-H5014066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 5000K   | 140                  | 147                  | 80         | 155                      |
| XI3030P/KK6C-H5714066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 5700K   | 140                  | 147                  | 80         | 155                      |
| XI3030P/KK6C-H6514066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 6500K   | 140                  | 147                  | 80         | 155                      |
| XI3030P/KK7C-H2713566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ● Warm White    | 2700K   | 135                  | 141                  | 80         | 100                      |
| XI3030P/KK7C-H3014066Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ● Warm White    | 3000K   | 140                  | 147                  | 80         | 155                      |
| XI3030P/KK7C-H4014566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Neutral White | 4000K   | 145                  | 152                  | 80         | 160                      |
| XI3030P/KK7C-H5014566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 5000K   | 145                  | 152                  | 80         | 160                      |
| XI3030P/KK7C-H5714566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 5700K   | 145                  | 152                  | 80         | 160                      |
| XI3030P/KK7C-H6514566Z15/2N | 3.0x3.0x0.63   | 5.6~6.6             | 150                  | ○ Cool White    | 6500K   | 145                  | 152                  | 80         | 160                      |

## Low Middle Power LED | 2835 3V



UNIT : mm



0.2W / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-21S/KK5C-H272333Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Warm White    | 2700K   | 23                   | 25                   | 80         | 139                      |
| 67-21S/KK5C-H302433Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Warm White    | 3000K   | 24                   | 26                   | 80         | 144                      |
| 67-21S/KK5C-H402633Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Neutral White | 4000K   | 26                   | 28                   | 80         | 156                      |
| 67-21S/KK5C-H502633Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Cool White    | 5000K   | 26                   | 28                   | 80         | 156                      |
| 67-21S/KK5C-H572633Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Cool White    | 5700K   | 26                   | 28                   | 80         | 156                      |
| 67-21S/KK5C-H602633Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Cool White    | 6000K   | 26                   | 28                   | 80         | 156                      |
| 67-21S/KK5C-H652633Z6/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Cool White    | 6500K   | 26                   | 28                   | 80         | 156                      |

0.2W / 3V / 60mA

| Product                     | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-21S/KKE-N272533Z6/SZM/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Warm White    | 2700K   | 25                   | 27                   | 80         | 150                      |
| 67-21S/KKE-N302633Z6/SZM/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Warm White    | 3000K   | 26                   | 28                   | 80         | 156                      |
| 67-21S/KKE-N402833Z6/SZM/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Neutral White | 4000K   | 28                   | 30                   | 80         | 167                      |
| 67-21S/KKE-N502833Z6/SZM/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Cool White    | 5000K   | 28                   | 30                   | 80         | 167                      |
| 67-21S/KKE-N652833Z6/SZM/2T | 2.8x3.5x0.7    | 2.8~3.3             | 60                   | Cool White    | 6500K   | 28                   | 30                   | 80         | 167                      |

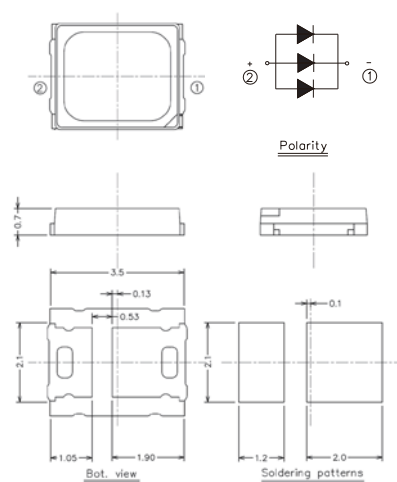
0.2W / 3V / 60mA

| Product                             | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-------------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-21S/KK6C-H2727N4PA2834Z6/2T(GC)  | 2.8x3.5x0.7    | 2.8~3.4             | 60                   | Warm White    | 2700K   | 27                   | 29                   | 80         | 161                      |
| 67-21S/KK6C-H3030N42PA2834Z6/2T(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 60                   | Warm White    | 3000K   | 29                   | 31                   | 80         | 172                      |
| 67-21S/KK6C-H3535N4BPA2834Z6/2T(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 60                   | Warm White    | 3500K   | 30                   | 32                   | 80         | 178                      |
| 67-21S/KK6C-H4040N4BPA2834Z6/2T(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 60                   | Neutral White | 4000K   | 30                   | 32                   | 80         | 178                      |
| 67-21S/KK6C-H5050N43PA2834Z6/2T(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 60                   | Cool White    | 5000K   | 31                   | 33                   | 80         | 183                      |
| 67-21S/KK6C-H6565N4BPA2834Z6/2T(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 60                   | Cool White    | 6500K   | 30                   | 32                   | 80         | 178                      |

## Low Middle Power LED | 2835 3V



UNIT : mm



### 0.2W HE / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23S/KK7C-H272830Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Warm White    | 2700K   | 28                   | 30                   | 80         | 184                      |
| 67-23S/KK7C-H303030Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Warm White    | 3000K   | 30                   | 32                   | 80         | 196                      |
| 67-23S/KK7C-H353030Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Warm White    | 3500K   | 30                   | 32                   | 80         | 196                      |
| 67-23S/KK7C-H403230Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Neutral White | 4000K   | 32                   | 34                   | 80         | 208                      |
| 67-23S/KK7C-H503230Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 5000K   | 32                   | 34                   | 80         | 208                      |
| 67-23S/KK7C-H573230Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 5700K   | 32                   | 34                   | 80         | 208                      |
| 67-23S/KK7C-H653230Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 6500K   | 32                   | 34                   | 80         | 208                      |

### 0.2W HE / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23S/KK8C-H303030Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Warm White    | 3000K   | 30                   | 32                   | 80         | 196                      |
| 67-23S/KK8C-H353030Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Warm White    | 3500K   | 30                   | 32                   | 80         | 196                      |
| 67-23S/KK8C-H403330Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Neutral White | 4000K   | 33                   | 35                   | 80         | 214                      |
| 67-23S/KK8C-H423330Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Neutral White | 4200K   | 33                   | 35                   | 80         | 214                      |
| 67-23S/KK8C-H503330Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 5000K   | 33                   | 35                   | 80         | 214                      |
| 67-23S/KK8C-H653330Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 6500K   | 33                   | 35                   | 80         | 214                      |

### 0.2W HE / 3V / 60mA

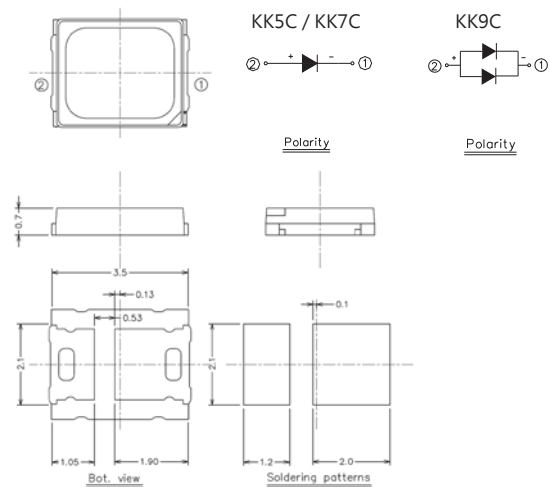
| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23S/KK9C-H403430Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Neutral White | 4000K   | 34                   | 36                   | 80         | 221                      |
| 67-23S/KK9C-H503430Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 5000K   | 34                   | 36                   | 80         | 221                      |
| 67-23S/KK9C-H573430Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 5700K   | 34                   | 36                   | 80         | 221                      |
| 67-23S/KK9C-H653430Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | Cool White    | 6500K   | 34                   | 36                   | 80         | 221                      |



# Low Middle Power LED | 2835 3V



UNIT : mm



Low Middle Power LED

0.5W / 3V / 150mA

| Product                   | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|---------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-21S/KK5C-H275534Z15/2T | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Warm White    | 2700K   | 55                   | 59                   | 80         | 127                      |
| 67-21S/KK5C-H306034Z15/2T | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Warm White    | 3000K   | 60                   | 64                   | 80         | 138                      |
| 67-21S/KK5C-H406534Z15/2T | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Neutral White | 4000K   | 60                   | 64                   | 80         | 138                      |
| 67-21S/KK5C-H506534Z15/2T | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 5000K   | 65                   | 69                   | 80         | 148                      |
| 67-21S/KK5C-H576534Z15/2T | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 5700K   | 65                   | 69                   | 80         | 148                      |
| 67-21S/KK5C-H656534Z15/2T | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 6500K   | 65                   | 69                   | 80         | 148                      |

0.5W / 3V / 150mA

| Product                       | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-21S/KK7C-H276034Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Warm White    | 2700K   | 60                   | 64                   | 80         | 138                      |
| 67-21S/KK7C-H306534Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Warm White    | 3000K   | 65                   | 69                   | 80         | 148                      |
| 67-21S/KK7C-H356534Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Warm White    | 3500K   | 65                   | 69                   | 80         | 148                      |
| 67-21S/KK7C-H407034Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Neutral White | 4000K   | 70                   | 74                   | 80         | 159                      |
| 67-21S/KK7C-H507034Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 5000K   | 70                   | 74                   | 80         | 159                      |
| 67-21S/KK7C-H577034Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 5700K   | 70                   | 74                   | 80         | 159                      |
| 67-21S/KK7C-H607034Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 6000K   | 70                   | 74                   | 80         | 159                      |
| 67-21S/KK7C-H657034Z15/DT(GC) | 2.8x3.5x0.7    | 2.8~3.4             | 150                  | Cool White    | 6500K   | 70                   | 74                   | 80         | 159                      |

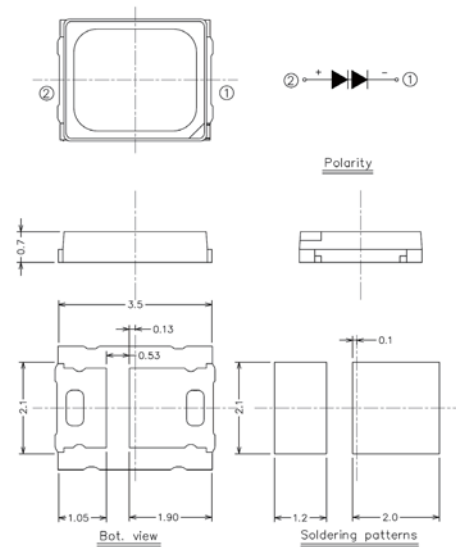
0.5W / 3V / 150mA

| Product                       | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22S/KK9C-H407532Z15/2T(GC) | 2.8x3.5x0.7    | 2.8~3.2             | 150                  | Neutral White | 4000K   | 75                   | 79                   | 80         | 192                      |
| 67-22S/KK9C-H507532Z15/2T(GC) | 2.8x3.5x0.7    | 2.8~3.2             | 150                  | Cool White    | 5000K   | 75                   | 79                   | 80         | 192                      |
| 67-22S/KK9C-H577532Z15/2T(GC) | 2.8x3.5x0.7    | 2.8~3.2             | 150                  | Cool White    | 5700K   | 75                   | 79                   | 80         | 192                      |
| 67-22S/KK9C-H657532Z15/2T(GC) | 2.8x3.5x0.7    | 2.8~3.2             | 150                  | Cool White    | 6500K   | 75                   | 79                   | 80         | 192                      |

## Low Middle Power LED ■ 2835 6V



UNIT : mm



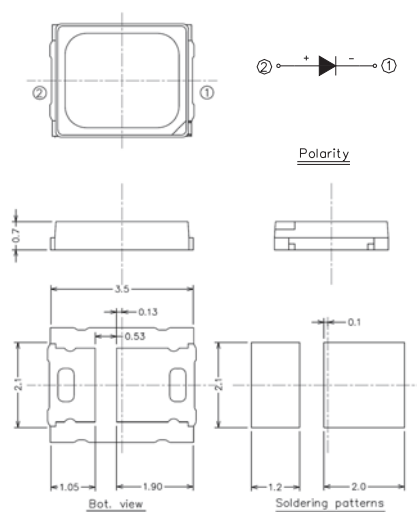
1W / 6V / 150mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/KKE-N2710368Z15/SZM/2T | 2.8x3.5x0.7    | 6.0~6.8             | 150                  | ● Warm White    | 2700K   | 103                  | 109                  | 80         | 114                      |
| 67-22ST/KKE-N3010768Z15/SZM/2T | 2.8x3.5x0.7    | 6.0~6.8             | 150                  | ● Warm White    | 3000K   | 107                  | 113                  | 80         | 118                      |
| 67-22ST/KKE-N4011568Z15/SZM/2T | 2.8x3.5x0.7    | 6.0~6.8             | 150                  | ○ Neutral White | 4000K   | 115                  | 121                  | 80         | 126                      |
| 67-22ST/KKE-N5011568Z15/SZM/2T | 2.8x3.5x0.7    | 6.0~6.8             | 150                  | ○ Cool White    | 5000K   | 115                  | 121                  | 80         | 126                      |
| 67-22ST/KKE-N6511568Z15/SZM/2T | 2.8x3.5x0.7    | 6.0~6.8             | 150                  | ○ Cool White    | 6500K   | 115                  | 121                  | 80         | 126                      |

# Low Middle Power LED ■ 2835 9V



UNIT : mm



0.5W / 9V / 60mA

| Product                  | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|--------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-21S/KK4C-H276096Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ● Warm White    | 2700K      | 60                         | 64                         | 80            | 115                            |
| 67-21S/KK4C-H306596Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ● Warm White    | 3000K      | 65                         | 69                         | 80            | 124                            |
| 67-21S/KK4C-H406896Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ○ Neutral White | 4000K      | 68                         | 72                         | 80            | 129                            |
| 67-21S/KK4C-H507096Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ○ Cool White    | 5000K      | 70                         | 74                         | 80            | 133                            |
| 67-21S/KK4C-H657096Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ○ Cool White    | 6500K      | 70                         | 74                         | 80            | 133                            |

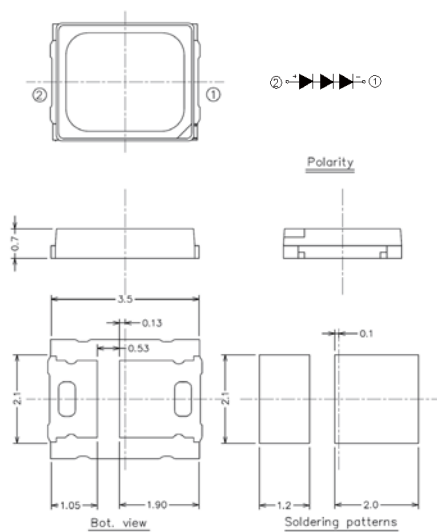
0.5W / 9V / 60mA

| Product                   | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|---------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-21ST/KK6C-H277096Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ● Warm White    | 2700K      | 70                         | 74                         | 80            | 133                            |
| 67-21ST/KK6C-H307396Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ● Warm White    | 3000K      | 73                         | 77                         | 80            | 138                            |
| 67-21ST/KK6C-H407696Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ○ Neutral White | 4000K      | 76                         | 80                         | 80            | 143                            |
| 67-21ST/KK6C-H507696Z6/2T | 2.8x3.5x0.7       | 8.7~9.6                   | 60                         | ○ Cool White    | 5000K      | 76                         | 80                         | 80            | 143                            |

## Low Middle Power LED | 2835 9V



UNIT : mm



1W / 9V / 100mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23ST/KKE-N2711096Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 2700K   | 110                  | 116                  | 80         | 125                      |
| 67-23ST/KKE-N3011796Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 3000K   | 117                  | 123                  | 80         | 132                      |
| 67-23ST/KKE-N4012396Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Neutral White | 4000K   | 123                  | 129                  | 80         | 139                      |
| 67-23ST/KKE-N5012396Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 5000K   | 123                  | 129                  | 80         | 139                      |
| 67-23ST/KKE-N6512396Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 6500K   | 123                  | 129                  | 80         | 139                      |

1W / 9V / 100mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23ST/KKE-N2711596Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 2700K   | 115                  | 121                  | 80         | 130                      |
| 67-23ST/KKE-N3012296Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 3000K   | 122                  | 128                  | 80         | 138                      |
| 67-23ST/KKE-N4012896Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Neutral White | 4000K   | 128                  | 134                  | 80         | 144                      |
| 67-23ST/KKE-N5012896Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 5000K   | 128                  | 134                  | 80         | 144                      |
| 67-23ST/KKE-N6512896Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 6500K   | 128                  | 134                  | 80         | 144                      |

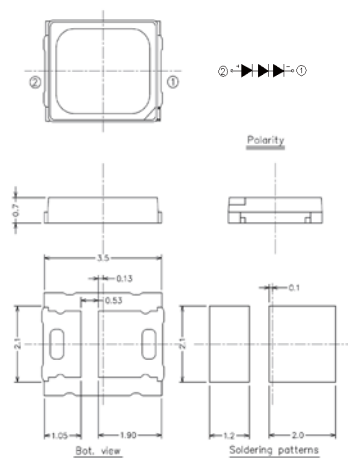
1W / 9V / 100mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23ST/KKE-N2712096Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 2700K   | 120                  | 126                  | 80         | 135                      |
| 67-23ST/KKE-N3012796Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 3000K   | 127                  | 133                  | 80         | 143                      |
| 67-23ST/KKE-N4013396Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Neutral White | 4000K   | 133                  | 139                  | 80         | 149                      |
| 67-23ST/KKE-N5013396Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 5000K   | 133                  | 139                  | 80         | 149                      |
| 67-23ST/KKE-N6513396Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 6500K   | 133                  | 139                  | 80         | 149                      |

## Low Middle Power LED ■ 2835 9V



UNIT : mm



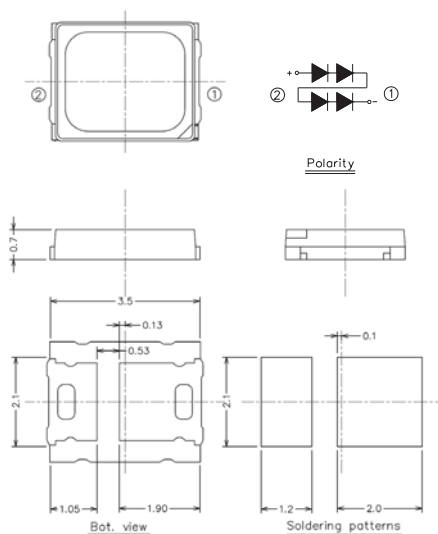
1W / 9V / 100mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23ST/KKE-N2712596Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 2700K   | 125                  | 131                  | 80         | 141                      |
| 67-23ST/KKE-N3013296Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ● Warm White    | 3000K   | 132                  | 138                  | 80         | 148                      |
| 67-23ST/KKE-N4013896Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Neutral White | 4000K   | 138                  | 144                  | 80         | 155                      |
| 67-23ST/KKE-N5013896Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 5000K   | 138                  | 144                  | 80         | 155                      |
| 67-23ST/KKE-N6513896Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | ○ Cool White    | 6500K   | 138                  | 144                  | 80         | 155                      |

## Low Middle Power LED I 2835 12V



UNIT : mm



1W / 12V / 80mA

| Product                    | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-24ST/KKE-H27115130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 2700K   | 115                  | 121                  | 80         | 126                      |
| 67-24ST/KKE-H30120130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 3000K   | 120                  | 126                  | 80         | 131                      |
| 67-24ST/KKE-H35120130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 3500K   | 120                  | 126                  | 80         | 131                      |
| 67-24ST/KKE-H40120130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Neutral White | 4000K   | 120                  | 126                  | 80         | 131                      |
| 67-24ST/KKE-H50125130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 5000K   | 125                  | 131                  | 80         | 136                      |
| 67-24ST/KKE-H57125130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 5700K   | 125                  | 131                  | 80         | 136                      |
| 67-24ST/KKE-H65125130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 6500K   | 125                  | 131                  | 80         | 136                      |

1W / 12V / 80mA

| Product                    | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|----------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-24ST/KKE-H27120130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 2700K   | 120                  | 126                  | 80         | 131                      |
| 67-24ST/KKE-H30125130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 3000K   | 125                  | 131                  | 80         | 136                      |
| 67-24ST/KKE-H35125130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 3500K   | 125                  | 131                  | 80         | 136                      |
| 67-24ST/KKE-H40125130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Neutral White | 4000K   | 125                  | 131                  | 80         | 136                      |
| 67-24ST/KKE-H50130130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 5000K   | 130                  | 136                  | 80         | 142                      |
| 67-24ST/KKE-H57130130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 5700K   | 130                  | 136                  | 80         | 142                      |
| 67-24ST/KKE-H65130130Z8/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 6500K   | 130                  | 136                  | 80         | 142                      |

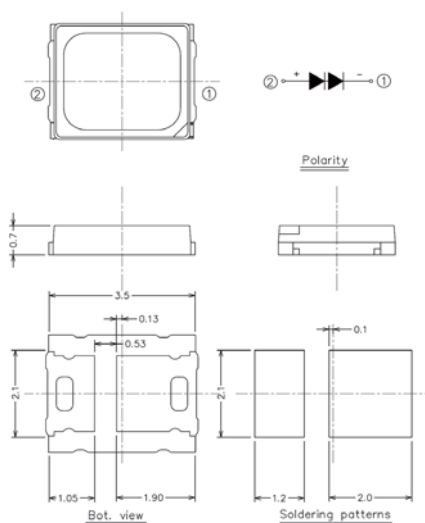
1W / 12V / 80mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-24ST/KKE-N27125130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 2700K   | 125                  | 131                  | 80         | 136                      |
| 67-24ST/KKE-N30130130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 3000K   | 130                  | 136                  | 80         | 142                      |
| 67-24ST/KKE-N35130130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ● Warm White    | 3500K   | 130                  | 136                  | 80         | 142                      |
| 67-24ST/KKE-N40135130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Neutral White | 4000K   | 135                  | 141                  | 80         | 147                      |
| 67-24ST/KKE-N50135130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 5000K   | 135                  | 141                  | 80         | 147                      |
| 67-24ST/KKE-N65135130Z8/SZM/2T | 2.8x3.5x0.7    | 11.0~13.0           | 80                   | ○ Cool White    | 6500K   | 135                  | 141                  | 80         | 147                      |

## Low Middle Power LED | 2835 18V



UNIT : mm



0.5W / 18V / 30mA

| Product                       | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/KKE-N2765200Z3/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 30                   | ● Warm White    | 2700K   | 65                   | 71                   | 80         | 77                       |
| 67-22ST/KKE-N3065200Z3/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 30                   | ● Warm White    | 3000K   | 65                   | 71                   | 80         | 77                       |
| 67-22ST/KKE-N4070200Z3/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 30                   | ○ Neutral White | 4000K   | 70                   | 76                   | 80         | 82                       |
| 67-22ST/KKE-N5070200Z3/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 30                   | ○ Cool White    | 5000K   | 70                   | 76                   | 80         | 82                       |
| 67-22ST/KKE-N6570200Z3/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 30                   | ○ Cool White    | 6500K   | 70                   | 76                   | 80         | 82                       |

1W / 18V / 50mA

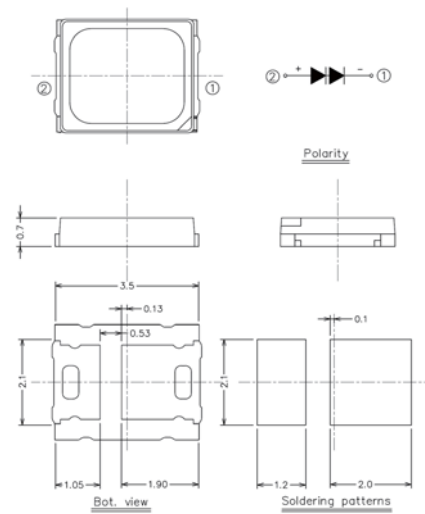
| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/KKE-N27125190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | ● Warm White    | 2700K   | 125                  | 131                  | 80         | 142                      |
| 67-22ST/KKE-N30130190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | ● Warm White    | 3000K   | 130                  | 136                  | 80         | 147                      |
| 67-22ST/KKE-N35130190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | ● Warm White    | 3500K   | 130                  | 136                  | 80         | 147                      |
| 67-22ST/KKE-N40135190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | ○ Neutral White | 4000K   | 135                  | 141                  | 80         | 152                      |
| 67-22ST/KKE-N50135190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | ○ Cool White    | 5000K   | 135                  | 141                  | 80         | 152                      |
| 67-22ST/KKE-N65135190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | ○ Cool White    | 6500K   | 135                  | 141                  | 80         | 152                      |



## Low Middle Power LED ■ 2835 36V



UNIT : mm



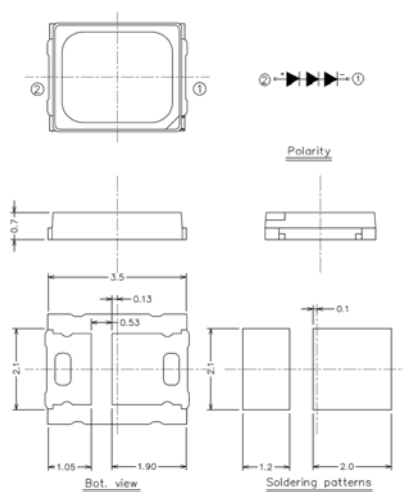
1W / 36V / 25mA

| Product                        | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|--------------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-22ST/KKE-N27120380U2/SZM/2T | 2.8x3.5x0.7       | 34.0~38.0                 | 25                         | ● Warm White    | 2700K      | 120                        | 126                        | 80            | 138                            |
| 67-22ST/KKE-N30125380U2/SZM/2T | 2.8x3.5x0.7       | 34.0~38.0                 | 25                         | ● Warm White    | 3000K      | 125                        | 131                        | 80            | 144                            |
| 67-22ST/KKE-N40130380U2/SZM/2T | 2.8x3.5x0.7       | 34.0~38.0                 | 25                         | ○ Neutral White | 4000K      | 130                        | 136                        | 80            | 149                            |
| 67-22ST/KKE-N50130380U2/SZM/2T | 2.8x3.5x0.7       | 34.0~38.0                 | 25                         | ○ Cool White    | 5000K      | 130                        | 136                        | 80            | 149                            |
| 67-22ST/KKE-N65130380U2/SZM/2T | 2.8x3.5x0.7       | 34.0~38.0                 | 25                         | ○ Cool White    | 6500K      | 130                        | 136                        | 80            | 149                            |

## Low Middle Power LED ■ 2835 54V



UNIT : mm



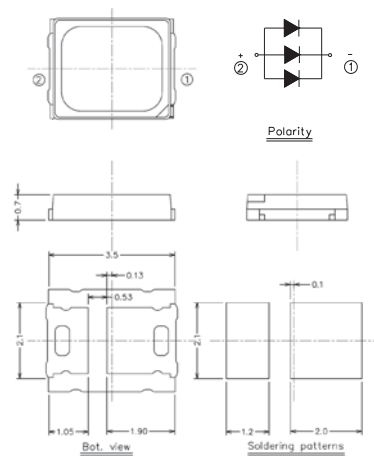
1W / 54V / 20mA

| Product                        | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|--------------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 67-23ST/KKE-N27120550Z2/SZM/2T | 2.8x3.5x0.7       | 50.0~55.0                 | 20                         | ● Warm White    | 2700K      | 120                        | 126                        | 80            | 117                            |
| 67-23ST/KKE-N30125550Z2/SZM/2T | 2.8x3.5x0.7       | 50.0~55.0                 | 20                         | ● Warm White    | 3000K      | 125                        | 131                        | 80            | 121                            |
| 67-23ST/KKE-N40130550Z2/SZM/2T | 2.8x3.5x0.7       | 50.0~55.0                 | 20                         | ○ Neutral White | 4000K      | 130                        | 136                        | 80            | 126                            |
| 67-23ST/KKE-N50130550Z2/SZM/2T | 2.8x3.5x0.7       | 50.0~55.0                 | 20                         | ○ Cool White    | 5000K      | 130                        | 136                        | 80            | 126                            |
| 67-23ST/KKE-N65130550Z2/SZM/2T | 2.8x3.5x0.7       | 50.0~55.0                 | 20                         | ○ Cool White    | 6500K      | 130                        | 136                        | 80            | 126                            |

## Low Middle Power LED ■ 2835 High CRI



UNIT : mm



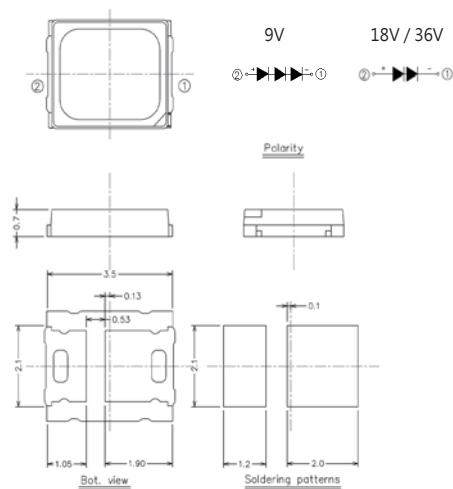
0.2W / CRI 90 R9>50 / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23S/RK8C-H272430Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ● Warm White    | 2700K   | 24                   | 26                   | 90         | 155                      |
| 67-23S/RK8C-H302530Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ● Warm White    | 3000K   | 25                   | 27                   | 90         | 161                      |
| 67-23S/RK8C-H352530Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ● Warm White    | 3500K   | 25                   | 27                   | 90         | 161                      |
| 67-23S/RK8C-H402730Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ○ Neutral White | 4000K   | 27                   | 29                   | 90         | 173                      |
| 67-23S/RK8C-H502730Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ○ Cool White    | 5000K   | 27                   | 29                   | 90         | 173                      |
| 67-23S/RK8C-H572730Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ○ Cool White    | 5700K   | 27                   | 29                   | 90         | 173                      |
| 67-23S/RK8C-H652730Z6/2T | 2.8x3.5x0.7    | 2.6~3.0             | 60                   | ○ Cool White    | 6500K   | 27                   | 29                   | 90         | 173                      |

# Low Middle Power LED | 2835 High CRI



UNIT : mm



1W / CRI 90 R9>50 / 9V / 100mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-23ST/RKE-N279596Z10/SZM/2T  | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | Warm White    | 2700K   | 95                   | 101                  | 90         | 109                      |
| 67-23ST/RKE-N3010096Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | Warm White    | 3000K   | 100                  | 106                  | 90         | 114                      |
| 67-23ST/RKE-N4010596Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | Neutral White | 4000K   | 105                  | 111                  | 90         | 119                      |
| 67-23ST/RKE-N5010596Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | Cool White    | 5000K   | 105                  | 111                  | 90         | 119                      |
| 67-23ST/RKE-N6510596Z10/SZM/2T | 2.8x3.5x0.7    | 8.7~9.6             | 100                  | Cool White    | 6500K   | 105                  | 111                  | 90         | 119                      |

1W / CRI 90 R9>50 / 18V / 50mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/RKE-N27108190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | Warm White    | 2700K   | 108                  | 114                  | 90         | 123                      |
| 67-22ST/RKE-N30110190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | Warm White    | 3000K   | 110                  | 116                  | 90         | 125                      |
| 67-22ST/RKE-N40115190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | Neutral White | 4000K   | 115                  | 121                  | 90         | 131                      |
| 67-22ST/RKE-N50115190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | Cool White    | 5000K   | 115                  | 121                  | 90         | 131                      |
| 67-22ST/RKE-N65115190Z5/SZM/2T | 2.8x3.5x0.7    | 17.0~19.0           | 50                   | Cool White    | 6500K   | 115                  | 121                  | 90         | 131                      |

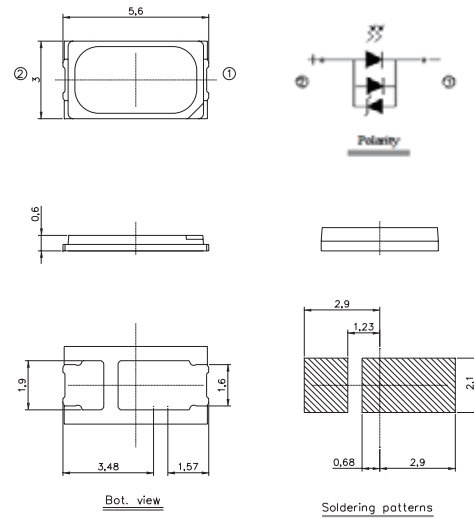
1W / CRI 90 R9>50 / 36V / 25mA

| Product                        | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 67-22ST/RKE-N2798380U2/SZM/2T  | 2.8x3.5x0.7    | 34.0~38.0           | 25                   | Warm White    | 2700K   | 98                   | 104                  | 90         | 114                      |
| 67-22ST/RKE-N30103380U2/SZM/2T | 2.8x3.5x0.7    | 34.0~38.0           | 25                   | Warm White    | 3000K   | 103                  | 109                  | 90         | 119                      |
| 67-22ST/RKE-N40108380U2/SZM/2T | 2.8x3.5x0.7    | 34.0~38.0           | 25                   | Neutral White | 4000K   | 108                  | 114                  | 90         | 125                      |
| 67-22ST/RKE-N50108380U2/SZM/2T | 2.8x3.5x0.7    | 34.0~38.0           | 25                   | Cool White    | 5000K   | 108                  | 114                  | 90         | 125                      |
| 67-22ST/RKE-N65108380U2/SZM/2T | 2.8x3.5x0.7    | 34.0~38.0           | 25                   | Cool White    | 6500K   | 108                  | 114                  | 90         | 125                      |

## Low Middle Power LED | 5630 3V



UNIT : mm



0.2W / 3V / 65mA

| Product                           | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|-----------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| G62-127ET/KK8D-M2727X3X92530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Warm White    | 2700K   | 33                   | 35                   | 80         | 196                      |
| G62-127ET/KK8D-M3030X4Y02530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Warm White    | 3000K   | 34                   | 36                   | 80         | 202                      |
| G62-127ET/KK8D-M3535X4Y02530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Warm White    | 3500K   | 34                   | 36                   | 80         | 202                      |
| G62-127ET/KK8D-M4040X6Y22530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Neutral White | 4000K   | 36                   | 39                   | 80         | 218                      |
| G62-127ET/KK8D-M5050X6Y22530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Cool White    | 5000K   | 36                   | 39                   | 80         | 218                      |
| G62-127ET/KK8D-M5757X6Y22530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Cool White    | 5700K   | 36                   | 39                   | 80         | 218                      |
| G62-127ET/KK8D-M6565X6Y22530U6/2T | 5.6x3.0x0.6    | 2.5 - 3.0           | 65                   | Cool White    | 6500K   | 36                   | 39                   | 80         | 218                      |

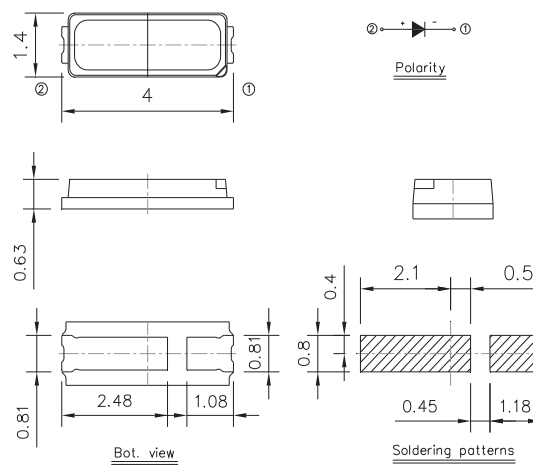
0.2W / 3V / 65mA

| Product                         | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color         | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|---------------------------------|----------------|---------------------|----------------------|---------------|---------|----------------------|----------------------|------------|--------------------------|
| 62-127ET/KKX-M2727X5Y12529U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Warm White    | 2700K   | 35                   | 37                   | 80         | 208                      |
| 62-127ET/KKX-M3030X6Y22529U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Warm White    | 3000K   | 36                   | 38                   | 80         | 213                      |
| 62-127ET/KKX-M3535X6Y22529U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Warm White    | 3500K   | 36                   | 38                   | 80         | 213                      |
| 62-127ET/KKX-M4040X8Y42530U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Neutral White | 4000K   | 38                   | 40                   | 80         | 225                      |
| 62-127ET/KKX-M5050X8Y42529U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Cool White    | 5000K   | 38                   | 40                   | 80         | 225                      |
| 62-127ET/KKX-M5757X8Y42529U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Cool White    | 5700K   | 38                   | 40                   | 80         | 225                      |
| 62-127ET/KKX-M6565X8Y42529U6/2T | 5.6x3.0x0.65   | 2.5~2.9             | 65                   | Cool White    | 6500K   | 38                   | 40                   | 80         | 225                      |

# Low Middle Power LED ■ 4014 3V



UNIT : mm



0.2W / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 50-217S/KKE-B302432Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ● Warm White    | 3000K   | 24                   | 26                   | 80         | 140                      |
| 50-217S/KKE-B352432Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ● Warm White    | 3500K   | 24                   | 26                   | 80         | 140                      |
| 50-217S/KKE-B402632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Neutral White | 4000K   | 26                   | 28                   | 80         | 151                      |
| 50-217S/KKE-B432632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Neutral White | 4300K   | 26                   | 28                   | 80         | 151                      |
| 50-217S/KKE-B502632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 5000K   | 26                   | 28                   | 80         | 151                      |
| 50-217S/KKE-B632632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 6300K   | 26                   | 28                   | 80         | 151                      |
| 50-217S/KKE-B652632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 6500K   | 26                   | 28                   | 80         | 151                      |

0.2W / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 50-217S/KKE-B302632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ● Warm White    | 3000K   | 26                   | 28                   | 80         | 151                      |
| 50-217S/KKE-B352632Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ● Warm White    | 3500K   | 26                   | 28                   | 80         | 151                      |
| 50-217S/KKE-B402832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Neutral White | 4000K   | 28                   | 30                   | 80         | 161                      |
| 50-217S/KKE-B432832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Neutral White | 4300K   | 28                   | 30                   | 80         | 161                      |
| 50-217S/KKE-B502832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 5000K   | 28                   | 30                   | 80         | 161                      |
| 50-217S/KKE-B632832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 6300K   | 28                   | 30                   | 80         | 161                      |
| 50-217S/KKE-B652832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 6500K   | 28                   | 30                   | 80         | 161                      |

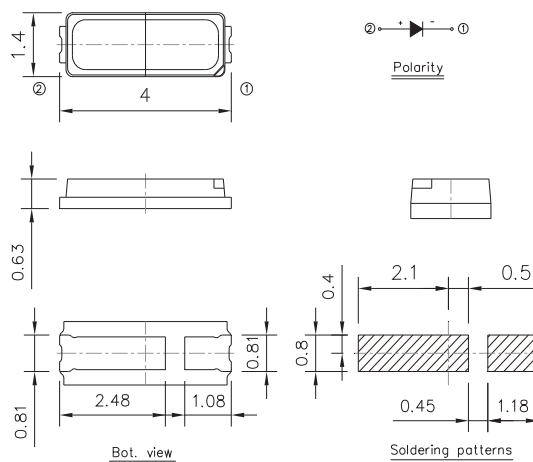
0.2W / 3V / 60mA

| Product                  | Size (LxWxHmm) | Forward Voltage (V) | Forward Current (mA) | Color           | CCT (K) | Luminous Flux (Min.) | Luminous Flux (Typ.) | CRI (min.) | Luminous Efficacy (lm/W) |
|--------------------------|----------------|---------------------|----------------------|-----------------|---------|----------------------|----------------------|------------|--------------------------|
| 50-217S/KKE-B302832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ● Warm White    | 3000K   | 28                   | 30                   | 80         | 161                      |
| 50-217S/KKE-B352832Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ● Warm White    | 3500K   | 28                   | 30                   | 80         | 161                      |
| 50-217S/KKE-B403032Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Neutral White | 4000K   | 30                   | 32                   | 80         | 172                      |
| 50-217S/KKE-B433032Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Neutral White | 4300K   | 30                   | 32                   | 80         | 172                      |
| 50-217S/KKE-B503032Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 5000K   | 30                   | 32                   | 80         | 172                      |
| 50-217S/KKE-B633032Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 6300K   | 30                   | 32                   | 80         | 172                      |
| 50-217S/KKE-B653032Z6/2T | 4.0x1.4x0.63   | 2.8~3.2             | 60                   | ○ Cool White    | 6500K   | 30                   | 32                   | 80         | 172                      |

## Low Middle Power LED ■ 4014 3V



UNIT : mm



0.2W / 3V / 60mA

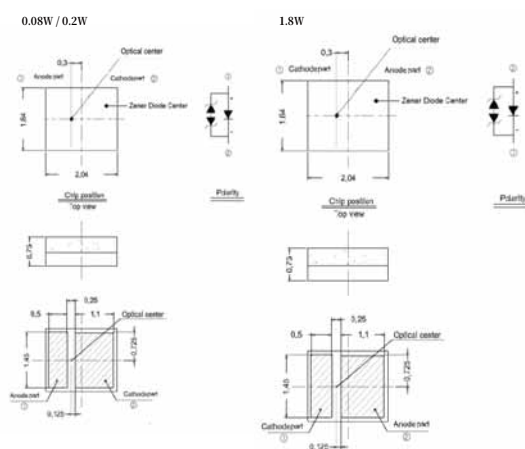
| Product                  | Size<br>(LxWxHmm) | Forward<br>Voltage<br>(V) | Forward<br>Current<br>(mA) | Color           | CCT<br>(K) | Luminous<br>Flux<br>(Min.) | Luminous<br>Flux<br>(Typ.) | CRI<br>(min.) | Luminous<br>Efficacy<br>(lm/W) |
|--------------------------|-------------------|---------------------------|----------------------------|-----------------|------------|----------------------------|----------------------------|---------------|--------------------------------|
| 50-217S/KKE-B303032Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ● Warm White    | 3000K      | 30                         | 32                         | 80            | 172                            |
| 50-217S/KKE-B353032Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ● Warm White    | 3500K      | 30                         | 32                         | 80            | 172                            |
| 50-217S/KKE-B403232Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ○ Neutral White | 4000K      | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B433232Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ○ Neutral White | 4300K      | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B503232Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ○ Cool White    | 5000K      | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B633232Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ○ Cool White    | 6300K      | 32                         | 34                         | 80            | 183                            |
| 50-217S/KKE-B653232Z6/2T | 4.0x1.4x0.63      | 2.8~3.2                   | 60                         | ○ Cool White    | 6500K      | 32                         | 34                         | 80            | 183                            |



# UVA ■ LOW / MIDDLE / HIGH POWER LED ■ 2016



UNIT : mm



## 2016 ceramic substrate / 0.08W / 3.5V / 20mA / 120°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA2016OGB-P6070Q43040020-VA1M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 20                   | 360~370         | 20                |
| ELUA2016OGB-P8090Q53040020-VA1M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 20                   | 380~390         | 25                |
| ELUA2016OGB-P9000Q53040020-VA1M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 20                   | 390~400         | 25                |
| ELUA2016OGB-P0010Q53040020-VA1M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 20                   | 400~410         | 25                |

## 2016 ceramic substrate / 0.2W / 3.5V / 60mA / 120°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA2016OGB-P6070R13040060-V21M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 60                   | 360~370         | 50                |
| ELUA2016OGB-P8090R43040060-V21M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 60                   | 380~390         | 65                |
| ELUA2016OGB-P9000R53040060-V21M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 60                   | 390~400         | 70                |
| ELUA2016OGB-P0010R53040060-V21M | 2.0x1.6x0.75   | 120°       | 3.0~4.0             | 60                   | 400~410         | 70                |

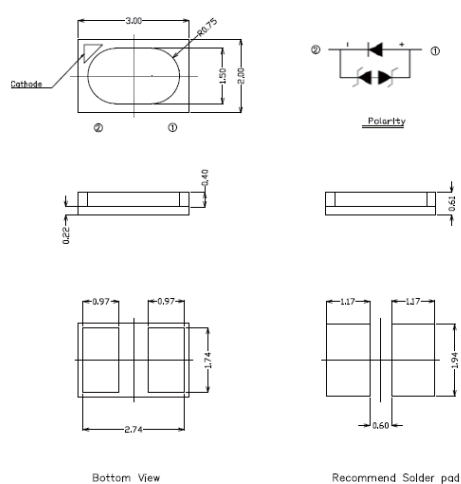
## 2016 ceramic substrate / 1.8W / 3.5V / 500mA / 120°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA2016OGB-P6070T53240500-VD1M | 2.0x1.6x0.75   | 120°       | 3.2~4.0             | 500                  | 360~370         | 500               |
| ELUA2016OGB-P8090T73240500-VD1M | 2.0x1.6x0.75   | 120°       | 3.2~4.0             | 500                  | 380~390         | 600               |
| ELUA2016OGB-P9000T73240500-VD1M | 2.0x1.6x0.75   | 120°       | 3.2~4.0             | 500                  | 390~400         | 600               |
| ELUA2016OGB-P0010T73240500-VD1M | 2.0x1.6x0.75   | 120°       | 3.2~4.0             | 500                  | 400~410         | 600               |

## UVA I LOW MIDDLE POWER LED I 3020



UNIT : mm



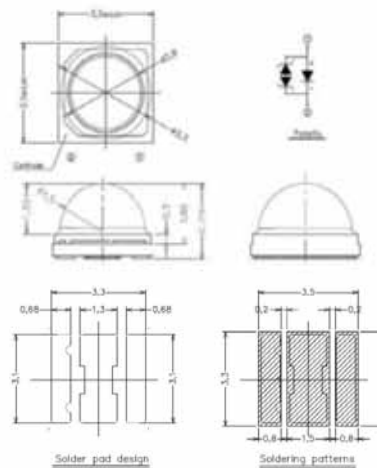
3020 ceramic substrate / 0.08W / 3.5V / 20mA / 120°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA3020LUB-P6070Q43040020-VA1D | 3.0x2.0x0.62   | 120°       | 3.0~4.0             | 20                   | 360~370         | 20                |
| ELUA3020LUB-P8090Q53040020-VA1D | 3.0x2.0x0.62   | 120°       | 3.0~4.0             | 20                   | 380~390         | 25                |
| ELUA3020LUB-P9000Q53040020-VA1D | 3.0x2.0x0.62   | 120°       | 3.0~4.0             | 20                   | 390~400         | 25                |
| ELUA3020LUB-P0010Q53040020-VA1D | 3.0x2.0x0.62   | 120°       | 3.0~4.0             | 20                   | 400~410         | 25                |

## UVA I HIGH POWER LED I 3535



UNIT : mm



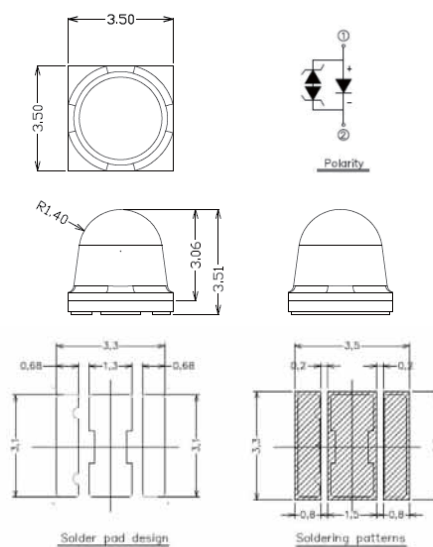
3535 ceramic substrate / 1.8W / 3.5V / 500mA / 120°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA3535OGB-P6070U23240500-VD1M | 3.5x3.5x2.35   | 120°       | 3.2~4.0             | 500                  | 360~370         | 1000              |
| ELUA3535OGB-P8090U23240500-VD1M | 3.5x3.5x2.35   | 120°       | 3.2~4.0             | 500                  | 380~390         | 1000              |
| ELUA3535OGB-P9000U23240500-VD1M | 3.5x3.5x2.35   | 120°       | 3.2~4.0             | 500                  | 390~400         | 1000              |
| ELUA3535OGB-P0010U23240500-VD1M | 3.5x3.5x2.35   | 120°       | 3.2~4.0             | 500                  | 400~410         | 1000              |

## UVA | HIGH POWER LED | 3535



UNIT : mm



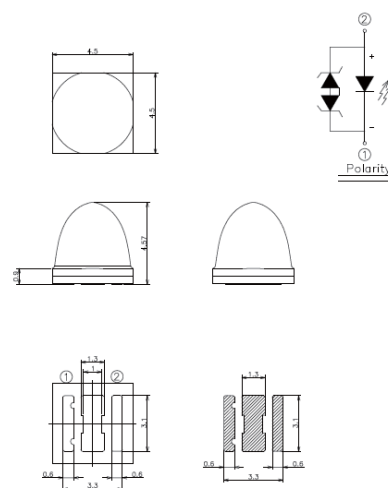
3535 ceramic substrate / 1.8W / 3.5V / 500mA / 50°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA3535OG5-P6070U13240500-VD1M | 3.5x3.5x3.51   | 50°        | 3.2~4.0             | 500                  | 360~370         | 900               |
| ELUA3535OG5-P8090U23240500-VD1M | 3.5x3.5x3.51   | 50°        | 3.2~4.0             | 500                  | 380~390         | 1000              |
| ELUA3535OG5-P9000U23240500-VD1M | 3.5x3.5x3.51   | 50°        | 3.2~4.0             | 500                  | 390~400         | 1000              |
| ELUA3535OG5-P0010U23240500-VD1M | 3.5x3.5x3.51   | 50°        | 3.2~4.0             | 500                  | 400~410         | 1000              |

## UVA | HIGH POWER LED | 4545



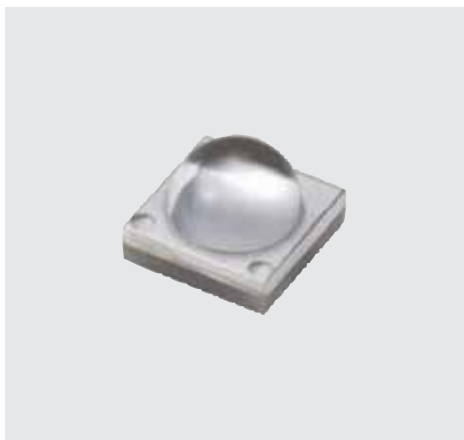
UNIT : mm



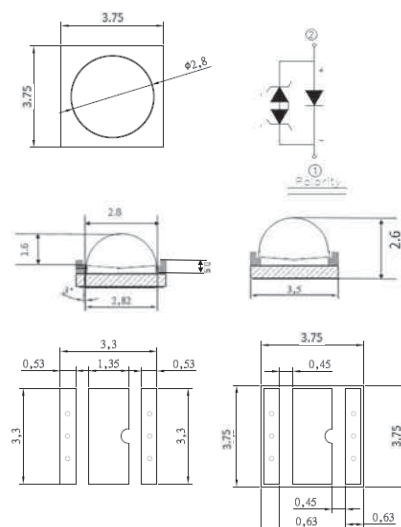
4545 ceramic substrate / 1.8W / 3.5V / 500mA / 30°

| Product                         | Size (LxWxHmm) | View Angle | Forward Voltage (V) | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------------------|----------------------|-----------------|-------------------|
| ELUA4545OG3-P6070U13241500-VD1M | 4.5x4.5x4.57   | 30°        | 3.2~4.1             | 500                  | 360~370         | 900               |
| ELUA4545OG3-P8090U23241500-VD1M | 4.5x4.5x4.57   | 30°        | 3.2~4.1             | 500                  | 380~390         | 1000              |
| ELUA4545OG3-P9000U23241500-VD1M | 4.5x4.5x4.57   | 30°        | 3.2~4.1             | 500                  | 390~400         | 1000              |
| ELUA4545OG3-P0010U23241500-VD1M | 4.5x4.5x4.57   | 30°        | 3.2~4.1             | 500                  | 400~410         | 1000              |

## UVA ■ HIGH POWER LED ■ 3535 Glass Lens



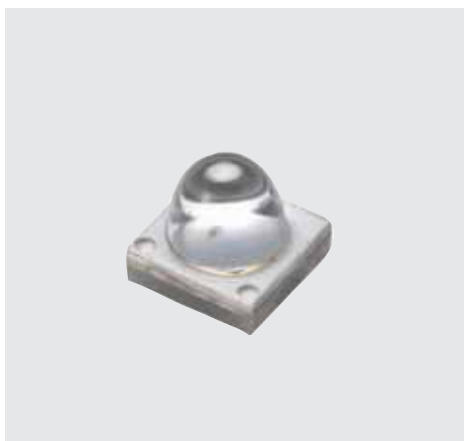
UNIT : mm



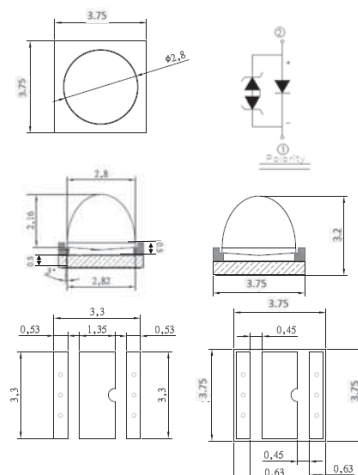
3535 ceramic substrate / 4W / 4V / 1000mA / 60°

| Product                         | Size (LxWxHmm) | View Angle | Forward | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------|----------------------|-----------------|-------------------|
| ELUA3535NU6-P6070U23648700-V41G | 3.75x3.75x2.6  | 60°        | 3.6~4.8 | 700                  | 360~370         | 1000              |
| ELUA3535NU6-P8090U736481K0-V41G | 3.75x3.75x2.6  | 60°        | 3.6~4.8 | 1000                 | 380~390         | 1500              |
| ELUA3535NU6-P9000U736481K0-V41G | 3.75x3.75x2.6  | 60°        | 3.6~4.8 | 1000                 | 390~400         | 1500              |
| ELUA3535NU6-P0010U736481K0-V41G | 3.75x3.75x2.6  | 60°        | 3.6~4.8 | 1000                 | 400~410         | 1500              |

## UVA ■ HIGH POWER LED ■ 3535 Glass Lens



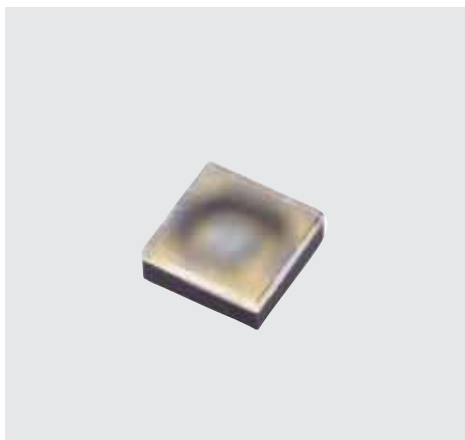
UNIT : mm



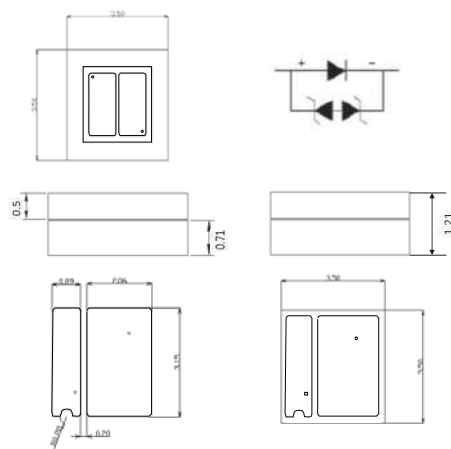
3535 ceramic substrate / 4W / 4V / 1000mA / 30°

| Product                         | Size (LxWxHmm) | View Angle | Forward | Forward Current (mA) | Wavelength (nm) | Radiant Flux (mW) |
|---------------------------------|----------------|------------|---------|----------------------|-----------------|-------------------|
| ELUA3535NU3-P6070U23648700-V41G | 3.75x3.75x3.2  | 30°        | 3.6~4.8 | 700                  | 360~370         | 1000              |
| ELUA3535NU3-P8090U736481K0-V41G | 3.75x3.75x3.2  | 30°        | 3.6~4.8 | 1000                 | 380~390         | 1500              |
| ELUA3535NU3-P9000U736481K0-V41G | 3.75x3.75x3.2  | 30°        | 3.6~4.8 | 1000                 | 390~400         | 1500              |
| ELUA3535NU3-P0010U736481K0-V41G | 3.75x3.75x3.2  | 30°        | 3.6~4.8 | 1000                 | 400~410         | 1500              |

# UVA I LOW POWER LED I 3535



UNIT : mm



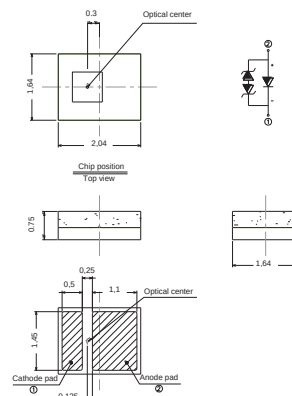
3535 ceramic substrate / 0.13W / 6V / 20mA / 120°

| Product                         | Size<br>(LxWxHmm) | Forward Voltage<br>(V) | Forward Current<br>(mA) | Wavelength<br>(nm) | Radiant Flux<br>(mW) |
|---------------------------------|-------------------|------------------------|-------------------------|--------------------|----------------------|
|                                 |                   |                        |                         |                    | TYP                  |
| ELUC3535OUB-P7090Q05979020-S41Q | 3.5x3.5x1.3       | 5.9~7.9                | 20                      | 270~290            | 2                    |

## Flash LED ■ High Power Flash LED ■ 2016 Package Dual Color



UNIT : mm

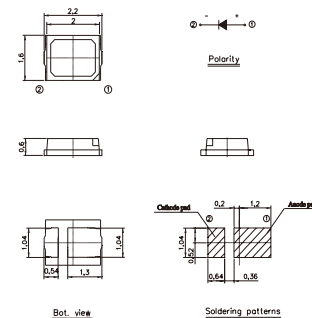


| Product                     | Size (LxWxHmm) | Color        | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) |
|-----------------------------|----------------|--------------|-----------|-------------------------|---------------------|---------------------|
| ELCH07-NB2025J5J7283910-F3H | 2.04x1.64x0.75 | ● Warm White | 2000~2500 | 210                     | 2.85~3.95           | 1000mA              |
| ELCH07-NB5060J6J8283910-F3H | 2.04x1.64x0.75 | ○ White      | 5000~6000 | 260                     | 2.85~3.95           | 1000mA              |
| ELCH08-NF2025J5J8283910-FDH | 2.04x1.64x0.75 | ● Warm White | 2000~2500 | 220                     | 2.85~3.9            | 1000mA              |
| ELCH08-NF5565J7J9283910-FDH | 2.04x1.64x0.75 | ○ White      | 5500~6500 | 300                     | 2.85~3.9            | 1000mA              |

## Flash LED ■ High Power Flash LED ■ 2016 Package Type



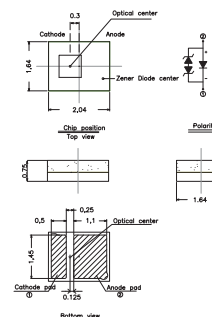
UNIT : mm



| Product                             | Size (LxWxHmm) | Color      | CCT (K) | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) | CRI |
|-------------------------------------|----------------|------------|---------|-------------------------|---------------------|---------------------|-----|
| 37-21S-NKK2C-H5050M41N42936Z6-2T-FS | 2.2x1.6x0.6    | Cool White | 5000    | 22~33                   | 2.9~3.6             | 60mA                | >80 |
|                                     |                |            |         | 38.8                    | 3.3                 | 100mA               |     |
| 37-21ST-KK2C-H5050R1R42835Z15-2T-FS | 2.2x1.6x0.6    | Cool White | 5000    | 50~70                   | 2.8~3.5             | 150mA               | >80 |
|                                     |                |            |         | 117.6                   | 3.96                | 350mA               |     |

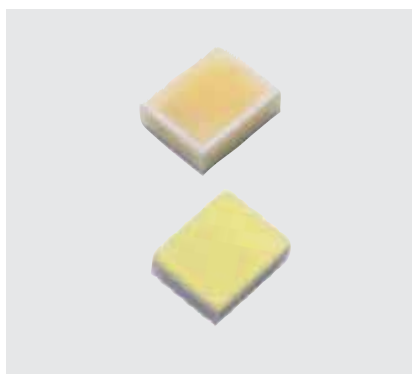


UNIT : mm

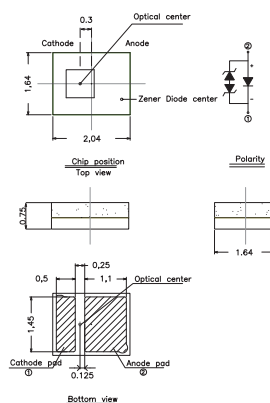


| Product                     | Size (LxWxHmm) | Color | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) |
|-----------------------------|----------------|-------|-----------|-------------------------|---------------------|---------------------|
| ELCH07-NB5060J6J8283910-F3W | 2.04x1.64x0.75 | White | 5000~6000 | 250                     | 2.85~3.95           | 1000mA              |

## Flash LED ■ High Power Flash LED ■ 2016 Package Type



UNIT : mm

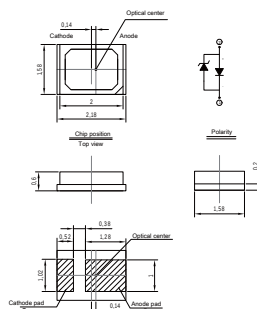


| Product                     | Size (LxWxHmm) | Color   | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) |
|-----------------------------|----------------|---------|-----------|-------------------------|---------------------|---------------------|
| ELCH08-NB5060J7J9283910-F1S | 2.04x1.64x0.75 | ○ White | 5000~6000 | 300                     | 2.85~3.95           | 1000mA              |
| ELCH09-NB5060J8K2283910-FDX | 2.04x1.64x0.75 | ○ White | 5000~6000 | 350                     | 2.85~3.95           | 1000mA              |

## Flash LED ■ High Power Flash LED ■ 2016 Package HCRI Type



UNIT : mm



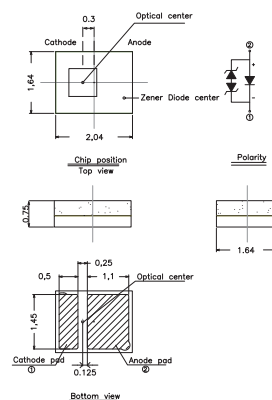
| Product                   | Size (LxWxHmm) | Color   | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) | CRI |
|---------------------------|----------------|---------|-----------|-------------------------|---------------------|---------------------|-----|
| ELEM-KB5060F9J4294003-T6C | 2.18x1.58x0.6  | ○ White | 5000~6000 | 115                     | 2.95~4.05           | 350mA               | >80 |



## Flash LED ■ High Power Flash LED ■ 2016 Package HCRI Type



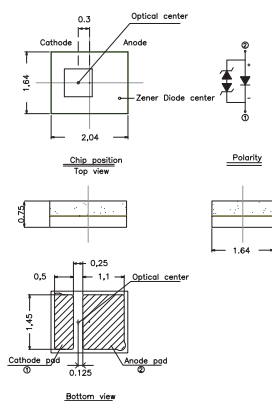
UNIT : mm



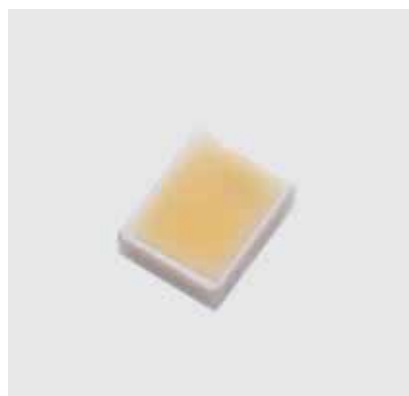
| Product                     | Size (LxWxHmm) | Color   | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) | CRI |
|-----------------------------|----------------|---------|-----------|-------------------------|---------------------|---------------------|-----|
| ELCH07-KB4050J5J8283910-F3H | 2.04x1.64x0.75 | ○ White | 4000~5000 | 220                     | 2.85~3.95           | 1000mA              | >80 |
| ELCH08-KB4050J6J8283910-FDH | 2.04x1.64x0.75 | ○ White | 4000~5000 | 250                     | 2.85~3.95           | 1000mA              | >80 |



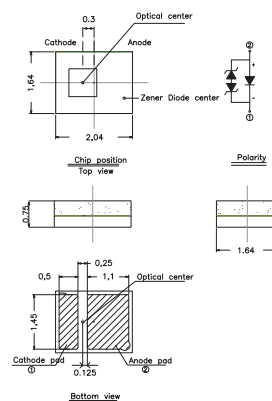
UNIT : mm



| Product                     | Size (LxWxHmm) | Color   | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) | CRI |
|-----------------------------|----------------|---------|-----------|-------------------------|---------------------|---------------------|-----|
| ELCH08-KB5060J7J9283810-FDX | 2.04x1.64x0.75 | ○ White | 5000~6000 | 300                     | 2.85~3.8            | 1000mA              | >80 |



UNIT : mm

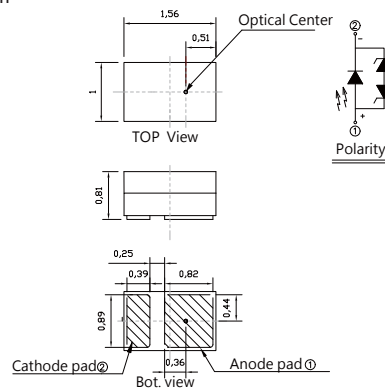


| Product                     | Size (LxWxHmm) | Color   | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) | CRI |
|-----------------------------|----------------|---------|-----------|-------------------------|---------------------|---------------------|-----|
| ELCH08-HB3545J6J8283910-FDS | 2.04x1.64x0.75 | ○ White | 3500~4500 | 220                     | 2.85~3.95           | 1000mA              | >90 |

## Flash LED ■ High Power Flash LED ■ 1610 Package Dual Type



UNIT : mm

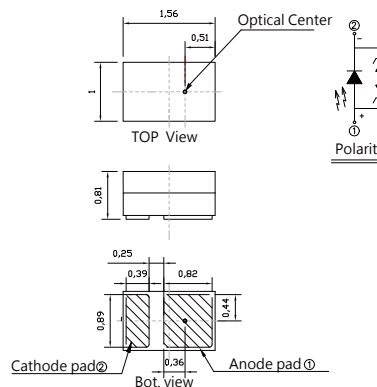


| Product                     | Size (LxWxHmm) | Color      | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) |
|-----------------------------|----------------|------------|-----------|-------------------------|---------------------|---------------------|
| ELAT07-NB2025J5J7293910-F3Y | 1.56x1.0x0.81  | Warm White | 2000~2500 | 200                     | 2.95~3.95           | 1000mA              |
| ELAT07-NB5060J6J8293910-F3X | 1.56x1.0x0.81  | Cool White | 5000~6000 | 260                     | 2.95~3.95           | 1000mA              |

## Flash LED ■ High Power Flash LED ■ 1610 Package HCRI Type



UNIT : mm

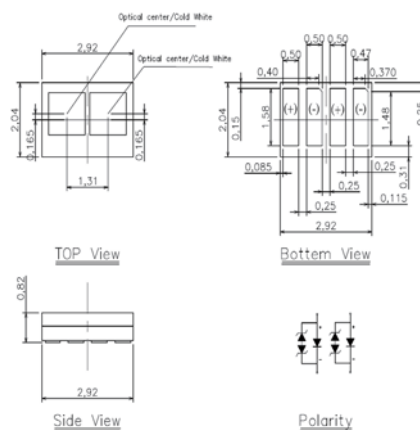


| Product                     | Size (LxWxHmm) | Color      | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | CRI | I <sub>F</sub> (mA) |
|-----------------------------|----------------|------------|-----------|-------------------------|---------------------|-----|---------------------|
| ELAT07-KB4050J5J7293910-F1S | 1.56x1.0x0.81  | Cool White | 4000~5000 | 220                     | 2.95~3.95           | >80 | 1000                |

## Flash LED ■ High Power Flash LED ■ ELDA Series



UNIT : mm

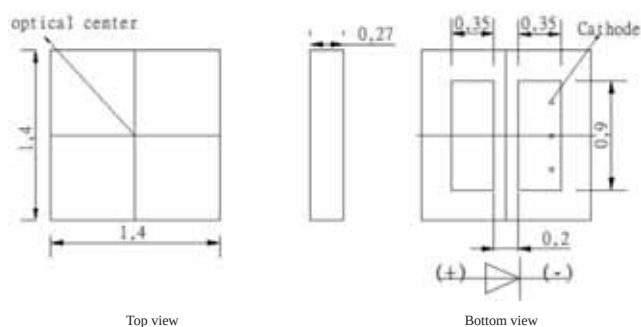


| Product                     | Size (LxWxHmm) | Color      | CCT (K)    | Typ. Luminous Flux (lm) | Forward Voltage (V) | I <sub>F</sub> (mA) | CRI |
|-----------------------------|----------------|------------|------------|-------------------------|---------------------|---------------------|-----|
| ELDA06-HB2555J3J8283910-FCX | 2.92x2.04x0.82 | Warm White | 2250 ~2750 | 170                     | 2.85~3.95           | 1000mA              | >90 |
|                             |                | Cold White | 5000~6000  | 220                     | 2.85~3.95           | 1000mA              |     |
| ELDA08-NB5060J6J8283910-FCX | 2.92x2.04x0.82 | Cold White | 5000~6000  | 270                     | 2.85~3.95           | 1000mA              | NA  |

## Flash LED ■ High Power Flash LED ■ CSP Dual Color Type

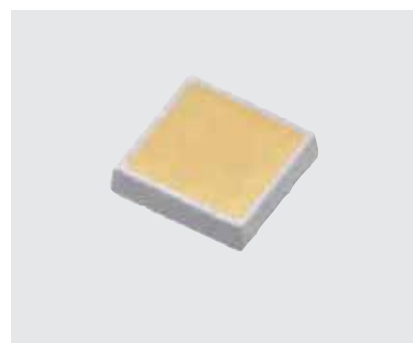


UNIT : mm

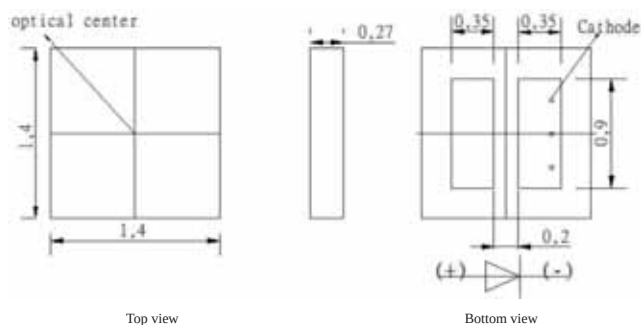


| Product                      | Size (LxWxHmm) | Color      | CCT (K)   | Typ. Luminous Flux (lm) | Forward Voltage (V) | If(mA) |
|------------------------------|----------------|------------|-----------|-------------------------|---------------------|--------|
| ELCS14B-NB2025J6J8283910-F4Z | 1.4X1.4X0.27   | Warm White | 2000~2500 | 230                     | 2.85~3.95           | 1000mA |
| ELCS14B-NB5060J7J9283910-F4Z | 1.4X1.4X0.27   | White      | 5000~6000 | 290                     | 2.85~3.95           | 1000mA |

## Flash LED ■ High Power Flash LED ■ CSP HCRI Type



UNIT : mm

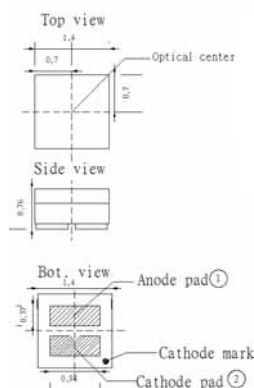


| Product                      | Size (LxWxHmm) | Color | CCT (K)   | Typ. Luminous Flux (lx) | Forward Voltage (V) | If(mA) | CRI |
|------------------------------|----------------|-------|-----------|-------------------------|---------------------|--------|-----|
| ELCS14B-KB4050J6J8283910-FCZ | 1.4X1.4X0.27   | White | 4000~5000 | 250                     | 2.85~3.95           | 1000mA | >80 |

## Flash LED ■ High Power Flash LED ■ CSP with substrate

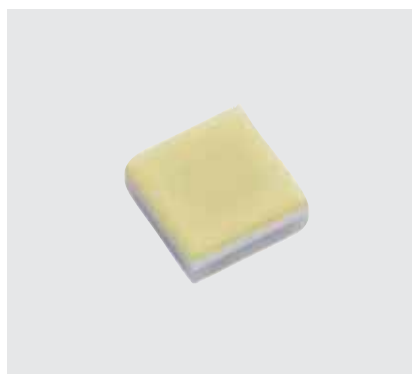


UNIT : mm

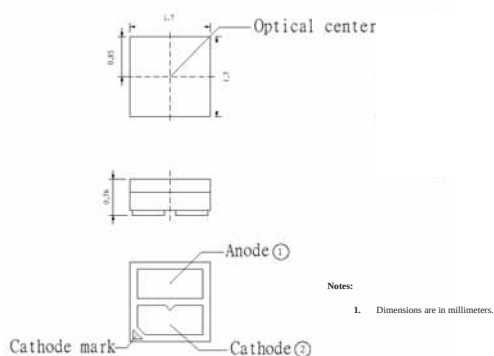


| Product                      | Size (LxWxHmm) | Color      | CCT (K)   | Typ. Luminous Flux (lx) | Forward Voltage (V) | If(mA) |
|------------------------------|----------------|------------|-----------|-------------------------|---------------------|--------|
| ELCS14G-NB2025J6J7293910-F3Y | 1.4X1.4X0.76   | Warm White | 2000~2500 | 220                     | 2.95~3.95           | 1000mA |
| ELCS14G-NB5060J6J8293910-F3X | 1.4X1.4X0.76   | Cold White | 5000~6000 | 245                     | 2.95~3.95           | 1000mA |

## Flash LED ■ High Power Flash LED ■ CSP with substrate



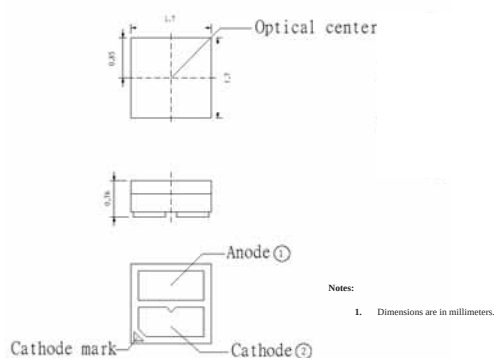
UNIT : mm



| Product                      | Size (LxWxHmm) | Color      | CCT (K)   | Typ. Luminous Flux (lx) | Forward Voltage (V) | If(mA) |
|------------------------------|----------------|------------|-----------|-------------------------|---------------------|--------|
| ELCS17G-NB4050J8K1293910-F4X | 1.7X1.7X0.76   | Cold White | 4000~5000 | 330                     | 2.95~3.95           | 1000mA |

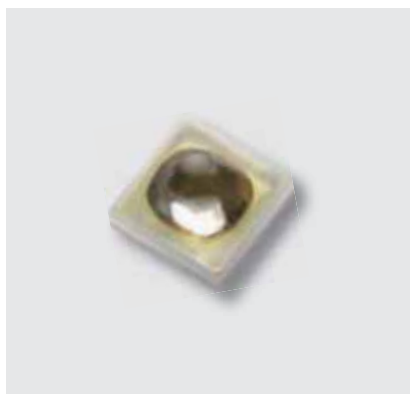
## Flash LED ■ High Power Flash LED ■ CSP HCRI with substrate

UNIT : mm

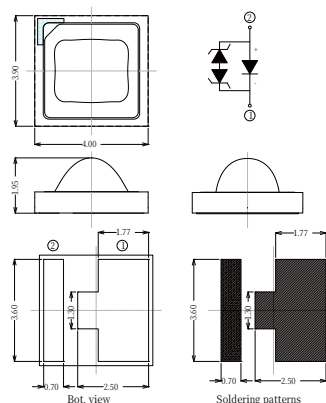


| Product                      | Size (LxWxHmm) | Color      | CCT (K)   | Typ. Luminous Flux (lx) | Forward Voltage (V) | If(mA) | CRI |
|------------------------------|----------------|------------|-----------|-------------------------|---------------------|--------|-----|
| ELCS17G-KB4050J8K1293910-F6X | 1.7X1.7X0.76   | Cold White | 4000~5000 | 330                     | 2.95~3.95           | 1000mA | >80 |

## Flash LED ■ High Power Flash LED ■ Module Type



UNIT : mm

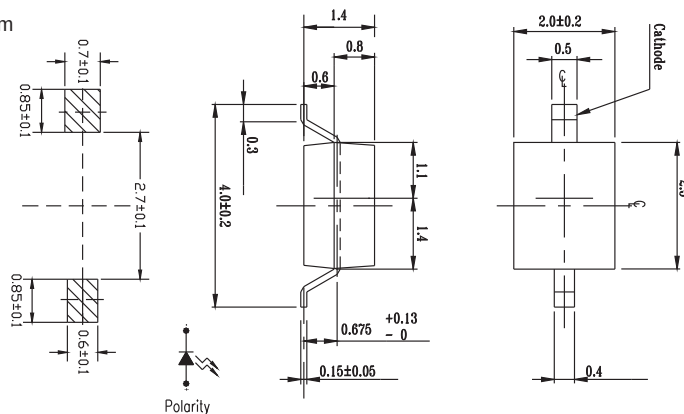


| Product                  | Size (LxWxHmm) | Color | CCT (K)   | Typ. Illuminance (lx) | Forward Voltage (V) | I <sub>F</sub> (mA) |
|--------------------------|----------------|-------|-----------|-----------------------|---------------------|---------------------|
| ELYU03-5070J5J7294310-N0 | 4.0x3.9x1.95   | White | 5000~7000 | 265                   | 2.95~4.35           | 1000mA              |
| ELYU03-5060J5J7294310-N0 | 4.0x3.9x1.95   | White | 5000~7000 | 265                   | 2.95~4.05           | 1000mA              |

## SMD LED ■ Subminiature LED Lamps (Leadframe)



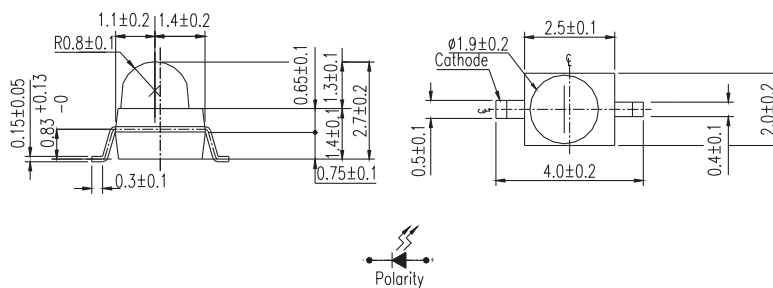
UNIT : mm



| Product               | Size (LxWxHmm) | Color          | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min. (V) | $V_F$ Typ. (V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|-----------------------|----------------|----------------|-------------------------------|--------------------------|---------------------|----------------|----------------|-------------------|------------|
| 28-21SDRC/S530-A3/TR8 | 2.5x2.0x1.4    | ● Deep Red     | 639                           | 20 / 27                  | N                   | 1.7            | 2              | 2.4               | 20         |
| 28-21SURC/S530-A2/TR8 | 2.5x2.0x1.4    | ● Hyper Red    | 624                           | 11 / 26                  | N                   | N              | 2              | 2.4               | 20         |
| 28-21UYC/S530-A3/TR8  | 2.5x2.0x1.4    | ● Super Yellow | 589                           | 21 / 33                  | N                   | N              | 2              | 2.4               | 20         |



UNIT : mm

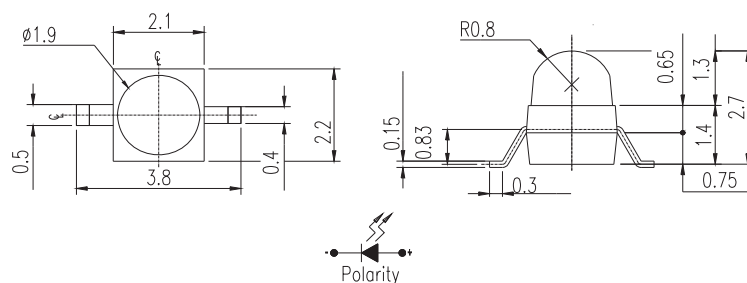


| Product               | Size (LxWxHmm) | Color                | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min. (V) | $V_F$ Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|----------------------|-------------------------------|--------------------------|---------------------|----------------|----------------|----------------|------------|
| 91-21SUBC/S400-A6/TR7 | 2.0x2.5x2.7    | ● Super Blue         | 470                           | 650 / 800                | N                   | N              | 3.5            | 4.0            | 20         |
| 91-21SUGC/S400-A4/TR7 | 2.0x2.5x2.7    | ● Super Green        | 525                           | 2000 / 2300              | N                   | N              | 3.5            | 4.3            | 20         |
| 91-21SURC/S530-A6/TR7 | 2.0x2.5x2.7    | ● Hyper Red          | 624                           | 802 / 1232               | N                   | N              | 2              | 2.4            | 20         |
| 91-21SYGC/S530-E4/TR7 | 2.0x2.5x2.7    | ● Super Yellow Green | 573                           | 528 / 594                | N                   | N              | 2              | 2.4            | 20         |
| 91-21USRC/S530-A4/TR7 | 2.0x2.5x2.7    | ● Dark Red           | 631                           | 344 / 578                | N                   | N              | 2              | 2.4            | 20         |

# SMD LED I Subminiature LED Lamps (Leadframe)



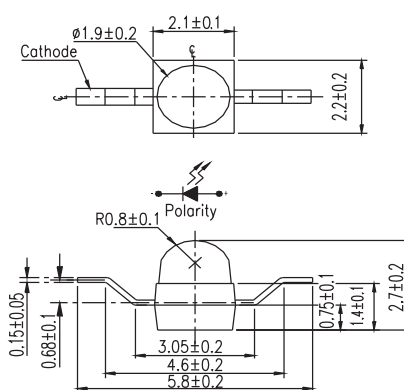
UNIT : mm



| Product               | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min.<br>(V) | $V_F$ Typ.<br>(V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|-----------------------|----------------|--------------------------|-------------------------------|--------------------------|---------------------|-------------------|-------------------|-------------------|------------|
| 95-21SUGC/S400-A4/TR7 | 2.1x2.2x2.7    | ● Super Green            | 525                           | 2000 / 2300              | N                   | N                 | 3.5               | 4.3               | 20         |
| 95-21SYGC/S530-E2/TR7 | 2.1x2.2x2.7    | ● Brilliant Yellow Green | 573                           | 264 / 330                | N                   | 1.7               | 2                 | 2.4               | 20         |
| 95-21USRD/S357/TR7    | 2.1x2.2x2.7    | ● Dark Red               | 631                           | 45 / 100                 | N                   | N                 | 2                 | 2.4               | 20         |
| 95-21UYC/S530-A5/TR7  | 2.1x2.2x2.7    | ● Super Yellow           | 589                           | 793 / 1156               | N                   | N                 | 2                 | 2.4               | 20         |



UNIT : mm



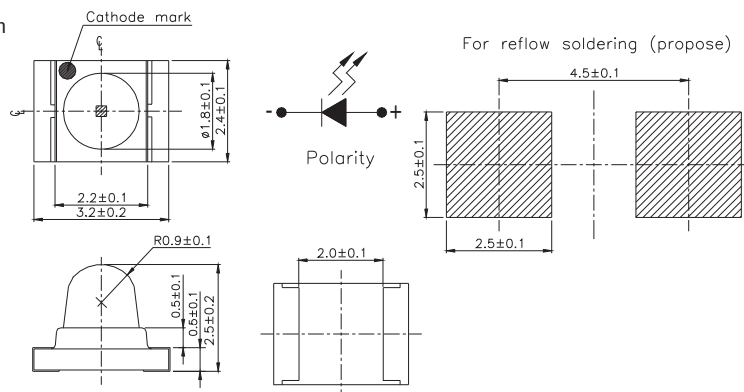
95-21F10/TR10

| Product                | Size (LxWxHmm) | Color           | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min.<br>(V) | $V_F$ Typ.<br>(V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|------------------------|----------------|-----------------|-------------------------------|--------------------------|---------------------|-------------------|-------------------|-------------------|------------|
| 95-21SDRC/S530-A3/TR10 | 2.1x2.2x2.7    | ● Brilliant Red | 639                           | 330 / 495                | N                   | 1.7               | 2                 | 2.4               | 20         |
| 95-21SUBC/S400-A5/TR10 | 2.1x2.2x2.7    | ● Super Blue    | 470                           | 500 / 800                | N                   | N                 | 3.5               | 4.3               | 20         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View LED



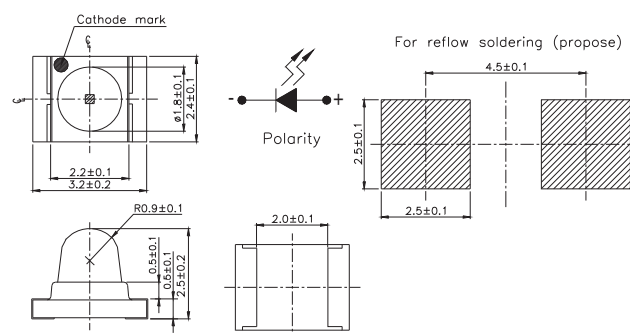
UNIT : mm



| Product          | Size (LxWxHmm) | Color | $\lambda_d$ (nm)/ CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|------------------|----------------|-------|----------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 42-21/BHC-AUW/1T | 3.2x2.4x2.5    | Blue  | 470                        | 450                   | 1800             | 2.7 / 3.3           | 3.7            | 20         |



UNIT : mm

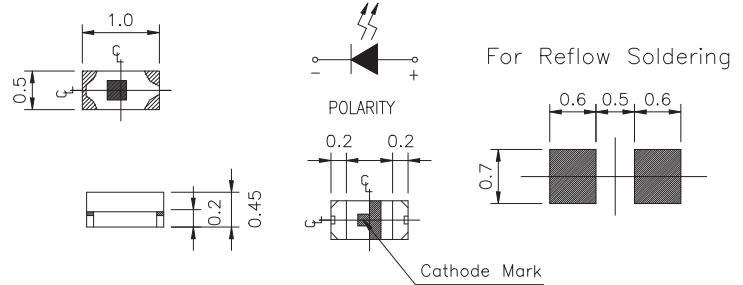


| Product              | Size (LxWxHmm) | Color           | $\lambda_d$ (nm)/ CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|-----------------|----------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 42-21A/BHC-ZV1W2N/1T | 3.2x2.4x2.5    | Blue            | 470                        | 715                   | 1800             | 2.65                | 3.75           | 20         |
| 42-21A/GHC-YX1Y2N/1T | 3.2x2.4x2.5    | Brilliant Green | 525                        | 1800                  | 4500             | 2.7                 | 3.7            | 20         |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0402 (0.2T~0.5T)



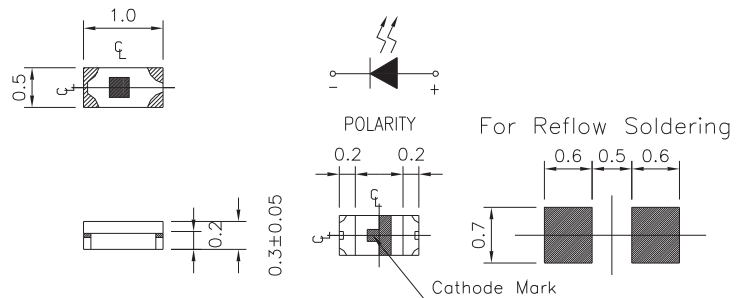
UNIT : mm



| Product               | Size (LxWxHmm) | Color             | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|-------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 16-213/BHC-AN1P2/3T   | 1.0x0.5x0.45   | ● Blue            | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 16-213/BHC-ZL1M2QY/3T | 1.0x0.5x0.45   | ● Blue            | 470                       | 11.5                  | 28.5             | 2.7                 | 3.2            | 5          |
| 16-213/GHC-YR1S1/3T   | 1.0x0.5x0.45   | ● Brilliant Green | 525                       | 112                   | 225              | 2.7 / 3.3           | 3.7            | 20         |
| 16-213/R6C-A2225VZ/3T | 1.0x0.5x0.45   | ● Brilliant Red   | 624                       | 20                    | 40.5             | 1.7                 | 2.2            | 10         |
| 16-213/T3D-AP1Q2QY/3T | 1.0x0.5x0.45   | ○ Pure White      | x=0.29, y=0.30            | 45                    | 112              | 2.7                 | 3.2            | 5          |
| 16-213/T7D-AQ1R1QY/3T | 1.0x0.5x0.45   | ○ Pure White      | x=0.29, y=0.30            | 72                    | 140              | 2.7                 | 3.2            | 5          |



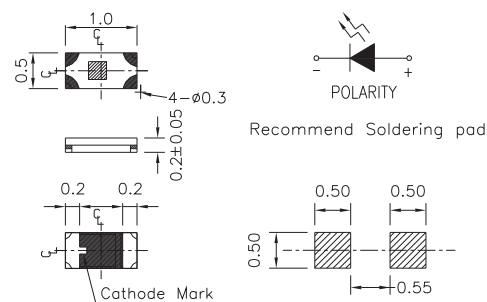
UNIT : mm



| Product               | Size (LxWxHmm) | Color        | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|--------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 16-216/T3D-AQ1R2TY/3T | 1.0x0.5x0.3    | ○ Pure White | x=0.29, y=0.30            | 72                    | 180              | 2.6                 | 3              | 5          |



UNIT : mm



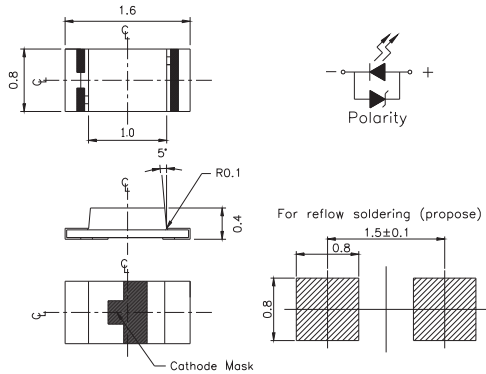
| Product                | Size (LxWxHmm) | Color        | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|------------------------|----------------|--------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 16-219A/T2D-AR2T1QY/3T | 1.0x0.5x0.2    | ○ Pure White | x=0.29, y=0.30            | 140                   | 360              | 2.7                 | 3.2            | 5          |



SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



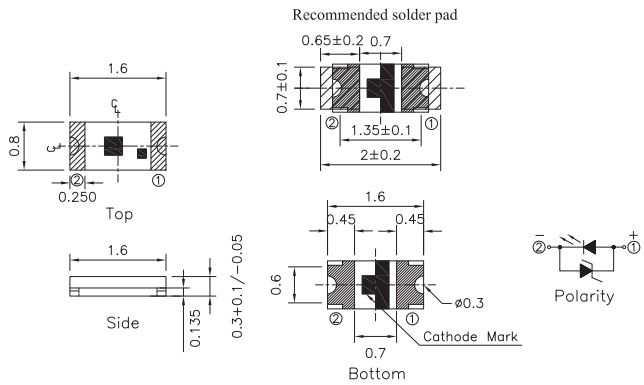
UNIT : mm



| Product               | Size (LxWxHmm) | Color        | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|--------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-117/BHC-YJ2K2TX/3T | 1.6x0.8x0.4    | ● Blue       | 470                       | 5.8                   | 11.5             | 2.6                 | 3              | 2          |
| 19-117/BHC-ZL1M2RY/3T | 1.6x0.8x0.4    | ● Blue       | 470                       | 11.5                  | 28.5             | 2.5                 | 3.1            | 5          |
| 19-117/T1D-AP2Q2QY/3T | 1.6x0.8x0.4    | ○ Pure White | x=0.274, y=0.226          | 57                    | 112              | 2.7                 | 3.2            | 5          |

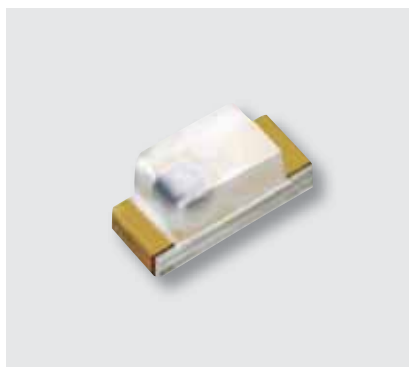


UNIT : mm

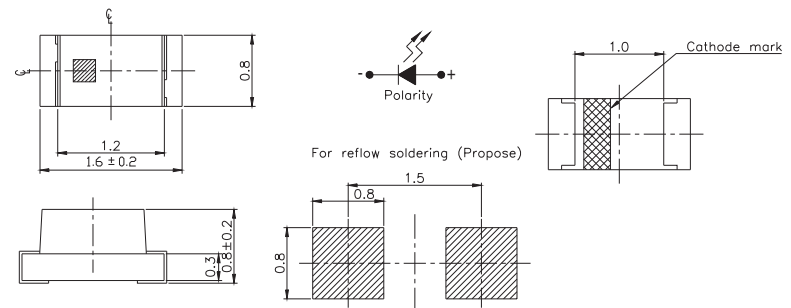


| Product               | Size (LxWxHmm) | Color  | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|--------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-118/BHC-ZL1M2QY/3T | 1.6x0.8x0.3    | ● Blue | 470                       | 11.5                  | 28.5             | 2.7                 | 3.2            | 5          |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



UNIT : mm

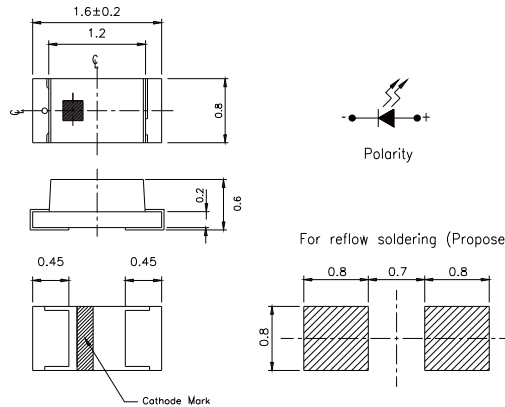


| Product              | Size<br>(LxWxHmm) | Color                  | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./<br>Typ. (V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|----------------------|-------------------|------------------------|---------------------------|--------------------------|---------------------|-------------------------|-------------------|------------|
| 19-21/B6C-AP2Q2M/3T  | 1.6x0.8x0.8       | Blue                   | 470                       | 57                       | 112                 | 2.75                    | 3.95              | 20         |
| 19-21/BHC-AP1Q2/3T   | 1.6x0.8x0.8       | Blue                   | 470                       | 45                       | 112                 | 2.7 / 3.3               | 3.7               | 20         |
| 19-21/BHC-YL1M1RY/3T | 1.6x0.8x0.8       | Blue                   | 470                       | 11.5                     | 22.5                | 2.5                     | 3.1               | 5          |
| 19-21/BHC-ZQ1R2N/3T  | 1.6x0.8x0.8       | Blue                   | 470                       | 72                       | 180                 | 2.7                     | 3.7               | 20         |
| 19-21/G6C-AL1M2LY/3T | 1.6x0.8x0.8       | Brilliant Yellow Green | 573                       | 11.5                     | 28.5                | 1.7                     | 2.3               | 5          |
| 19-21/G6C-FM1N2B/3T  | 1.6x0.8x0.8       | Brilliant Yellow Green | 573                       | 18                       | 45                  | 1.75                    | 2.35              | 20         |
| 19-21/G6C-FP1Q1L/3T  | 1.6x0.8x0.8       | Brilliant Yellow Green | 573                       | 45                       | 90                  | 1.7                     | 2.3               | 20         |
| 19-21/GHC-YN1P2QY/3T | 1.6x0.8x0.8       | Brilliant Green        | 525                       | 28.5                     | 72                  | 2.7                     | 3.2               | 5          |
| 19-21/GPC-FL1M2B/3T  | 1.6x0.8x0.8       | Green                  | 562                       | 11.5                     | 28.5                | 1.75                    | 2.35              | 20         |
| 19-21/R6C-AL2N1VY/3T | 1.6x0.8x0.8       | Brilliant Red          | 624                       | 14.5                     | 36                  | 1.7                     | 2.2               | 5          |
| 19-21/R6C-FP1Q2L/3T  | 1.6x0.8x0.8       | Brilliant Red          | 624                       | 45                       | 112                 | 1.7                     | 2.3               | 20         |
| 19-21/R7C-AK1L2BY/3T | 1.6x0.8x0.8       | Deep Red               | 631                       | 7.2                      | 18                  | 1.75                    | 2.35              | 5          |
| 19-21/R7C-AN2Q1B/3T  | 1.6x0.8x0.8       | Deep Red               | 631                       | 36                       | 90                  | 1.75                    | 2.35              | 20         |
| 19-21/R8C-FN2Q1L/3T  | 1.6x0.8x0.8       | Deep Red               | 639                       | 36                       | 90                  | 1.7                     | 2.3               | 20         |
| 19-21/S2C-AL2M2VY/3T | 1.6x0.8x0.8       | Brilliant Orange       | 605                       | 14.5                     | 28.5                | 1.7                     | 2.2               | 5          |
| 19-21/S2C-AQ1R2B/3T  | 1.6x0.8x0.8       | Brilliant Orange       | 605                       | 72                       | 180                 | 1.75                    | 2.35              | 20         |
| 19-21/T1D-ANPHY/3T   | 1.6x0.8x0.8       | Pure White             | x=0.274, y=0.226          | 28.5                     | 72                  | 2.7                     | 3.15              | 5          |
| 19-21/T1D-CPQTY/3T   | 1.6x0.8x0.8       | Pure White             | x=0.274, y=0.226          | 45                       | 112                 | 2.6                     | 3                 | 5          |
| 19-21/Y2C-AL1M2VY/3T | 1.6x0.8x0.8       | Brilliant Yellow       | 589                       | 11.5                     | 28.5                | 1.7                     | 2.2               | 5          |
| 19-21/Y2C-CP1Q2B/3T  | 1.6x0.8x0.8       | Brilliant Yellow       | 589                       | 45                       | 112                 | 1.75                    | 2.35              | 20         |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



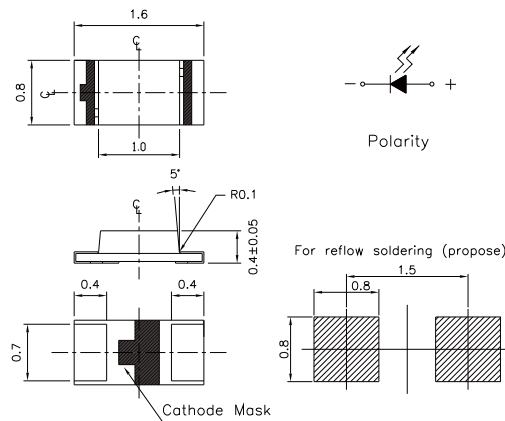
UNIT : mm



| Product                | Size (LxWxHmm) | Color        | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|------------------------|----------------|--------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-213A/T1D-CP2Q2HY/3T | 1.6x0.8x0.6    | ○ Pure White | x=0.274, y=0.226          | 57                    | 112              | 2.7                 | 3.15           | 5          |



UNIT : mm

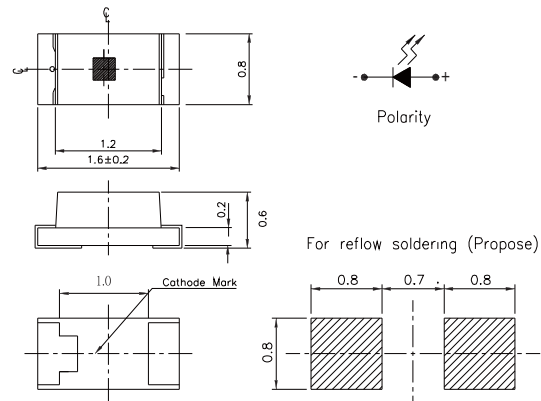


| Product                 | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-------------------------|----------------|--------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-217/B9C-ANQE/3T      | 1.6x0.8x0.4    | ● Blue                   | 470                       | 28.5                  | 112              | 2.75                | 3.65           | 20         |
| 19-217/BHC-AN1P2/3T     | 1.6x0.8x0.4    | ● Blue                   | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 19-217/BHC-XK1L2B11X/3T | 1.6x0.8x0.4    | ● Blue                   | 470                       | 7.2                   | 18               | 2.6                 | 2.9            | 2          |
| 19-217/BHC-YL2M2TY/3T   | 1.6x0.8x0.4    | ● Blue                   | 470                       | 14.5                  | 28.5             | 2.6                 | 3              | 5          |
| 19-217/G7C-AL1M2B/3T    | 1.6x0.8x0.4    | ● Brilliant Yellow Green | 573                       | 11.5                  | 28.5             | 1.75                | 2.35           | 20         |
| 19-217/GHC-YR1S2/3T     | 1.6x0.8x0.4    | ● Brilliant Green        | 525                       | 112                   | 285              | 2.7 / 3.3           | 3.7            | 20         |
| 19-217/R6C-P1Q2/3T      | 1.6x0.8x0.4    | ● Brilliant Red          | 624                       | 45                    | 112              | 1.7 / 2             | 2.4            | 20         |
| 19-217/S2C-AL1M2VY/3T   | 1.6x0.8x0.4    | ● Brilliant Orange       | 605                       | 11.5                  | 28.5             | 1.7                 | 2.2            | 5          |
| 19-217/S3C-AL2N1VY/3T   | 1.6x0.8x0.4    | ● Reddish Orange         | 615                       | 14.5                  | 36               | 1.7                 | 2.2            | 5          |
| 19-217/T1D-ANPHY/3T     | 1.6x0.8x0.4    | ○ Pure White             | x=0.274, y=0.226          | 28.5                  | 72               | 2.7                 | 3.15           | 5          |
| 19-217/T1D-JP1Q2QY/3T   | 1.6x0.8x0.4    | ○ Pure White             | x=0.274, y=0.226          | 45                    | 112              | 2.7                 | 3.2            | 5          |
| 19-217/Y5C-AM1N1VY/3T   | 1.6x0.8x0.4    | ● Brilliant Yellow       | 589                       | 18                    | 36               | 1.7                 | 2.2            | 5          |
| 19-217/Y5C-APQB/3T      | 1.6x0.8x0.4    | ● Brilliant Yellow       | 589                       | 45                    | 112              | 1.75                | 2.35           | 20         |
| 19-217/Y5C-AQ2R2/3T     | 1.6x0.8x0.4    | ● Brilliant Yellow       | 589                       | 90                    | 180              | 1.7 / 2             | 2.4            | 20         |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



UNIT : mm

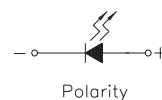
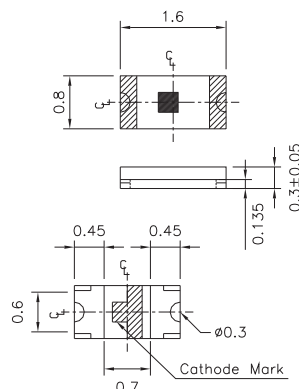


| Product               | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|--------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-213/Y2C-CQ1R2/3T   | 1.6x0.8x0.6    | ● Brilliant Yellow       | 589                       | 72                    | 180              | 1.7 / 2             | 2.4            | 20         |
| 19-213/B7C-AQ2S1B2/3T | 1.6x0.8x0.6    | ● Blue                   | 470                       | 90                    | 225              | 2.9                 | 3.6            | 20         |
| 19-213/BHC-AN1P2/3T   | 1.6x0.8x0.6    | ● Blue                   | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 19-213/G6C-AP1Q2/3T   | 1.6x0.8x0.6    | ● Brilliant Yellow Green | 573                       | 45                    | 112              | 2                   | 2.4            | 20         |
| 19-213/G6C-BM1N2B/3T  | 1.6x0.8x0.6    | ● Brilliant Yellow Green | 573                       | 18                    | 45               | 1.75                | 2.35           | 20         |
| 19-213/G6C-FN2Q1L/3T  | 1.6x0.8x0.6    | ● Brilliant Yellow Green | 573                       | 36                    | 90               | 1.7                 | 2.3            | 20         |
| 19-213/G6W-FN1P1B/3T  | 1.6x0.8x0.6    | ● Brilliant Yellow Green | 573                       | 28.5                  | 57               | 1.75                | 2.35           | 20         |
| 19-213/GHC-XS1T1N/3T  | 1.6x0.8x0.6    | ● Brilliant Green        | 525                       | 180                   | 360              | 2.7                 | 3.7            | 20         |
| 19-213/GHC-YP1Q2QY/3T | 1.6x0.8x0.6    | ● Brilliant Green        | 525                       | 45                    | 112              | 2.7                 | 3.2            | 5          |
| 19-213/GHC-YR1S2/3T   | 1.6x0.8x0.6    | ● Brilliant Green        | 525                       | 112                   | 285              | 3.5                 | 4              | 20         |
| 19-213/R6C-AM2P1VY/3T | 1.6x0.8x0.6    | ● Brilliant Red          | 624                       | 22.5                  | 57               | 1.7                 | 2.2            | 5          |
| 19-213/R6C-AN1P2/3T   | 1.6x0.8x0.6    | ● Brilliant Red          | 624                       | 28.5                  | 72               | 1.7 / 2             | 2.4            | 20         |
| 19-213/R6C-AN2Q1B/3T  | 1.6x0.8x0.6    | ● Brilliant Red          | 624                       | 36                    | 90               | 1.75                | 2.35           | 20         |
| 19-213/R6C-AP1Q2B/3T  | 1.6x0.8x0.6    | ● Brilliant Red          | 624                       | 45                    | 112              | 1.75                | 2.35           | 20         |
| 19-213/R6C-AQ1R2B/3T  | 1.6x0.8x0.6    | ● Brilliant Red          | 624                       | 72                    | 180              | 1.75                | 2.35           | 20         |
| 19-213/R8C-FN1P2/3T   | 1.6x0.8x0.6    | ● Deep Red               | 639                       | 28.5                  | 72               | 1.7 / 2             | 2.4            | 20         |
| 19-213/S2C-AN1P2B/3T  | 1.6x0.8x0.6    | ● Brilliant Orange       | 605                       | 28.5                  | 72               | 1.75                | 2.35           | 20         |
| 19-213/S3C-AN2P2B/3T  | 1.6x0.8x0.6    | ● Reddish Orange         | 615                       | 36                    | 72               | 1.75                | 2.35           | 20         |
| 19-213/T1D-ANPHY/3T   | 1.6x0.8x0.6    | ○ Pure White             | x=0.274, y=0.226          | 28.5                  | 72               | 2.7                 | 3.15           | 5          |
| 19-213/Y2C-AP1Q2B/3T  | 1.6x0.8x0.6    | ● Brilliant Yellow       | 589                       | 45                    | 112              | 1.75                | 2.35           | 20         |
| 19-213/Y2C-CN1P2/3T   | 1.6x0.8x0.6    | ● Brilliant Yellow       | 589                       | 28.5                  | 72               | 1.7 / 2             | 2.4            | 20         |
| 19-213/Y2C-CP1Q2L/3T  | 1.6x0.8x0.6    | ● Brilliant Yellow       | 589                       | 45                    | 112              | 1.7                 | 2.3            | 20         |
| 19-213/Y2C-CQ2R2L/3T  | 1.6x0.8x0.6    | ● Brilliant Yellow       | 589                       | 90                    | 180              | 1.7                 | 2.3            | 20         |

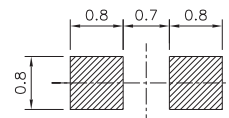
SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0603 (0.2T~0.8T)



UNIT : mm



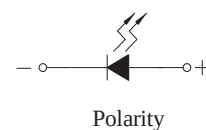
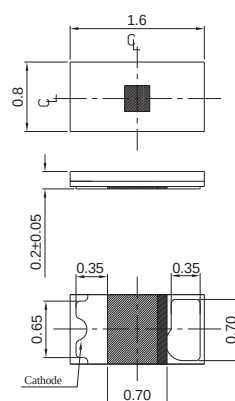
For Reflow Soldering



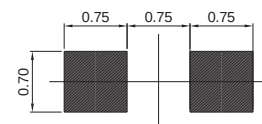
| Product                | Size (LxWxHmm) | Color           | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|------------------------|----------------|-----------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-218/BHC-ZL1M2QY/3T  | 1.6x0.8x0.3    | Blue            | 470                       | 11.5                  | 28.5             | 2.7                 | 3.2            | 5          |
| 19-218/GHC-YR1S2M/3T   | 1.6x0.8x0.3    | Brilliant Green | 525                       | 112                   | 285              | 2.75                | 3.95           | 20         |
| 19-218/R6C-AL1M2VY/3T  | 1.6x0.8x0.3    | Brilliant Red   | 624                       | 11.5                  | 28.5             | 1.7                 | 2.2            | 5          |
| 19-218/R6C-FM2P1B7Y/3T | 1.6x0.8x0.3    | Brilliant Red   | 624                       | 22.5                  | 57               | 1.7                 | 2              | 5          |
| 19-218/T1D-CQ2R2TY/3T  | 1.6x0.8x0.3    | Pure White      | x=0.274, y=0.226          | 90                    | 180              | 2.6                 | 3              | 5          |



UNIT : mm



Recommend soldering pad

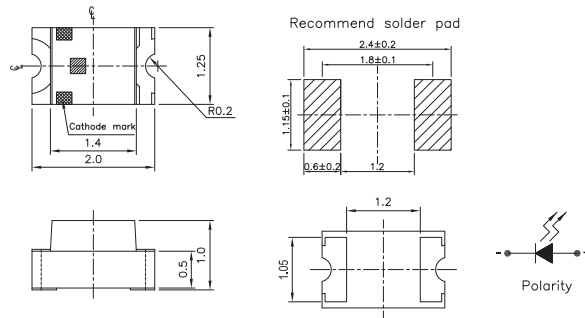


| Product               | Size (LxWxHmm) | Color            | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 19-219/T3D-AQ2R2TY/3T | 1.6x0.8x0.2    | Pure White       | x=0.274, y=0.226          | 90                    | 180              | 2.6                 | 3              | 5          |
| 19-219/T7D-AV1W1E/3T  | 1.6x0.8x0.2    | Pure White       | x=0.274, y=0.226          | 715                   | 1420             | 2.75                | 3.65           | 20         |
| 19-219/Y5C-AM1N2VY/3T | 1.6x0.8x0.2    | Brilliant Yellow | 589                       | 18                    | 45               | 1.7                 | 2.2            | 5          |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0805



UNIT : mm

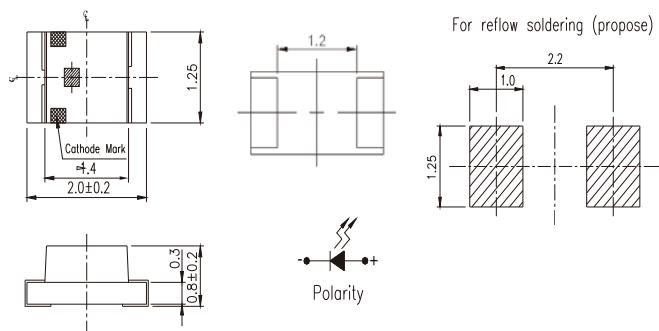


| Product              | Size<br>(LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./<br>Typ. (V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|----------------------|-------------------|--------------------------|---------------------------|--------------------------|---------------------|-------------------------|-------------------|------------|
| 17-21/BHC-AN1P2/3T   | 2.0x1.25x1        | ● Blue                   | 470                       | 28.5                     | 72                  | 3.5                     | 4                 | 20         |
| 17-21/BHC-AP1Q2/3T   | 2.0x1.25x1        | ● Blue                   | 470                       | 45                       | 112                 | 2.7 / 3.3               | 3.7               | 20         |
| 17-21/BHC-XLMJY/3T   | 2.0x1.25x1        | ● Blue                   | 470                       | 11.5                     | 28.5                | 2.7                     | 3.1               | 5          |
| 17-21/G6C-AN1P1B/3T  | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                       | 28.5                     | 57                  | 1.75                    | 2.35              | 20         |
| 17-21/G6C-AP1Q1B/3T  | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                       | 45                       | 90                  | 1.75                    | 2.35              | 20         |
| 17-21/G6C-FM1N2B/3T  | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                       | 18                       | 45                  | 1.75                    | 2.35              | 20         |
| 17-21/G6C-FN1P2B/3T  | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                       | 28.5                     | 72                  | 1.75                    | 2.35              | 20         |
| 17-21/G6C-FP1Q1B/3T  | 2.0x1.25x1        | ● Brilliant Yellow Green | 573                       | 45                       | 90                  | 1.75                    | 2.35              | 20         |
| 17-21/GHC-XS1T2M/3T  | 2.0x1.25x1        | ● Brilliant Green        | 525                       | 180                      | 450                 | 2.75                    | 3.95              | 20         |
| 17-21/GHC-YR1S2/3T   | 2.0x1.25x1        | ● Brilliant Green        | 525                       | 112                      | 285                 | 3.5                     | 4                 | 20         |
| 17-21/GPC-AK0M1B/3T  | 2.0x1.25x1        | ● Green                  | 562                       | 7.2                      | 22.5                | 1.75                    | 2.35              | 20         |
| 17-21/GVC-AMPB/3T    | 2.0x1.25x1        | ● Green                  | 565                       | 18                       | 72                  | 1.75                    | 2.35              | 20         |
| 17-21/R6C-AN2Q1B/3T  | 2.0x1.25x1        | ● Brilliant Red          | 624                       | 36                       | 90                  | 1.75                    | 2.35              | 20         |
| 17-21/R6C-AP1Q2L/3T  | 2.0x1.25x1        | ● Brilliant Red          | 624                       | 45                       | 112                 | 1.7                     | 2.3               | 20         |
| 17-21/R7C-AN2Q1B/3T  | 2.0x1.25x1        | ● Deep Red               | 631                       | 36                       | 90                  | 1.75                    | 2.35              | 20         |
| 17-21/S2C-AN1P2B/3T  | 2.0x1.25x1        | ● Brilliant Orange       | 605                       | 28.5                     | 72                  | 1.75                    | 2.35              | 20         |
| 17-21/S2C-AP1Q2B/3T  | 2.0x1.25x1        | ● Brilliant Orange       | 605                       | 45                       | 112                 | 1.75                    | 2.35              | 20         |
| 17-21/T1D-ANPHY/3T   | 2.0x1.25x1        | ○ Pure White             | x=0.274, y=0.226          | 28.5                     | 72                  | 2.7                     | 3.15              | 5          |
| 17-21/T1D-CP2R1TY/3T | 2.0x1.25x1        | ○ Pure White             | x=0.274, y=0.226          | 57                       | 140                 | 2.6                     | 3                 | 5          |
| 17-21/T1D-KN2P2HY/3T | 2.0x1.25x1        | ○ Pure White             | x=0.274, y=0.226          | 36                       | 72                  | 2.7                     | 3.15              | 5          |
| 17-21/Y2C-AN1P2/3T   | 2.0x1.25x1        | ● Brilliant Yellow       | 589                       | 28.5                     | 72                  | 1.7 / 2                 | 2.4               | 20         |
| 17-21/Y2C-CN1P2B/3T  | 2.0x1.25x1        | ● Brilliant Yellow       | 589                       | 28.5                     | 72                  | 1.75                    | 2.35              | 20         |
| 17-21/Y2C-CP2Q2B/3T  | 2.0x1.25x1        | ● Brilliant Yellow       | 589                       | 57                       | 112                 | 1.75                    | 2.35              | 20         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 0805



UNIT : mm

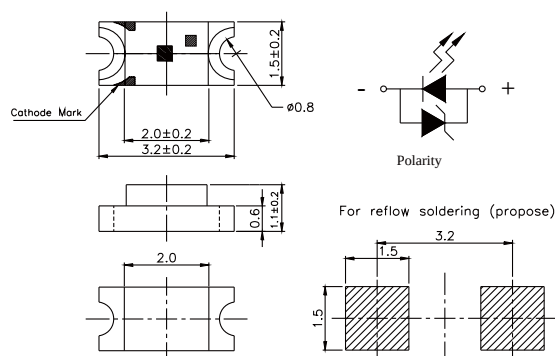


| Product              | Size (LxWxHmm) | Color                  | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 17-215/B6C-YP2R2/3T  | 2.0x1.25x0.8   | Blue                   | 470                       | 57                    | 180              | 2.7 / 3.0           | 3.7            | 20         |
| 17-215/BHC-AN1P2/3T  | 2.0x1.25x0.8   | Blue                   | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 17-215/BHC-BP2Q2M/3T | 2.0x1.25x0.8   | Blue                   | 470                       | 57                    | 112              | 2.75                | 3.95           | 20         |
| 17-215/G6C-BM1N2L/3T | 2.0x1.25x0.8   | Brilliant Yellow Green | 573                       | 18                    | 45               | 1.7                 | 2.3            | 20         |
| 17-215/G6C-FN2P2B/3T | 2.0x1.25x0.8   | Brilliant Yellow Green | 573                       | 36                    | 72               | 1.75                | 2.35           | 20         |
| 17-215/R6C-AQ1R2B/3T | 2.0x1.25x0.8   | Brilliant Red          | 624                       | 72                    | 180              | 1.75                | 2.35           | 20         |
| 17-215/S2C-AQ1R2B/3T | 2.0x1.25x0.8   | Brilliant Orange       | 605                       | 72                    | 180              | 1.75                | 2.35           | 20         |
| 17-215/S2C-CP2R1B/3T | 2.0x1.25x0.8   | Brilliant Orange       | 605                       | 57                    | 140              | 1.75                | 2.35           | 20         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 1206



UNIT : mm



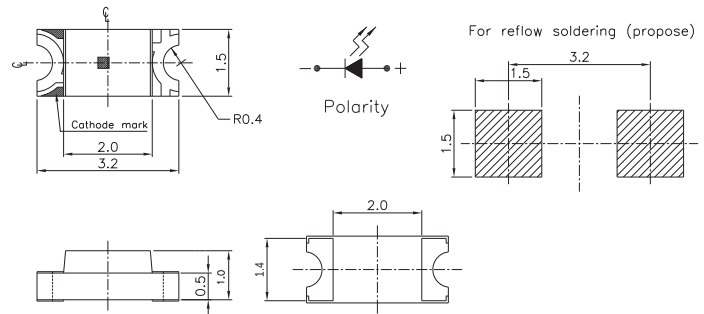
| Product              | Size (LxWxHmm) | Color | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|-------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 15-11/BHC-AN1P2/2T   | 3.2x1.5x1.0    | Blue  | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 15-11/BHC-ZL2N1QY/2T | 3.2x1.5x1.0    | Blue  | 470                       | 14.5                  | 36               | 2.7                 | 3.2            | 5          |



# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View 1206



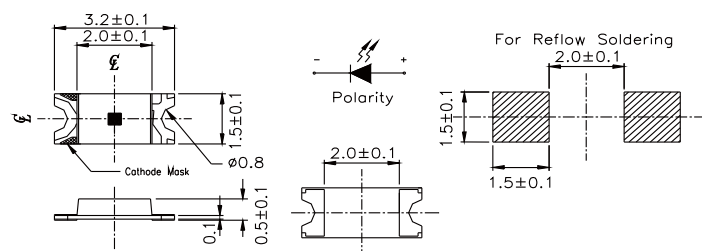
UNIT : mm



| Product              | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|--------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 15-21/B6C-YR1S2B2/2T | 3.2x1.5x1.0    | ● Blue                   | 470                       | 112                   | 285              | 2.9                 | 3.6            | 20         |
| 15-21/B6C-ZQ1R1N/2T  | 3.2x1.5x1.0    | ● Blue                   | 470                       | 72                    | 140              | 2.7                 | 3.7            | 20         |
| 15-21/BHC-AN1P2/2T   | 3.2x1.5x1.0    | ● Blue                   | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 15-21/G6C-BK1L2VY/2T | 3.2x1.5x1.0    | ● Brilliant Yellow Green | 573                       | 7.2                   | 18               | 1.7                 | 2.2            | 5          |
| 15-21/G6C-FM1N2B/2T  | 3.2x1.5x1.0    | ● Brilliant Yellow Green | 573                       | 18                    | 45               | 1.75                | 2.35           | 20         |
| 15-21/G6C-FP1Q1L/2T  | 3.2x1.5x1.0    | ● Brilliant Yellow Green | 573                       | 45                    | 90               | 1.7                 | 2.3            | 20         |
| 15-21/GHC-R2S2/2T    | 3.2x1.5x1.0    | ● Brilliant Green        | 525                       | 140                   | 285              | 2.7 / 3.3           | 3.7            | 20         |
| 15-21/GHC-YR1S1/2T   | 3.2x1.5x1.0    | ● Brilliant Green        | 525                       | 112                   | 225              | 3.5                 | 3.7            | 20         |
| 15-21/R6C-AN1P2/2T   | 3.2x1.5x1.0    | ● Brilliant Red          | 624                       | 28.5                  | 72               | 1.7 / 2             | 2.4            | 20         |
| 15-21/R6C-FQ1R1B/2T  | 3.2x1.5x1.0    | ● Brilliant Red          | 624                       | 72                    | 140              | 1.75                | 2.35           | 20         |
| 15-21/S2C-AL2M2VY/2T | 3.2x1.5x1.0    | ● Brilliant Orange       | 605                       | 14.5                  | 28.5             | 1.7                 | 2.2            | 5          |
| 15-21/S2C-AQ2R2B/2T  | 3.2x1.5x1.0    | ● Brilliant Orange       | 605                       | 90                    | 180              | 1.75                | 2.35           | 20         |
| 15-21/S3C-AP1Q2/2T   | 3.2x1.5x1.0    | ● Reddish Orange         | 615                       | 45                    | 112              | 1.7 / 2.0           | 2.4            | 20         |
| 15-21/T1D-CP1Q2TY/2T | 3.2x1.5x1.0    | ○ Pure White             | x=0.274, y=0.226          | 45                    | 112              | 2.6                 | 3              | 5          |
| 15-21/T7D-JQ2S1PY/2T | 3.2x1.5x1.0    | ○ Pure White             | x=0.274, y=0.226          | 90                    | 225              | 2.7                 | 3.3            | 5          |
| 15-21/Y2C-AN1P2/2T   | 3.2x1.5x1.0    | ● Brilliant Yellow       | 589                       | 28.5                  | 72               | 1.7 / 2             | 2.4            | 20         |
| 15-21/Y2C-CP1Q2B/2T  | 3.2x1.5x1.0    | ● Brilliant Yellow       | 589                       | 45                    | 112              | 1.75                | 2.35           | 20         |



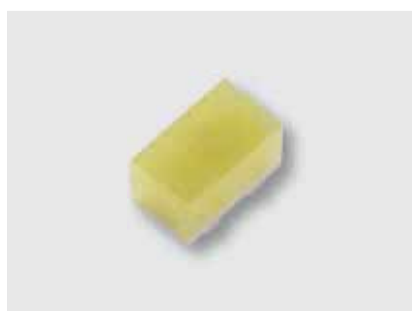
UNIT : mm



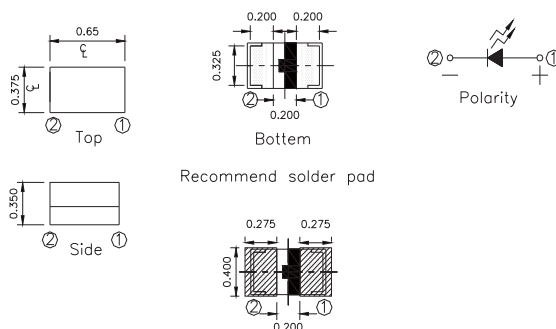
| Product               | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|--------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 15-215/G7C-BN1P2B/2T  | 3.2x1.5x0.5    | ● Brilliant Yellow Green | 573                       | 28.5                  | 72               | 1.75                | 2.35           | 20         |
| 15-215/R6C-AM2P1VY/2T | 3.2x1.5x0.5    | ● Brilliant Red          | 624                       | 22.5                  | 57               | 1.7                 | 2.2            | 5          |
| 15-215/R6C-AP1Q1L/2T  | 3.2x1.5x0.5    | ● Brilliant Red          | 624                       | 45                    | 90               | 1.7                 | 2.3            | 20         |



# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Mono Color



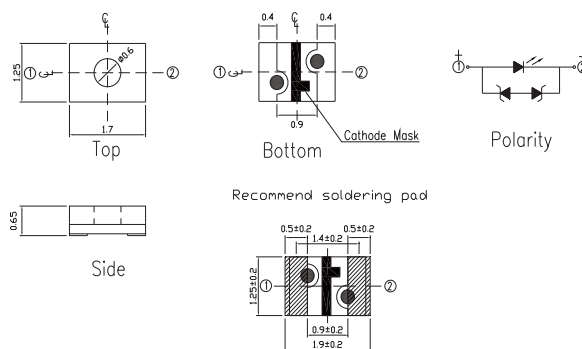
UNIT : mm



| Product                | Size (LxWxHmm)  | Color   | $\lambda_d$ (nm)/CIE(x,y) | $I_V$ Min./Typ. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|------------------------|-----------------|---------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 18-218/T1D-AN2Q1B3X/6T | 0.65x0.375x0.35 | ○ White | 0.274,0.226               | 36                    | 90               | 2.5                 | 2.9            | 2          |

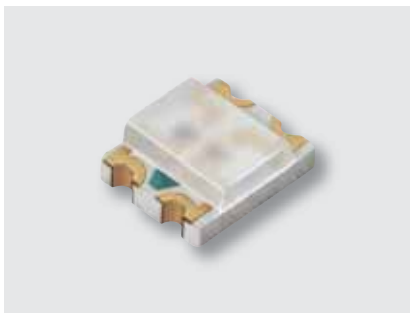


UNIT : mm

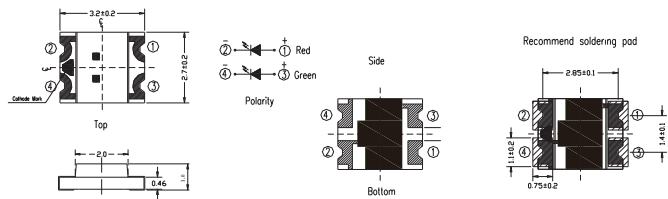


| Product               | Size (LxWxHmm) | Color   | $\lambda_d$ (nm)/CIE(x,y) | $I_V$ Min./Typ. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|---------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 63-119-BHD-ZM1N2TY-3T | 1.7x1.25x0.65  | ● Blue  | 470                       | 18                    | 45               | 2.6                 | 3              | 5          |
| 63-119-T1D-AN2Q1TY-3T | 1.7x1.25x0.65  | ○ White | 0.274,0.226               | 36                    | 90               | 2.6                 | 3              | 5          |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Bi-Color



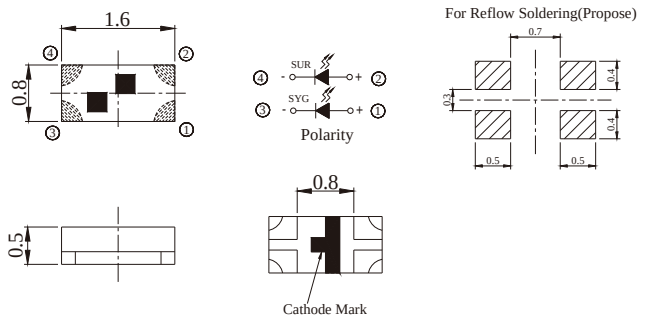
UNIT : mm



| Product            | Size (LxWxHmm) | Color                                       | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd)        | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)         | $V_F$ Max.<br>(V)    | $I_F$ (mA) |
|--------------------|----------------|---------------------------------------------|-------------------------------|---------------------------------|---------------------|--------------------------------|----------------------|------------|
| 15-22/R6G6C-A32/2T | 3.2x2.7x1.0    | ● Brilliant Red<br>● Brilliant Yellow Green | R6 : 624<br>G6 : 573          | R6 : 28.5<br>G6 : 28.5          | R6 : 72<br>G6 : 72  | R6 : 1.7 / 2<br>G6 : 1.7 / 2   | R6 : 2.4<br>G6 : 2.4 | 20         |
| 15-22/R6GHC-A01/2T | 3.2x2.7x1.0    | ● Brilliant Red<br>● Brilliant Green        | R6 : 624<br>GH : 525          | R6 : 90 / 130<br>GH : 112 / 165 | --                  | R6 : 1.7 / 2<br>GH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7 | 20         |



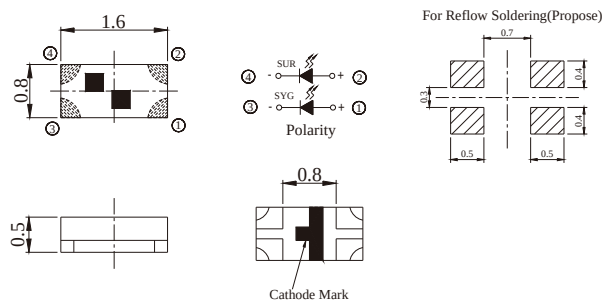
UNIT : mm



| Product             | Size (LxWxHmm) | Color                                          | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd)         | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)           | $V_F$ Max.<br>(V)    | $I_F$ (mA) |
|---------------------|----------------|------------------------------------------------|-------------------------------|----------------------------------|---------------------|----------------------------------|----------------------|------------|
| 18-225/B6R6C-C01/3T | 1.6x0.8x0.5    | ● Blue<br>● Brilliant Red                      | B6 : 470<br>R6 : 624          | B6 : 18 / 28.5<br>R6 : 18 / 28.5 | -                   | B6 : 2.7 / 3.3<br>R6 : 1.7 / 2.0 | B6 : 3.7<br>R6 : 2.4 | 5          |
| 18-225/R6G6C-A01/3T | 1.6x0.8x0.5    | ● Brilliant Red<br>● Brilliant Yellow Green    | R6 : 624<br>G6 : 573          | R6 : 45<br>G6 : 28.5             | R6 : 112<br>G6 : 72 | R6 : 1.7 / 2<br>G6 : 1.7 / 2     | R6 : 2.4<br>G6 : 2.4 | 20         |
| 18-225/S2G6C-A01/3T | 1.6x0.8x0.5    | ● Brilliant Orange<br>● Brilliant Yellow Green | S2 : 605<br>G6 : 573          | S2 : 32 / 48<br>G6 : 16 / 24     | -                   | S2 : 1.7 / 2<br>G6 : 1.7 / 2     | S2 : 2.4<br>G6 : 2.4 | 20         |



UNIT : mm

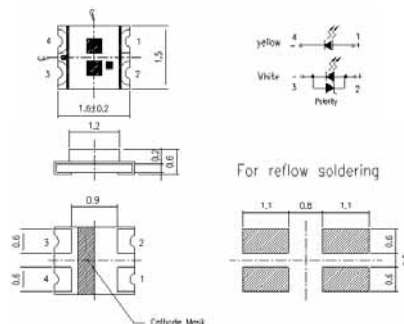


| Product              | Size (LxWxHmm) | Color                                | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)         | $V_F$ Max.<br>(V)    | $I_F$ (mA) |
|----------------------|----------------|--------------------------------------|-------------------------------|--------------------------|---------------------|--------------------------------|----------------------|------------|
| 18-225A/R6GHW-B01/3T | 1.6x0.8x0.5    | ● Brilliant Red<br>● Brilliant Green | R6 : 624<br>GH : 525          | R6 : 28.5<br>GH : 72     | R6 : 72<br>GH : 180 | R6 : 1.7 / 2<br>GH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7 | 10         |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Bi-Color



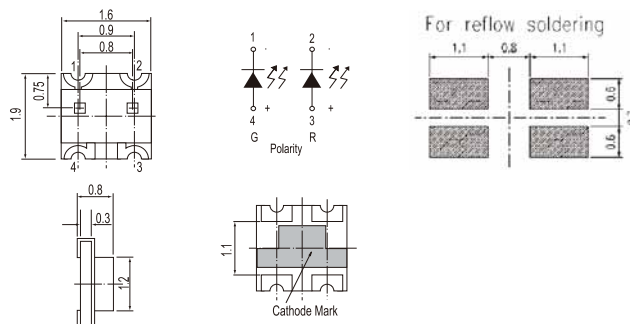
UNIT : mm



| Product              | Size<br>(LxWxHmm) | Color                              | $\lambda_d$ (nm)/CIE(x,y)     | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd)  | $V_F$ Min./Typ.<br>(V)          | $V_F$ Max.<br>(V)     | $I_F$ (mA) |
|----------------------|-------------------|------------------------------------|-------------------------------|--------------------------|----------------------|---------------------------------|-----------------------|------------|
| 19-123/Y2ST1D-C30/2T | 1.6x1.5x0.6       | ● Brilliant Yellow<br>○ Pure White | Y2S : 589<br>x=0.274, y=0.226 | Y2S : 28.5<br>T1 : 45    | Y2S : 72<br>T1 : 112 | Y2S : 1.7 / 2<br>T1 : 2.7 / 3.3 | Y2S : 2.4<br>T1 : 3.7 | 5          |

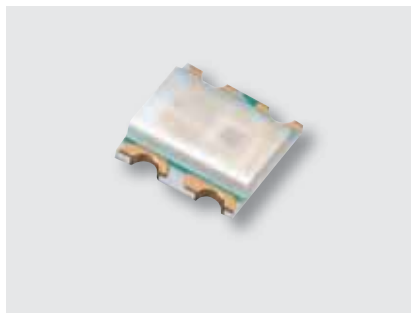


UNIT : mm

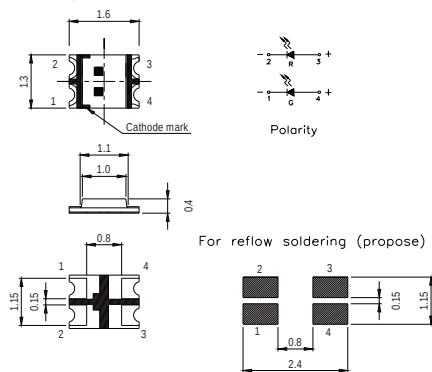


| Product            | Size<br>(LxWxHmm) | Color                                          | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd)         | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)       | $V_F$ Max.<br>(V)    | $I_F$<br>(mA) |
|--------------------|-------------------|------------------------------------------------|-------------------------------|----------------------------------|---------------------|------------------------------|----------------------|---------------|
| 19-22/G6R6C-A31/2T | 1.9x1.6x0.8       | ● Brilliant Yellow Green<br>● Brilliant Red    | G6 : 573<br>R6 : 624          | G6 : 22.5<br>R6 : 45             | G6 : 57<br>R6 : 90  | G6 : 1.7 / 2<br>R6 : 1.7 / 2 | G6 : 2.4<br>R6 : 2.4 | 20            |
| 19-22/R6BHC-B01/2T | 1.9x1.6x0.8       | ● Brilliant Red<br>● Blue                      | R6 : 624<br>BH : 470          | R6 : 14.5 / 20<br>BH : 14.5 / 20 | --                  | R6 : 1.9<br>BH : 2.9         | R6 : 2.3<br>BH : 3.3 | 10            |
| 19-22/R6G6C-A01/2T | 1.9x1.6x0.8       | ● Brilliant Red<br>● Brilliant Yellow Green    | R6 : 624<br>G6 : 573          | R6 : 45<br>G6 : 45               | R6 : 72<br>G6 : 72  | R6 : 1.7 / 2<br>G6 : 1.7 / 2 | R6 : 2.4<br>G6 : 2.4 | 20            |
| 19-22/R6GHC-C02/2T | 1.9x1.6x0.8       | ● Brilliant Red<br>● Brilliant Green           | R6 : 624<br>GH : 525          | R6 : 14.5 / 20<br>GH : 45 / 65   | --                  | R6 : 1.9<br>GH : 2.9         | R6 : 2.3<br>GH : 3.4 | 5             |
| 19-22/Y2G6C-A14/2T | 1.9x1.6x0.8       | ● Brilliant Yellow<br>● Brilliant Yellow Green | Y2 : 589<br>G6 : 573          | Y2 : 45<br>G6 : 28.5             | Y2 : 112<br>G6 : 72 | Y2 : 1.7 / 2<br>G6 : 1.7 / 2 | Y2 : 2.4<br>G6 : 2.4 | 20            |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Bi-Color



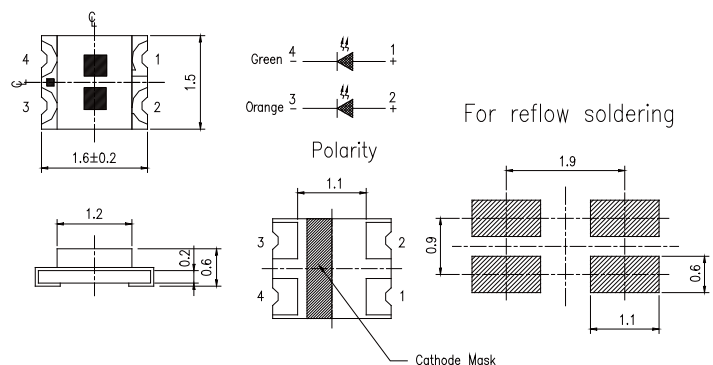
UNIT : mm



| Product             | Size (LxWxHmm) | Color                                       | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max./Typ. (mcd)        | $V_F$ Min./Typ. (V)            | $V_F$ Max. (V)       | $I_F$ (mA) |
|---------------------|----------------|---------------------------------------------|---------------------------|-----------------------|------------------------------|--------------------------------|----------------------|------------|
| 19-226/R6BHC-B01/2T | 1.6x1.3x0.4    | ● Brilliant Red<br>● Blue                   | R6 : 624<br>BH : 470      | R6 : 72<br>BH : 45    | Typ.<br>R6 : 100<br>BH : 80  | R6 : 1.7 / 2<br>BH : 2.7 / 3.3 | R6 : 2.4<br>BH : 3.7 | 10         |
| 19-226/R6G7C-B02/2T | 1.6x1.3x0.4    | ● Brilliant Red<br>● Brilliant Yellow Green | R6 : 624<br>G7 : 573      | R6 : 22.5<br>G7 : 7.2 | Max.<br>R6 : 57<br>G7 : 18   | R6 : 1.7 / 2<br>G7 : 1.7 / 2   | R6 : 2.4<br>G7 : 2.4 | 10         |
| 19-226/R6GHC-A03/2T | 1.6x1.3x0.4    | ● Brilliant Red<br>● Brilliant Green        | R6 : 624<br>GH : 525      | R6 : 72<br>GH : 112   | Max.<br>R6 : 140<br>GH : 225 | R6 : 1.7 / 2<br>GH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7 | 20         |



UNIT : mm

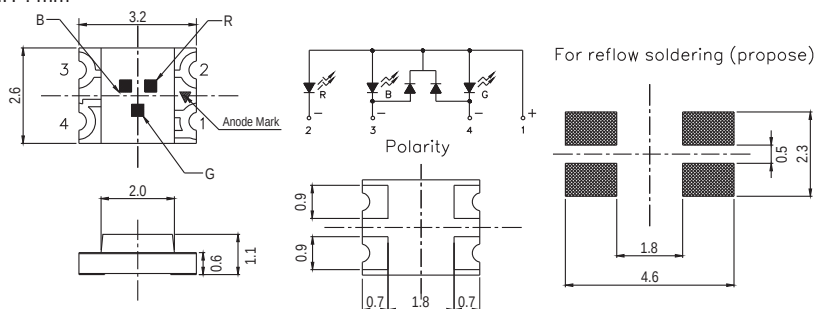


| Product             | Size (LxWxHmm) | Color                                          | $\lambda_d$ (nm)/CIE(x,y)    | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd)    | $V_F$ Min./Typ. (V)            | $V_F$ Max. (V)             | $I_F$ (mA) |
|---------------------|----------------|------------------------------------------------|------------------------------|-----------------------|---------------------|--------------------------------|----------------------------|------------|
| 19-223/G6S2C-A01/2T | 1.6x1.5x0.6    | ● Brilliant Yellow Green<br>● Brilliant Orange | G6 : 573<br>S2 : 605         | G6 : 30<br>S2 : 90    | G6 : 60<br>S2 : 180 | G6 : 2<br>S2 : 2               | G6 : 2.4<br>S2 : 2.4       | 20         |
| 19-223/R6BHC-A05/2T | 1.6x1.5x0.6    | ● Brilliant Red<br>● Blue                      | R6 : 624<br>BH : 470         | R6 : 72<br>BH : 36    | R6 : 180<br>BH : 72 | R6 : 1.7 / 2<br>BH : 2.7 / 3.3 | R6 : 2.4<br>BH : 3.7       | 20         |
| 19-223/R6G6C-A01/2T | 1.6x1.5x0.6    | ● Brilliant Red<br>● Brilliant Yellow Green    | R6 : 624<br>G6 : 573         | R6 : 72<br>G6 : 22.5  | R6 : 180<br>G6 : 57 | R6 : 1.7 / 2<br>G6 : 1.7 / 2   | R6 : 2.4<br>G6 : 2.4       | 20         |
| 19-223/R7BHC-A30/2T | 1.6x1.5x0.6    | ● Dark Red<br>● Blue                           | R7 : 631<br>BH : 470         | R7 : 45<br>BH : 36    | R7 : 112<br>BH : 90 | R7 : 1.7 / 2<br>BH : 2.7 / 3.3 | R7 : 2.4<br>BH : 2.7 / 3.7 | 20         |
| 19-223/R7G6C-A01/2T | 1.6x1.5x0.6    | ● Dark Red<br>● Brilliant Yellow Green         | R7 : 631<br>G6 : 573         | R7 : 18<br>G6 : 18    | R7 : 72<br>G6 : 72  | R7 : 2<br>G6 : 2               | R7 : 2.4<br>G6 : 2.4       | 20         |
| 19-223/S2BHC-A01/2T | 1.6x1.5x0.6    | ● Brilliant Orange<br>● Blue                   | S2 : 605<br>BH : 470         | S2 : 72<br>BH : 36    | S2 : 140<br>BH : 72 | S2 : 1.7 / 2<br>BH : 3         | S2 : 2.4<br>BH : 3.5       | 20         |
| 19-223/S2T1D-C30/2T | 1.6x1.5x0.6    | ● Brilliant Orange<br>○ Pure White             | S2 : 605<br>x=0.274, y=0.226 | S2 : 18<br>T1 : 45    | S2 : 45<br>T1 : 112 | S2 : 1.55<br>T1 : 2.7          | S2 : 2.15<br>T1 : 3.3      | 5          |
| 19-223/Y2G6C-A01/2T | 1.6x1.5x0.6    | ● Brilliant Yellow<br>● Brilliant Yellow Green | Y2 : 589<br>G6 : 573         | Y2 : 36<br>G6 : 28.5  | Y2 : 72<br>G6 : 57  | Y2 : 1.7 / 2<br>G6 : 1.7 / 2   | Y2 : 2.4<br>G6 : 2.4       | 20         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Full Color



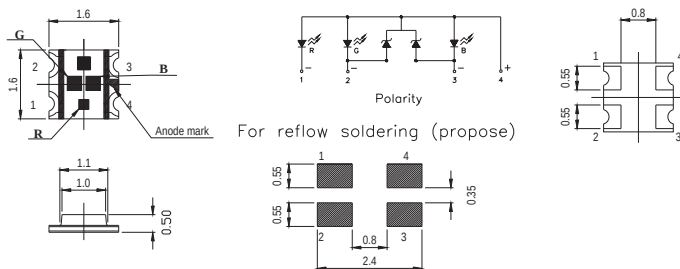
UNIT : mm



| Product               | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                        | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)                           | $V_F$ Max.<br>(V)                | $I_F$ (mA) |
|-----------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|---------------------|--------------------------------------------------|----------------------------------|------------|
| 15-13D/R6GHBHC-A01/2T | 3.2x2.6x1.1    | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Green</li> <li>Blue</li> </ul> | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 90 / 140<br>GH : 112 / 180<br>BH : 45 / 70 | --                  | R6 : 1.7 / 2<br>GH : 2.7 / 3.3<br>BH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7<br>BH : 3.7 | 20         |



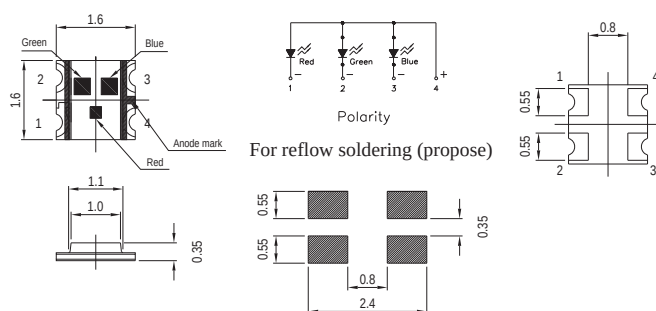
UNIT : mm



| Product               | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                          | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)                           | $V_F$ Max.<br>(V)                | $I_F$ (mA) |
|-----------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------|---------------------|--------------------------------------------------|----------------------------------|------------|
| 19-137/R6GHBHC-A01/2T | 1.6x1.6x0.5    | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Green</li> <li>Blue</li> </ul> | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 72 / 100<br>GH : 112 / 180<br>BH : 28.5 / 50 | --                  | R6 : 1.7 / 2<br>GH : 2.7 / 3.3<br>BH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7<br>BH : 3.7 | 20         |



UNIT : mm

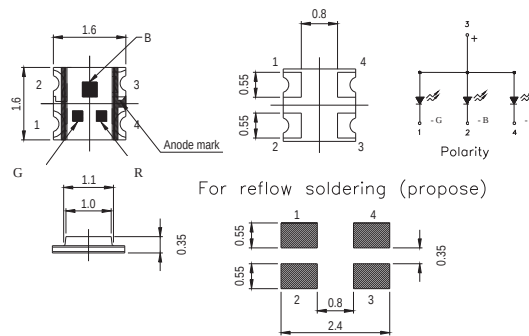


| Product               | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                         | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)           | $V_F$ Max.<br>(V)            | $I_F$ (mA) |
|-----------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------|---------------------|----------------------------------|------------------------------|------------|
| 19-237/R6GHBHC-A04/2T | 1.6x1.6x0.35   | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Green</li> <li>Blue</li> </ul> | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 18 / 30<br>GH : 28.5 / 60<br>BH : 11.5 / 18 | --                  | R6 : 1.9<br>GH : 2.6<br>BH : 2.6 | R6 : 2.2<br>GH : 3<br>BH : 3 | 20         |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Top View Full Color



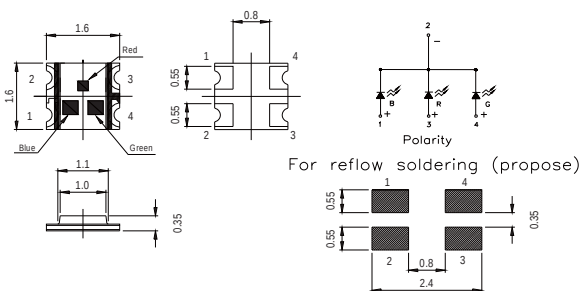
UNIT : mm



| Product                | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                          | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)         | $V_F$ Max.<br>(V)                | $I_F$ (mA) |
|------------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------|---------------------|--------------------------------|----------------------------------|------------|
| 19-237A/BHR6GHC-A01/2T | 1.6x1.6x0.35   | <ul style="list-style-type: none"> <li>Blue</li> <li>Brilliant Red</li> <li>Brilliant Green</li> </ul> | BH : 470<br>R6 : 624<br>GH : 525 | BH : 28.5 / 50<br>R6 : 72 / 100<br>GH : 112 / 180 | -                   | BH : 3.3<br>R6 : 2<br>GH : 3.3 | BH : 3.9<br>R6 : 2.4<br>GH : 3.9 | 20         |



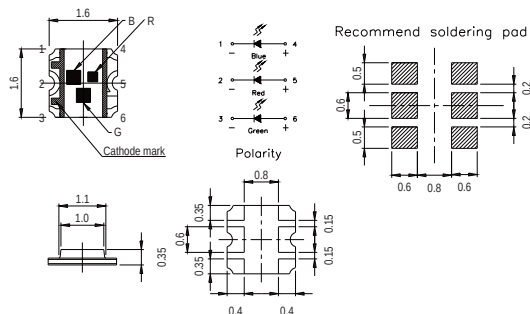
UNIT : mm



| Product                | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                         | $I_v$ Max.<br>(mcd)              | $V_F$ Min./Typ.<br>(V)                       | $V_F$ Max.<br>(V)                | $I_F$ (mA) |
|------------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------|----------------------------------|----------------------------------------------|----------------------------------|------------|
| 19-237B/R6GHBHC-C01/2T | 1.6x1.6x0.35   | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Green</li> <li>Blue</li> </ul> | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 18 / 30<br>GH : 28.5 / 60<br>BH : 11.5 / 18 | R6 : 57<br>GH : 112<br>BH : 28.5 | R6 : 1.7 / 2<br>GH : 2.6 / 3<br>BH : 2.6 / 3 | R6 : 2.2<br>GH : 3.3<br>BH : 3.3 | 5          |



UNIT : mm

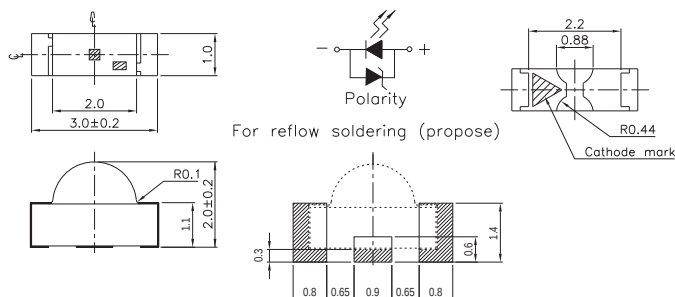


| Product               | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                        | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)           | $V_F$ Max.<br>(V)                | $I_F$ (mA) |
|-----------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|---------------------|----------------------------------|----------------------------------|------------|
| 19-337/R6GHBHC-A01/2T | 1.6x1.6x0.35   | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Green</li> <li>Blue</li> </ul> | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 72 / 100<br>GH : 140 / 180<br>BH : 36 / 50 | --                  | R6 : 2.0<br>GH : 3.3<br>BH : 3.3 | R6 : 2.4<br>GH : 3.9<br>BH : 3.9 | 20         |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View (0.2T~1.0T)



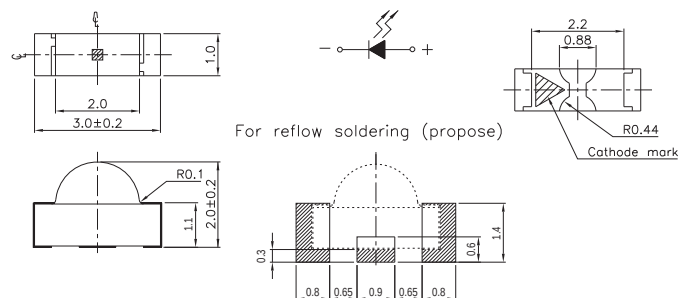
UNIT : mm



| Product              | Size (LxWxHmm) | Color  | $\lambda_d$ (nm)/CIE(x,y) | $I_V$ Min./Typ. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|--------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 12-11/BHC-ZL1M2QY/2C | 3x2x1          | ● Blue | 470                       | 11.5                  | 28.5             | 2.7                 | 3.2            | 5          |



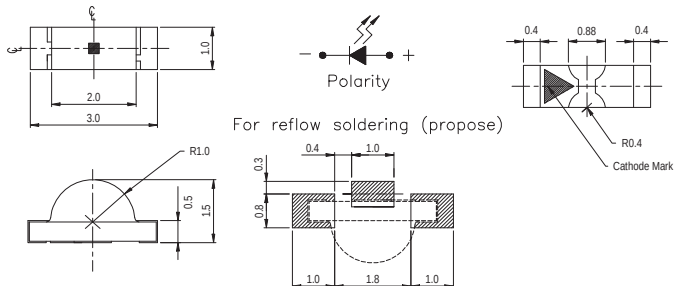
UNIT : mm



| Product              | Size (LxWxHmm) | Color             | $\lambda_d$ (nm)/CIE(x,y) | $I_V$ Min./Typ. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|-------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 12-21/BHC-AN1P2/2C   | 3x2x1          | ● Blue            | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 12-21/BHC-ZL1M2RY/2C | 3x2x1          | ● Blue            | 470                       | 11.5                  | 28.5             | 2.5                 | 3.1            | 5          |
| 12-21/GHC-YR2S2/2C   | 3x2x1          | ● Brilliant Green | 525                       | 140                   | 285              | 3.5                 | 4.3            | 20         |
| 12-21/R8C-AN1P2B/2D  | 3x2x1          | ● Deep Red        | 639                       | 28.5                  | 72               | 1.75                | 2.35           | 20         |
| 12-21/T3D-AQ2S2M/2C  | 3x2x1          | ○ Pure White      | x=0.274, y=0.226          | 90                    | 285              | 2.75                | 3.95           | 20         |



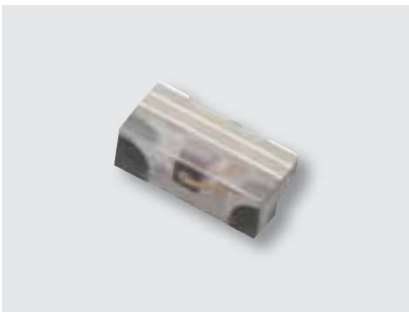
UNIT : mm



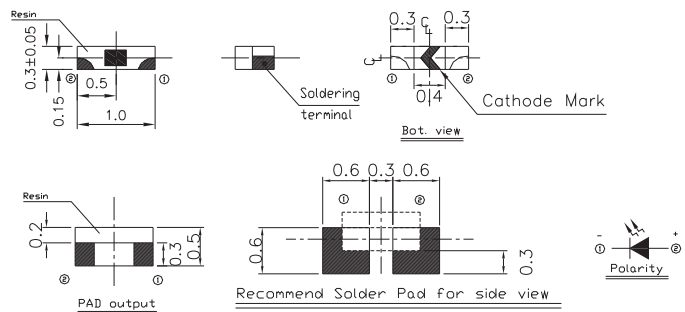
| Product                 | Size (LxWxH mm) | Color        | $\lambda_d$ (nm)/CIE(x,y) | $I_V$ Min./Typ. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-------------------------|-----------------|--------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 12-21C/BHC-AN1P2/2C     | 3x1.5x1         | ● Blue       | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 12-21C/BHC-YL1M2HY/2C   | 3x1.5x1         | ● Blue       | 470                       | 11.5                  | 28.5             | 2.7                 | 3.15           | 5          |
| 12-21C/T3D-CP1Q2B12Y/2C | 3x1.5x1         | ○ Pure White | x=0.274, y=0.226          | 45                    | 112              | 2.7                 | 3.4            | 5          |



SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View (0.2T~1.0T)



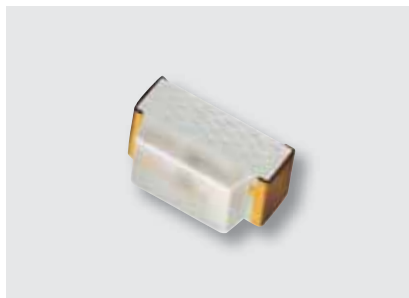
UNIT : mm



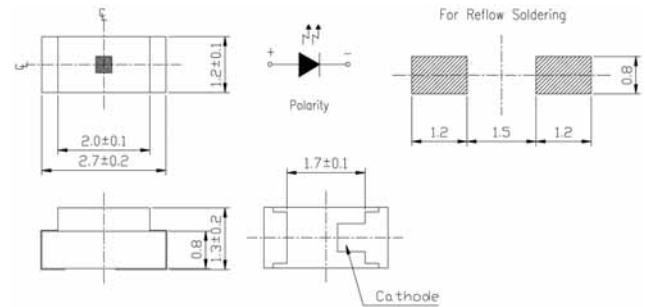
| Product               | Size<br>(LxWxHmm) | Color       | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|-----------------------|-------------------|-------------|---------------------------|--------------------------|---------------------|------------------------|-------------------|------------|
| 16-916/T1D-AP1Q2QY/3T | 1x0.5x0.3         | ○Pure White | x=0.274, y=0.226          | 45                       | 112                 | 2.7                    | 3.2               | 5          |



SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View (0.2T~1.0T)



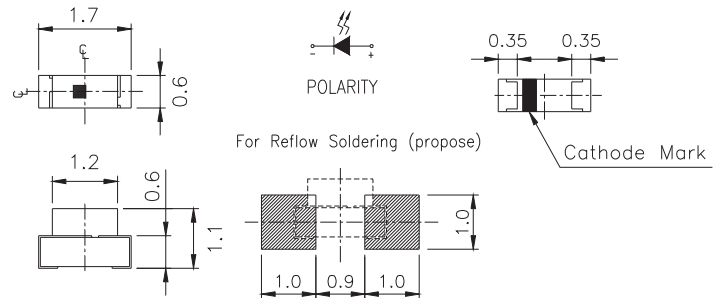
UNIT : mm



| Product            | Size (LxWxH mm) | Color           | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|--------------------|-----------------|-----------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 22-21/BHC-AN1P2/2C | 2.7x1.3x1.2     | Blue            | 470                       | 28.5                  | 72               | 3.8                 | 4.5            | 20         |
| 22-21/GHC-YR1S2/2C | 2.7x1.3x1.2     | Brilliant Green | 525                       | 112                   | 285              | 2.7 / 3.3           | 3.7            | 20         |



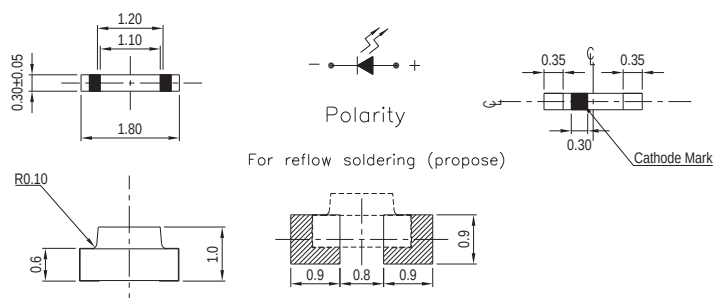
UNIT : mm



| Product              | Size (LxWxH mm) | Color            | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|-----------------|------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 27-21/BHC-AN1P2/3C   | 1.7x1.1x0.6     | Blue             | 470                       | 28.5                  | 72               | 2.7 / 3.3           | 3.7            | 20         |
| 27-21/BHC-AP1Q2/3C   | 1.7x1.1x0.6     | Blue             | 470                       | 45                    | 112              | 2.7 / 3.3           | 3.7            | 20         |
| 27-21/GHC-YR1S2M/3C  | 1.7x1.1x0.6     | Brilliant Green  | 525                       | 112                   | 285              | 2.75                | 3.95           | 20         |
| 27-21/R6C-AP1Q2B/3C  | 1.7x1.1x0.6     | Brilliant Red    | 624                       | 45                    | 112              | 1.75                | 2.35           | 20         |
| 27-21/T1D-ANPHY/3C   | 1.7x1.1x0.6     | Pure White       | x=0.274, y=0.226          | 28.5                  | 72               | 2.7                 | 3.15           | 5          |
| 27-21/T1D-CQ1R2NW/3C | 1.7x1.1x0.6     | Pure White       | x=0.274, y=0.226          | 72                    | 180              | 2.7                 | 3.7            | 15         |
| 27-21/T3D-AP2Q2HY/3C | 1.7x1.1x0.6     | Pure White       | x=0.274, y=0.226          | 57                    | 112              | 2.7                 | 3.15           | 5          |
| 27-21/Y2C-CPQB/3D    | 1.7x1.1x0.6     | Brilliant Yellow | 589                       | 45                    | 112              | 1.75                | 2.35           | 20         |



UNIT : mm

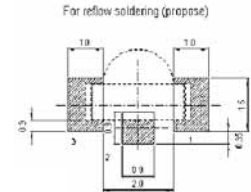
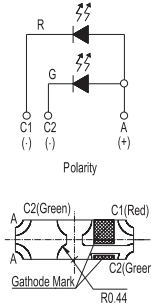
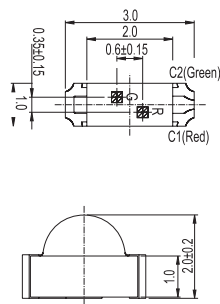


| Product               | Size (LxWxH mm) | Color         | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|-----------------|---------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 48-213/BHC-ZM2P1QY/3C | 1.8x1.0x0.3     | Blue          | 470                       | 22.5                  | 57               | 2.7                 | 3.2            | 5          |
| 48-213/R6C-AM1N2VY/3C | 1.8x1.0x0.3     | Brilliant Red | 624                       | 18                    | 45               | 1.7                 | 2.2            | 5          |
| 48-213/T2D-AQ2R2QY/3C | 1.8x1.0x0.3     | Pure White    | x=0.274, y=0.226          | 90                    | 180              | 2.7                 | 3.2            | 5          |
| 48-213/T3D-AP1Q2TY/3C | 1.8x1.0x0.3     | Pure White    | x=0.274, y=0.226          | 45                    | 112              | 2.6                 | 3              | 5          |
| 48-213/T7D-AQ1R2QY/3C | 1.8x1.0x0.3     | Pure White    | x=0.274, y=0.226          | 72                    | 180              | 2.7                 | 3.2            | 5          |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View Bi-Color



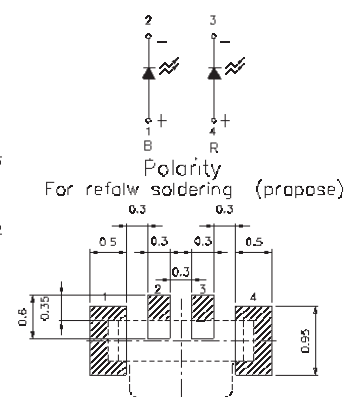
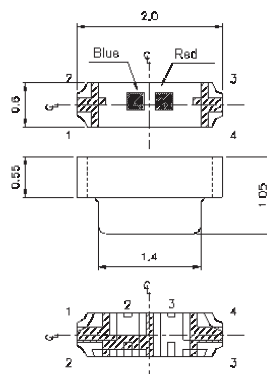
UNIT : mm



| Product            | Size (LxWxHmm) | Color                                          | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd)       | $I_v$ Max.<br>(mcd)  | $V_F$ Min./Typ.<br>(V)         | $V_F$ Max.<br>(V)    | $I_F$<br>(mA) |
|--------------------|----------------|------------------------------------------------|-------------------------------|--------------------------------|----------------------|--------------------------------|----------------------|---------------|
| 12-22/BHR6C-A01/2C | 3.0x2.0x1.0    | ● Blue<br>● Brilliant Red                      | BH : 470<br>R6 : 624          | BH : 18 / 28<br>R6 : 22.5 / 30 | --                   | BH : 2.7<br>R6 : 1.7           | BH : 3.1<br>R6 : 2.2 | 20            |
| 12-22/G6R8C-A30/2C | 3.0x2.0x1.0    | ● Brilliant Yellow Green<br>● Deep Red         | G6 : 573<br>R8 : 639          | G6 : 28.5<br>R8 : 28.5         | G6 : 72<br>R8 : 72   | G6 : 1.7 / 2<br>R8 : 1.7 / 2   | G6 : 2.4<br>R8 : 2.4 | 20            |
| 12-22/R6GHC-A30/2C | 3.0x2.0x1.0    | ● Brilliant Red<br>● Brilliant Green           | R6 : 624<br>GH : 525          | R6 : 72<br>GH : 112            | R6 : 180<br>GH : 285 | R6 : 1.7 / 2<br>GH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7 | 20            |
| 12-22/Y2G6C-A30/2C | 3.0x2.0x1.0    | ● Brilliant Yellow<br>● Brilliant Yellow Green | Y2 : 589<br>G6 : 573          | Y2 : 45<br>G6 : 28.5           | Y2 : 112<br>G6 : 72  | Y2 : 1.7 / 2<br>G6 : 1.7 / 2   | Y2 : 2.4<br>G6 : 2.4 | 20            |



UNIT : mm

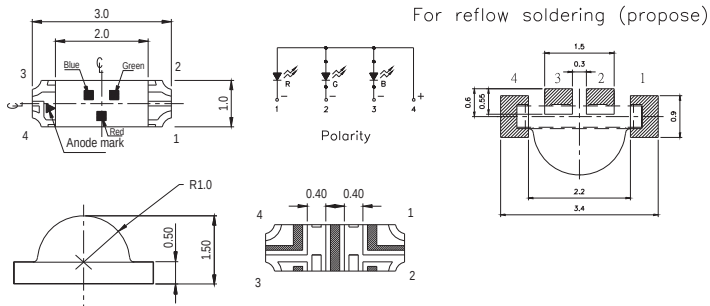


| Product             | Size (LxWxHmm) | Color                | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V) | $V_F$ Max.<br>(V)     | $I_F$<br>(mA) |
|---------------------|----------------|----------------------|-------------------------------|--------------------------|---------------------|------------------------|-----------------------|---------------|
| 17-223/BHR7C-C30/3C | 2.0x1.05x0.6   | ● Blue<br>● Dark Red | BH : 470<br>R7 : 631          | BH : 22.5<br>R7 : 14.5   | BH : 57<br>R7 : 36  | BH : 2.7<br>R7 : 1.55  | BH : 3.2<br>R7 : 2.15 | 5             |

SMD LED ■ Surface Mount Chip LED (PCB) ■ Side View Full Color

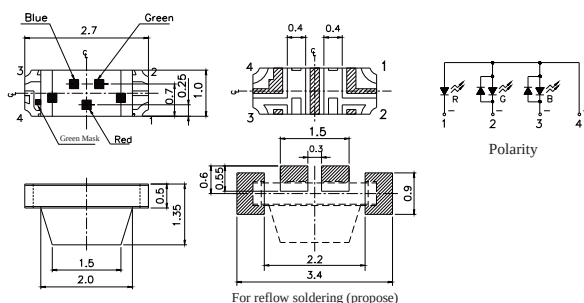


UNIT : mm



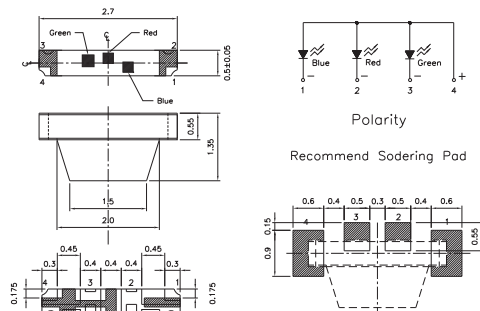
| Product               | Size<br>(LxWxHmm) | Color                                                                        | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                        | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)         | $V_F$ Max.<br>(V)                | $I_F$<br>(mA) |
|-----------------------|-------------------|------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|---------------------|--------------------------------|----------------------------------|---------------|
| 12-23C/R6GHBHC-A01/2C | 3.0x1.5x1.0       | <div>● Brilliant Red</div> <div>● Brilliant Green</div> <div>● Blue</div>    | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 63 / 90<br>GH : 125 / 180<br>BH : 32 / 50  | --                  | R6 : 2<br>GH : 3.3<br>BH : 3.3 | R6 : 2.4<br>GH : 3.9<br>BH : 3.9 | 20            |
| 12-23C/S2GHBHC-A01/2C | 3.0x1.5x1.0       | <div>● Brilliant Orange</div> <div>● Brilliant Green</div> <div>● Blue</div> | BH : 470<br>GH : 525<br>S2 : 605 | BH : 36 / 65<br>GH : 140 / 210<br>S2 : 72 / 140 | --                  | BH : 3.3<br>GH : 3.3<br>S2 : 2 | BH : 3.9<br>GH : 3.9<br>S2 : 2.4 | 20            |

UNIT : mm



| Product              | Size<br>(LxWxHmm) | Color                                                                              | λ <sub>d</sub> (nm)/<br>CIE(x,y) | I <sub>v</sub> Min./Typ.<br>(mcd)               | I <sub>v</sub> Max.<br>(mcd) | V <sub>F</sub> Min./Typ.<br>(V)               | V <sub>F</sub> Max.<br>(V)    | I <sub>F</sub><br>(mA) |
|----------------------|-------------------|------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|------------------------------|-----------------------------------------------|-------------------------------|------------------------|
| 22-23/R6GHBHC-A01/2C | 2.7x1.35x1.0      | <div><div>● Brilliant Red</div><div>● Brilliant Green</div><div>● Blue</div></div> | R6: 624<br>GH: 525<br>BH: 470    | R6: 45 / 180<br>GH: 112 / 450<br>BH: 28.5 / 112 | --                           | R6: 1.7 / 2<br>GH: 2.7 / 3.3<br>BH: 2.7 / 3.3 | R6: 2.4<br>GH: 3.7<br>BH: 3.7 | 20                     |

UNIT : mm

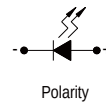
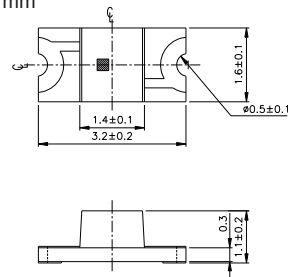


| Product               | Size<br>(LxWxHmm) | Color                                          | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)        | $I_v$ Max.<br>(mcd)              | $V_F$ Min./Typ.<br>(V)                              | $V_F$ Max.<br>(V)              | $I_F$<br>(mA) |
|-----------------------|-------------------|------------------------------------------------|----------------------------------|---------------------------------|----------------------------------|-----------------------------------------------------|--------------------------------|---------------|
| 22-23C/R6GHBHW-C01/2C | 2.7x1.35x0.5      | ● Brilliant Red<br>● Brilliant Green<br>● Blue | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 14.5<br>GH : 35<br>BH : 10 | R6 : 36<br>GH : 110<br>BH : 24.5 | R6 : 1.7 / 1.85<br>GH : 2.7 / 2.9<br>BH : 2.7 / 2.9 | R6 : 2<br>GH : 3.2<br>BH : 3.1 | 5             |

# SMD LED ■ Surface Mount Chip LED (PCB) ■ Reverse Mount

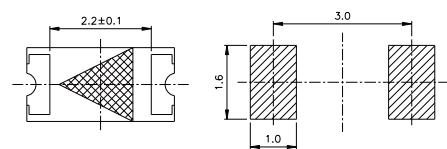


UNIT : mm



Polarity

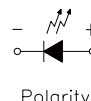
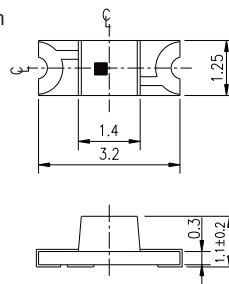
For reflow soldering (Propose)



| Product              | Size (LxWxHmm) | Color                  | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 23-21/G6C-AL2N1/2T   | 3.2x1.6x1.1    | Brilliant Yellow Green | 573                       | 14.5                  | 36               | 1.7 / 2             | 2.4            | 20         |
| 23-21/GHC-YR2T1/2A   | 3.2x1.6x1.1    | Brilliant Green        | 525                       | 140                   | 360              | 3.5                 | 3.9            | 20         |
| 23-21/R6C-AM1N2AY/2A | 3.2x1.6x1.1    | Brilliant Red          | 624                       | 18                    | 45               | 1.55                | 2.15           | 5          |
| 23-21/R8C-AN2Q1B/2T  | 3.2x1.6x1.1    | Deep Red               | 639                       | 36                    | 90               | 1.75                | 2.35           | 20         |

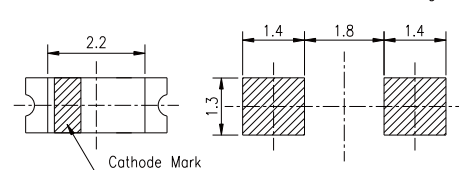


UNIT : mm

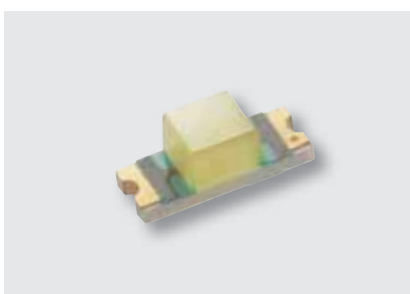


Polarity

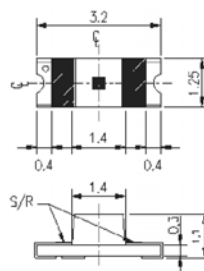
For reflow soldering



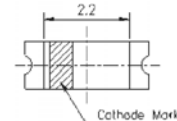
| Product               | Size (LxWxHmm) | Color                  | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 23-21B/BHC-AN1P2/2A   | 3.2x1.25x1.1   | Blue                   | 470                       | 28.5                  | 72               | 3.5                 | 4              | 20         |
| 23-21B/BHC-ZM1N2TY/2A | 3.2x1.25x1.1   | Blue                   | 470                       | 18                    | 45               | 2.6                 | 3              | 5          |
| 23-21B/G6C-AM2P1/2A   | 3.2x1.25x1.1   | Brilliant Yellow Green | 573                       | 22.5                  | 57               | 1.7 / 2             | 2.4            | 20         |
| 23-21B/S2C-AP1Q2B/2A  | 3.2x1.25x1.1   | Brilliant Orange       | 605                       | 45                    | 112              | 1.75                | 2.35           | 20         |
| 23-21B/T1D-ANQHY/2A   | 3.2x1.25x1.1   | Pure White             | x=0.274, y=0.226          | 28.5                  | 112              | 2.7                 | 3.15           | 5          |
| 23-21B/T1D-CP2Q2TY/2A | 3.2x1.25x1.1   | Pure White             | x=0.274, y=0.226          | 57                    | 112              | 2.6                 | 3              | 5          |
| 23-21B/W1D-ANQHY/2A   | 3.2x1.25x1.1   | Pure White             | x=0.274, y=0.226          | 28.5                  | 112              | 2.7                 | 3.15           | 5          |



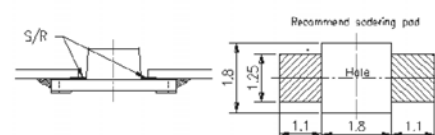
UNIT : mm



Polarity

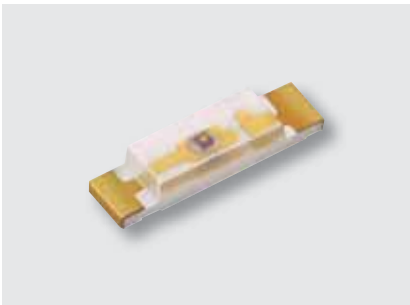


Recommend soldering pad

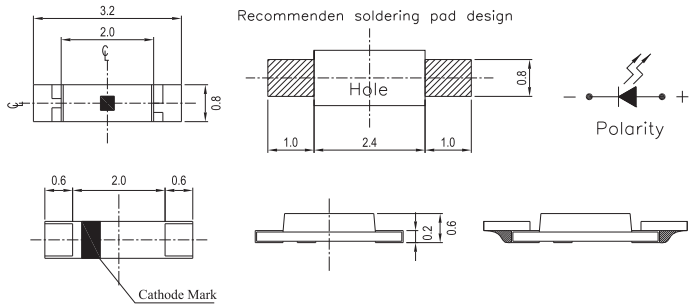


| Product               | Size (LxWxHmm) | Color | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|-------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 23-21C/T1D-CP2Q2TY/2A | 3.2x1.25x1.1   | White | x=0.274, y=0.226          | 57                    | 112              | Min. 2.6            | 3              | 5          |

SMD LED | Surface Mount Chip LED (PCB) | Reverse Mount



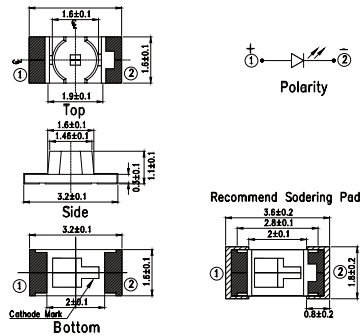
UNIT : mm



| Product               | Size (LxWxHmm) | Color | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|-------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 23-215A/BHC-DN2P2E/5A | 3.2x0.8x0.6    | Blue  | 470                       | 36                    | 72               | 2.75                | 3.65           | 20         |



UNIT : mm

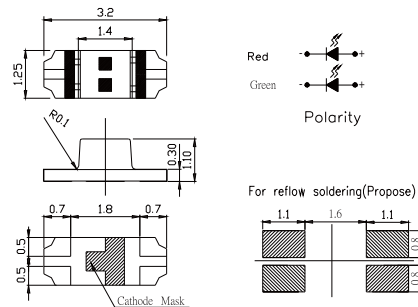


| Product            | Size (LxWxHmm) | Color           | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|--------------------|----------------|-----------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 24-21/BHC-AN1P2/2A | 3.2x1.6x1.1    | Blue            | 470                       | 28.5                  | 72               | 2.7/3.3             | 3.7            | 20         |
| 24-21/GHC-YR2T1/2A | 3.2x1.6x1.1    | Brilliant Green | 525                       | 140                   | 360              | 3.5                 | 4              | 20         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Reverse Mount Bi-color



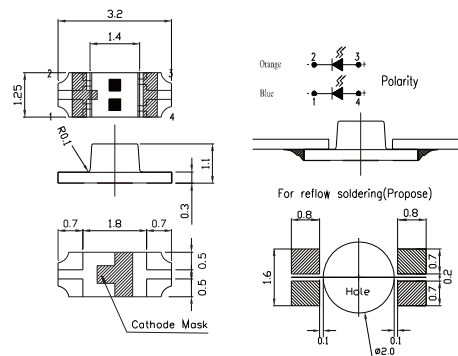
UNIT : mm



| Product             | Size (LxWxHmm) | Color                                                                                      | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd)    | $V_F$ Min./Typ.<br>(V)             | $V_F$ Max.<br>(V)     | $I_F$ (mA) |
|---------------------|----------------|--------------------------------------------------------------------------------------------|-------------------------------|--------------------------|------------------------|------------------------------------|-----------------------|------------|
| 23-22B/R7G6C-A30/2T | 3.2x1.25x1.1   | <ul style="list-style-type: none"> <li>Dark Red</li> <li>Brilliant Yellow Green</li> </ul> | R7 : 631<br>G6 : 573          | R7 : 18<br>G6 : 14.5     | R7 : 72<br>G6 : 45     | R7 : 1.7 / 2<br>G6 : 1.7 / 2       | R7 : 2.4<br>G6 : 2.4  | 20         |
| 23-22B/S2BHC-C30/2A | 3.2x1.25x1.1   | <ul style="list-style-type: none"> <li>Brilliant Orange</li> <li>Blue</li> </ul>           | S2 : 605<br>BH : 470          | S2 : 11.5<br>BH : 11.5   | S2 : 28.5<br>BH : 28.5 | S2 : 1.55 / 1.85<br>BH : 2.5 / 3.1 | S2 : 2.25<br>BH : 3.5 | 5          |



UNIT : mm

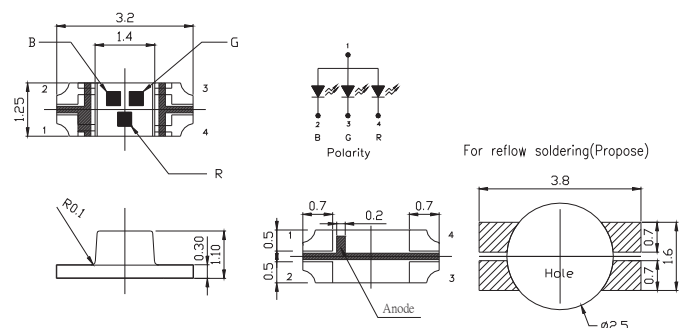


| Product             | Size (LxWxHmm) | Color                                                                            | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_v$ Min./Typ.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)         | $V_F$ Max.<br>(V)    | $I_F$ (mA) |
|---------------------|----------------|----------------------------------------------------------------------------------|-------------------------------|--------------------------|---------------------|--------------------------------|----------------------|------------|
| 23-22C/S2BHC-B30/2A | 3.2x1.25x1.1   | <ul style="list-style-type: none"> <li>Brilliant Orange</li> <li>Blue</li> </ul> | S2 : 605<br>BH : 470          | S2 : 22.5<br>BH : 22.5   | S2 : 57<br>BH : 57  | S2 : 1.7 / 2<br>BH : 2.7 / 3.3 | S2 : 2.4<br>BH : 3.7 | 10         |

## SMD LED ■ Surface Mount Chip LED (PCB) ■ Reverse Mount Full color



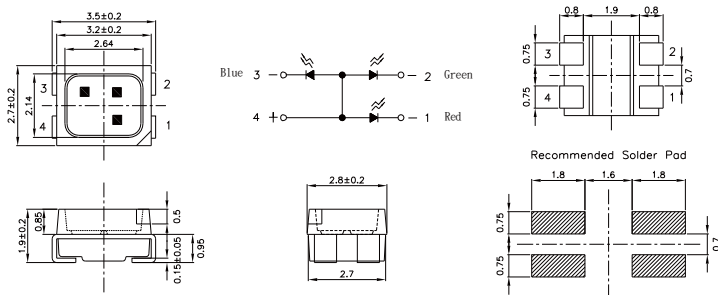
UNIT : mm



| Product               | Size (LxWxHmm) | Color                                                                                                  | $\lambda_d$ (nm)/<br>CIE(x,y)    | $I_v$ Min./Typ.<br>(mcd)                        | $I_v$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V)                           | $V_F$ Max.<br>(V)                | $I_F$ (mA) |
|-----------------------|----------------|--------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|---------------------|--------------------------------------------------|----------------------------------|------------|
| 23-23B/R6GHBHC-A01/2A | 3.2x1.25x1.1   | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Green</li> <li>Blue</li> </ul> | R6 : 624<br>GH : 525<br>BH : 470 | R6 : 72 / 100<br>GH : 140 / 200<br>BH : 45 / 65 | --                  | R6 : 1.7 / 2<br>GH : 2.7 / 3.3<br>BH : 2.7 / 3.3 | R6 : 2.4<br>GH : 3.7<br>BH : 3.7 | 20         |

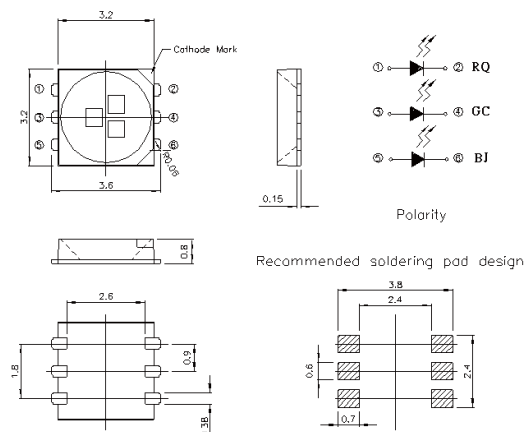
SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Top View LED

UNIT : mm



| Product              | Size<br>(LxWxHmm) | Color                                                                                                                                                                 | $\lambda_d$ (nm)/<br>CIE(x,y)                | I <sub>V</sub> Min./Typ.<br>(mcd)               | I <sub>V</sub> Max.<br>(mcd)     | V <sub>F</sub> Min./<br>Typ. (V)   | V <sub>F</sub> Max.<br>(V)         | I <sub>F</sub> (mA) |
|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------|----------------------------------|------------------------------------|------------------------------------|---------------------|
| 67-23/R6GHBHC-B05/2T | 3.5x2.8x1.9       | R6: <span style="color: red;">●</span> Brilliant Red<br>GH: <span style="color: green;">●</span> Brilliant Green<br>BH: <span style="color: blue;">●</span> Blue      | R6 : 621~631<br>GH : 520~530<br>BH : 465~475 | R6 : 112<br>GH : 180<br>BH : 72                 | R6 : 285<br>GH : 715<br>BH : 285 | R6 : 2.0<br>GH : 3.4<br>BH : 3.4   | R6 : 2.4<br>GH : 3.95<br>BH : 3.95 | 20                  |
| 67-23SDRSYGUBC/TR8   | 3.5x2.8x1.9       | SDR: <span style="color: red;">●</span> Deep Red<br>SYG: <span style="color: yellow;">●</span> Brilliant Yellow Green<br>UB: <span style="color: blue;">●</span> Blue | SDR : 639<br>SYG : 573<br>UB : 470           | SDR : 63 / 112<br>SYG : 13 / 20<br>UB : 11 / 18 | --                               | SDR : 2.0<br>SYG : 2.0<br>UB : 3.5 | SDR : 2.4<br>SYG : 2.4<br>UB : 4.0 | 20                  |

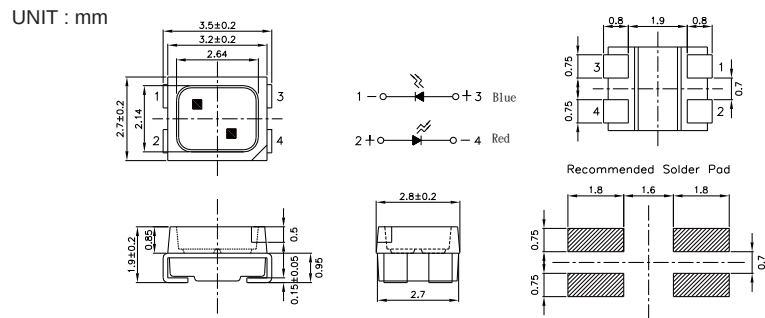
UNIT : mm



| Product                    | Size<br>(LxWxHmm) | Color                                                                                                        | $\lambda_d$ (nm)/CIE(x,y)                  | I <sub>v</sub> Min./Typ.<br>(mcd) | I <sub>v</sub> Max.<br>(mcd) | V <sub>F</sub> Min./Typ.<br>(V) | V <sub>F</sub> Max.<br>(V)    | I <sub>F</sub> (mA) |
|----------------------------|-------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------------------------|------------------------------|---------------------------------|-------------------------------|---------------------|
| 67-235-BJRQGCC-A01E-2T8-CS | 3.2x3.2x0.8       | <div><div></div> BQ:Super-Red</div> <div><div></div> GC:Brilliant Green</div> <div><div></div> BJ:Blue</div> | BQ:617.5-629.5<br>GC:525-535<br>BJ:465-475 | BQ:450<br>GC:1120<br>BJ:225       | BQ:900<br>GC:1800<br>BJ:450  | BQ:1.75<br>GC:2.75<br>BJ:2.75   | BQ:2.75<br>GC:3.65<br>BJ:3.65 | 20                  |



# SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Top View Bi-Color



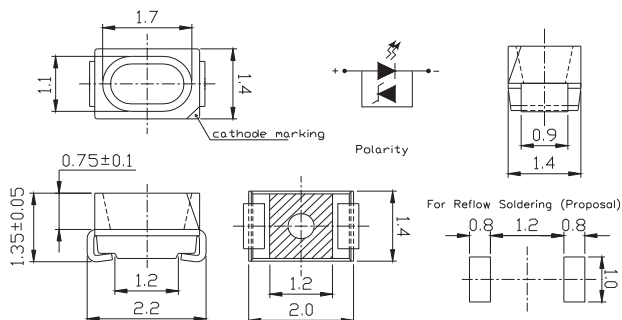
| Product                  | Size<br>(LxWxHmm) | Color                                                   | $\lambda_d$ (nm)                 | $I_v$ Min./Typ.<br>(mcd)       | $I_v$ Max.<br>(mcd)  | $V_F$ Min./Typ.<br>(V)             | $V_F$ Max.<br>(V)      | $I_F$ (mA) |
|--------------------------|-------------------|---------------------------------------------------------|----------------------------------|--------------------------------|----------------------|------------------------------------|------------------------|------------|
| 67-22/G3G3C-B45/2T       | 3.5x2.8x1.9       | G3: ● Pale Green<br>G3: ● Pale Green                    | 563.5~571.5                      | 4.5 / 10                       | 36                   | 1.7 / 2.0                          | 2.4                    | 10         |
| 67-22/R6BHC-B07/2T       | 3.5x2.8x1.9       | R6: ● Brilliant Red<br>BH: ● Blue                       | R6 : 621~631<br>BH : 466.5~471.5 | R6 : 90<br>BH : 90             | R6 : 225<br>BH : 225 | R6 : 1.75<br>BH : 2.9              | R6 : 2.35<br>BH : 3.7  | 20         |
| 67-22/R6G6C-B09/2T       | 3.5x2.8x1.9       | R6: ● Brilliant Red<br>G6: ● Brilliant Yellow Green     | R6 : 621~627<br>G6 : 570~574     | R6 : 57<br>G6 : 36             | R6 : 140<br>G6 : 90  | R6 : 1.75<br>G6 : 1.75             | R6 : 2.35<br>G6 : 2.35 | 20         |
| 67-22/R6Y2C-B31/2T       | 3.5x2.8x1.9       | R6: ● Brilliant Red<br>Y2: ● Brilliant Yellow           | R6 : 621~631<br>Y2 : 586~594     | R6 : 72<br>Y2 : 72             | R6 : 285<br>Y2 : 285 | 1.75                               | 2.35                   | 20         |
| 67-22SURSYGC/S530-A2/TR8 | 3.5x2.8x1.9       | SUR: ● Brilliant Red<br>SYG: ● Brilliant Yellow Green   | SUR : 624<br>SYG : 573           | SUR : 24 / 59<br>SYG : 16 / 24 | --                   | SUR : 1.7 / 2.0<br>SYG : 1.7 / 2.0 | SUR : 2.4<br>SYG : 2.4 | 20         |
| 67-22UYSYGC/S530-A5/TR8  | 3.5x2.8x1.9       | UY: ● Brilliant Yellow<br>SYG: ● Brilliant Yellow Green | UY : 589<br>SYG : 573            | UY : 80 / 120<br>SYG : 50 / 80 | --                   | UY : 1.7/2.0<br>SYG : 1.7/2.0      | UY : 2.4<br>SYG : 2.4  | 20         |



## SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Top View PLCC2



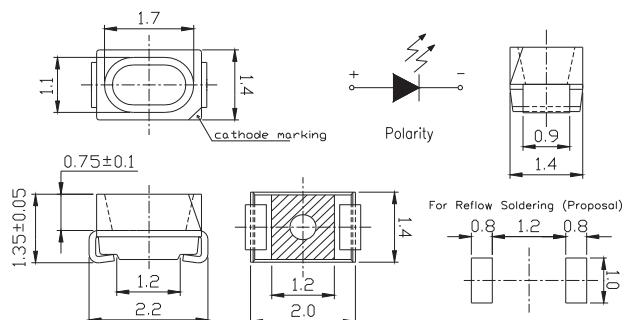
UNIT : mm



| Product              | Size (LxWxHmm) | Color        | $\lambda_d$ (nm)/CIE(x,y)    | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|--------------|------------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 65-11/BHC-AR1S2B2/2T | 2.2x1.4x1.35   | ● Blue       | 464.5~476.5                  | 112                   | 285              | 2.9                 | 3.6            | 20         |
| 65-11/T2C-FV1W2E/2T  | 2.2x1.4x1.35   | ○ Pure White | x=0.283~0.33<br>y=0.276~0.36 | 715                   | 1800             | 2.75                | 3.65           | 20         |



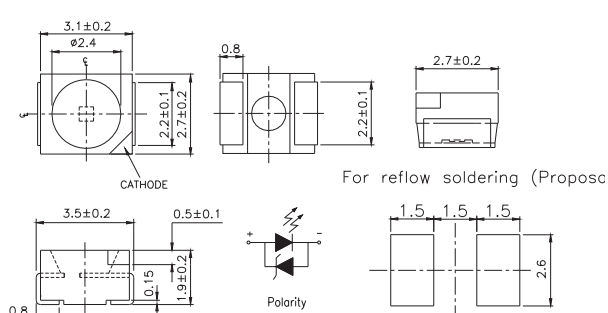
UNIT : mm



| Product              | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|----------------------|----------------|--------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 65-21/G6C-AN2Q1/3T   | 2.2x1.4x1.35   | ● Brilliant Yellow Green | 569.5~577.5               | 36                    | 90               | 1.75                | 2.35           | 20         |
| 65-21/Y2C-CJ2L2X/3T  | 2.2x1.4x1.35   | ● Brilliant Yellow       | 586~592                   | 5.8                   | 18               | 2                   | 2.4            | 2          |
| 65-21/Y2SC-AR1S2B/2T | 2.2x1.4x1.35   | ● Brilliant Yellow       | 585.5~594.5               | 112                   | 285              | 1.75                | 2.35           | 20         |
| 65-21/Y2SC-FR2S1B/2T | 2.2x1.4x1.35   | ● Brilliant Yellow       | 586~594                   | 140                   | 225              | 1.75                | 2.35           | 20         |



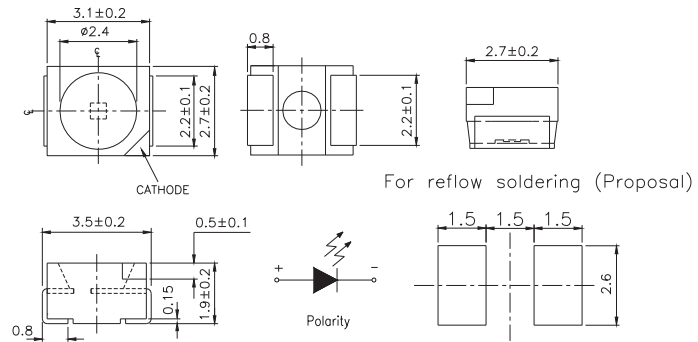
UNIT : mm



| Product             | Size (LxWxHmm) | Color        | $\lambda_d$ (nm)/CIE(x,y)      | $I_v$ Min./Typ. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|---------------------|----------------|--------------|--------------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 67-11/BHC-FQ2S1F/2T | 3.5x2.7x1.9    | ● Blue       | 464~472                        | 90                    | 285              | 2.7                 | 3.5            | 20         |
| 67-11/W1C-ES1T2N/2T | 3.5x2.7x1.9    | ○ Warm White | x=0.264~0.330<br>y=0.248~0.360 | 180                   | 450              | 2.7                 | 3.7            | 20         |
| 67-11/W1C-FV1W2F/2T | 3.5x2.7x1.9    | ○ White      | x=0.283~0.330<br>y=0.276~0.360 | 715                   | 1800             | 2.7                 | 3.5            | 20         |

SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Top View PLCC2

UNIT : mm

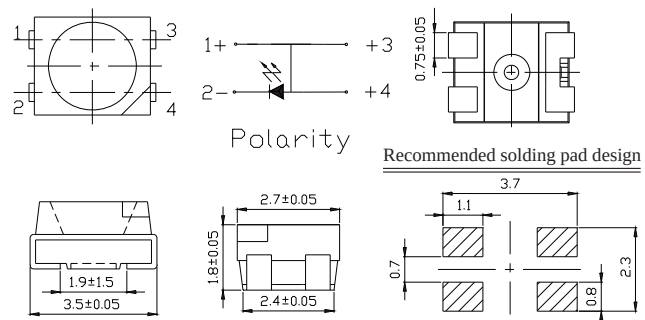


| Product                | Size<br>(LxWxHmm) | Color              | $\lambda_d$ (nm)/CIE(x,y)         | $I_v$ Min./<br>Typ. (mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min./<br>Typ. (V) | $V_F$ Max.<br>(V) | $I_F$<br>(mA) |
|------------------------|-------------------|--------------------|-----------------------------------|---------------------------|---------------------|-------------------------|-------------------|---------------|
| 67-21/B3C-BN1Q2N/2T    | 3.5x2.7x1.9       | ● Blue             | 464.5~473.5                       | 28.5                      | 112                 | 2.7                     | 3.7               | 20            |
| 67-21/B7C-AS2U1N/2T    | 3.5x2.7x1.9       | ● Blue             | 464.5~476.5                       | 225                       | 565                 | 2.7                     | 3.7               | 20            |
| 67-21/GBC-YV2W2N/2T    | 3.5x2.7x1.9       | ● Brilliant Green  | 520~535                           | 900                       | 1800                | 2.7                     | 3.7               | 20            |
| 67-21/GHC-AS2U1B17Z/2T | 3.5x2.7x1.9       | ● Brilliant Green  | 517.5~535.5                       | 225                       | 565                 | 2.5                     | 3.5               | 10            |
| 67-21/GHC-BV1/2T       | 3.5x2.7x1.9       | ● Brilliant Green  | 523.5~533.5                       | 715                       | 900                 | 2.7                     | 4.3               | 20            |
| 67-21/R6C-AP2R1B/2T    | 3.5x2.7x1.9       | ● Brilliant Red    | 617.5~633.5                       | 57                        | 140                 | 1.75                    | 2.35              | 20            |
| 67-21/R6C-FN2Q1BZ/2T   | 3.5x2.7x1.9       | ● Brilliant Red    | 621~631                           | 36                        | 90                  | 1.75                    | 2.35              | 10            |
| 67-21/R6C-FR2T1B/2T    | 3.5x2.7x1.9       | ● Brilliant Red    | 621~631                           | 140                       | 360                 | 1.75                    | 2.35              | 20            |
| 67-21/R6C-FS1U1B/2T    | 3.5x2.7x1.9       | ● Brilliant Red    | 621~631                           | 180                       | 565                 | 1.75                    | 2.35              | 20            |
| 67-21/RSC-FT2V1B/2T    | 3.5x2.7x1.9       | ● Brilliant Red    | 621~631                           | 360                       | 900                 | 1.75                    | 2.35              | 20            |
| 67-21/S2C-FQ2R2B/2T    | 3.5x2.7x1.9       | ● Brilliant Orange | 603~609                           | 90                        | 180                 | 1.75 / 2                | 2.35              | 20            |
| 67-21/S3C-AS1T1/2T     | 3.5x2.7x1.9       | ● Reddish Orange   | 605.5~621.5                       | 180                       | 360                 | 2                       | 2.4               | 20            |
| 67-21/T2C-ZV1W2E/2T    | 3.5x2.7x1.9       | ○ White            | x=0.2498~0.296<br>y=0.2185~0.2950 | 715                       | 1800                | 2.75                    | 3.65              | 20            |
| 67-21/Y2C-BR2T1B/2T    | 3.5x2.7x1.9       | ● Brilliant Yellow | 588.5~594.5                       | 140                       | 360                 | 1.75                    | 2.35              | 20            |
| 67-21/YSC-FU1V2B/2T    | 3.5x2.7x1.9       | ● Brilliant Yellow | 586~594                           | 450                       | 1120                | 1.75                    | 2.35              | 20            |

SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Top View PLCC3

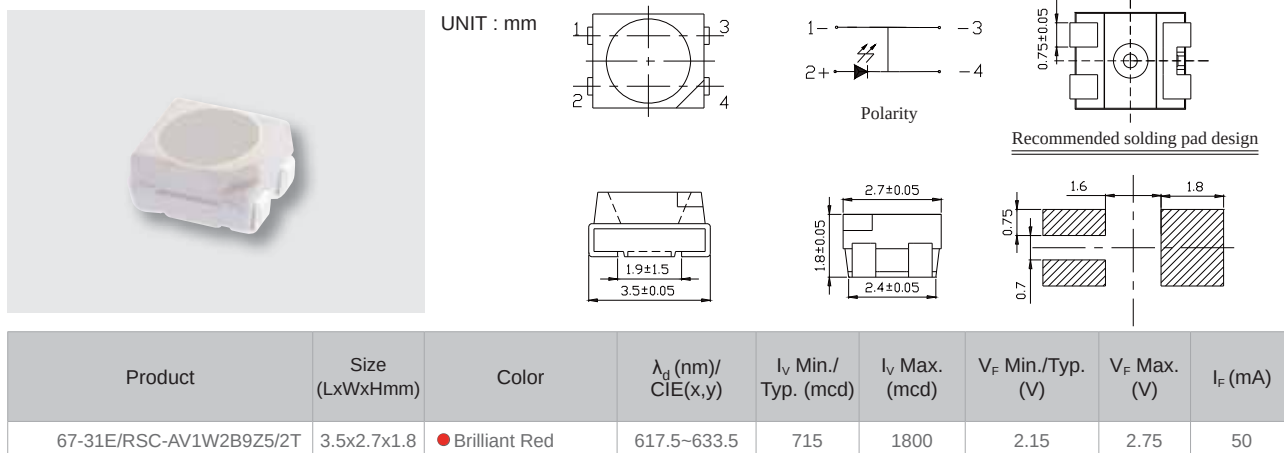


UNIT : mm

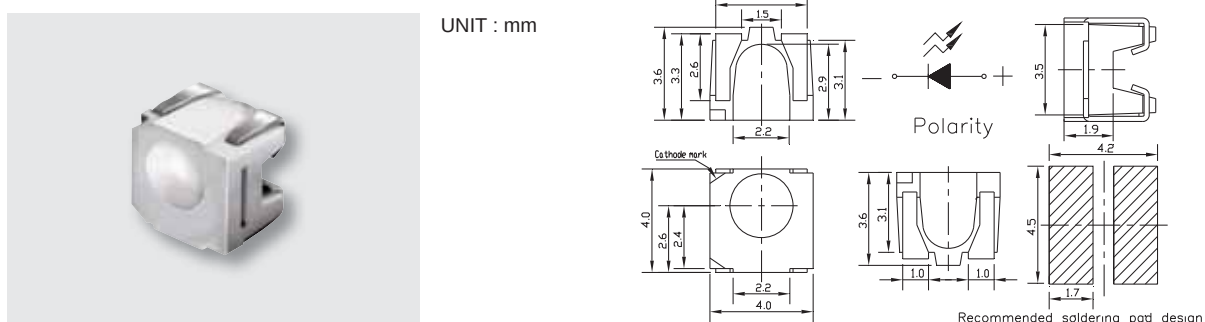
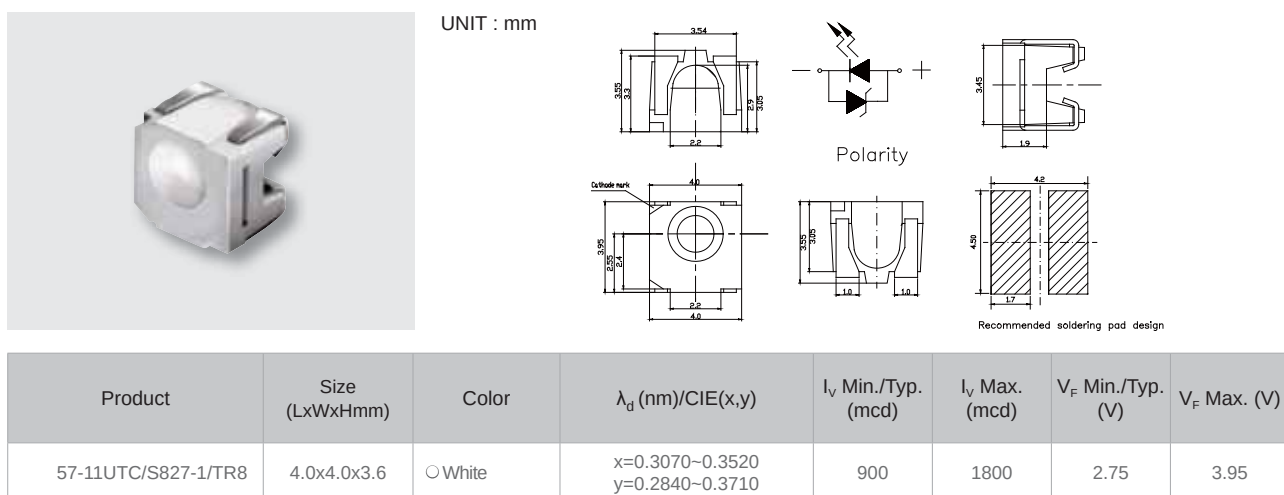


| Product                 | Size<br>(LxWxHmm) | Color          | $\lambda_d$ (nm)/<br>CIE(x,y) | $I_V$ Min./<br>Typ. (mcd) | $I_V$ Max.<br>(mcd) | $V_F$ Min./Typ.<br>(V) | $V_F$ Max.<br>(V) | $I_F$ (mA) |
|-------------------------|-------------------|----------------|-------------------------------|---------------------------|---------------------|------------------------|-------------------|------------|
| 67-31A/B7C-AT1U2MZ3/2T  | 3.5x2.7x1.8       | Blue           | 464.5~476.5                   | 285                       | 715                 | 2.75                   | 3.95              | 30         |
| 67-31A/GHC-YV1W2EZ3/2T  | 3.5x2.7x1.8       | Green          | 520~535                       | 715                       | 1800                | 2.75                   | 3.65              | 30         |
| 67-31A/SAC-AW1X2B9Z5/2T | 3.5x2.7x1.8       | Reddish Orange | 605.5~625.5                   | 1120                      | 2850                | 1.95                   | 2.75              | 50         |

## SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Top View PLCC3

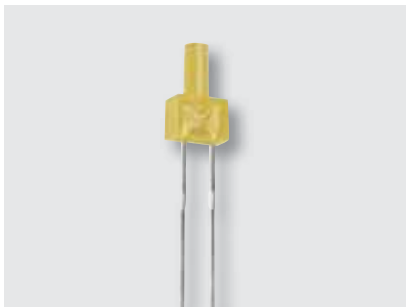


## SMD LED ■ Surface Mount PLCC LEDs (Reflector) ■ Side View LED

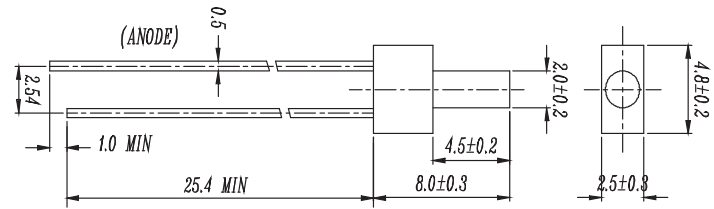


| Product               | Size (LxWxHmm) | Color                    | $\lambda_d$ (nm)/CIE(x,y) | $I_V$ Min./Typ. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min./Typ. (V) | $V_F$ Max. (V) | $I_F$ (mA) |
|-----------------------|----------------|--------------------------|---------------------------|-----------------------|------------------|---------------------|----------------|------------|
| 57-21R6C-AP1Q2B/BF    | 4.0x4.0x3.6    | ● Brilliant Red          | 617.5~633.5               | 45                    | 112              | 1.75                | 2.35           | 10         |
| 57-21SYGC/S530-E3/TR8 | 4.0x4.0x3.6    | ● Brilliant Yellow Green | 573                       | 32/51                 | --               | 1.7 / 2.0           | 2.4            | 20         |

## LED Lamps ■ 2mm Tower Type



UNIT : mm

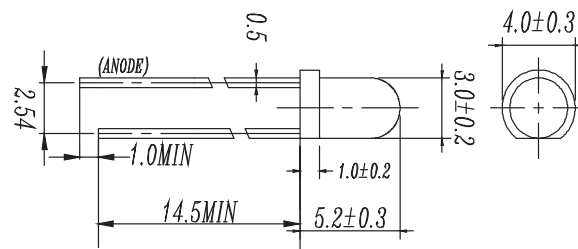


| Product         | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm) / CIE(x,y) | Resin Color     | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|-----------------|-----------|--------------------------|-----------|-----------------------------|-----------------|-----------------------|---------------------|-------------------|
| 103SURD/S530-A3 | 2         | ● Hyper Red              | Tower     | 624                         | Red Diffused    | 25 / 40               | 2.0 / 2.4           | 130               |
| 103SYGD/S530-E2 | 2         | ● Brilliant Yellow Green | Tower     | 573                         | Green Diffused  | 6.3 / 12.5            | 2.0 / 2.4           | 130               |
| 103UYD/S530-A3  | 2         | ● Brilliant Yellow       | Tower     | 589                         | Yellow Diffused | 25 / 50               | 2.0 / 2.4           | 130               |

## LED Lamps ■ 3mm Round Type



UNIT : mm

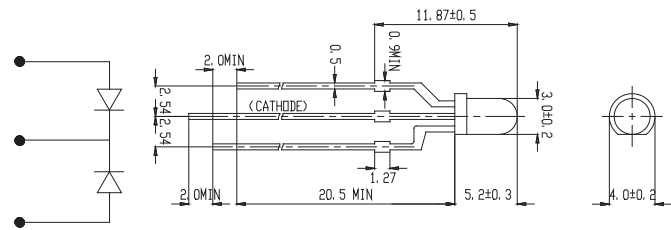


| Product            | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm) / CIE(x,y) | Resin Color     | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|--------------------|-----------|--------------------------|-----------|-----------------------------|-----------------|-----------------------|---------------------|-------------------|
| 204-10SDRD/S530-A3 | 3         | ● Deep Red               | Round     | 639                         | Red Diffused    | 40 / 80               | 2.0 / 2.4           | 50                |
| 204-10SUBC/S400-A4 | 3         | ● Blue                   | Round     | 470                         | Water Clear     | 400 / 800             | 3.4 / 4.0           | 20                |
| 204-10SUGC/S400-A5 | 3         | ● Green                  | Round     | 525                         | Water Clear     | 1600 / 3200           | 3.2 / 3.7           | 30                |
| 204-10SURD/S530-A3 | 3         | ● Brilliant Red          | Round     | 624                         | Red Diffused    | 40 / 80               | 2.0 / 2.4           | 45                |
| 204-10SYGD/S530-E3 | 3         | ● Brilliant Yellow Green | Round     | 573                         | Green Diffused  | 63 / 100              | 2.0 / 2.4           | 45                |
| 204-10UYD/S530-A3  | 3         | ● Brilliant Yellow       | Round     | 589                         | Yellow Diffused | 100 / 200             | 2.0 / 2.4           | 60                |
| 204-10UYOC/S530-A3 | 3         | ● Brilliant Orange       | Round     | 605                         | Water Clear     | 320 / 500             | 2.0 / 2.4           | 30                |

## LED Lamps | 3mm Round Type



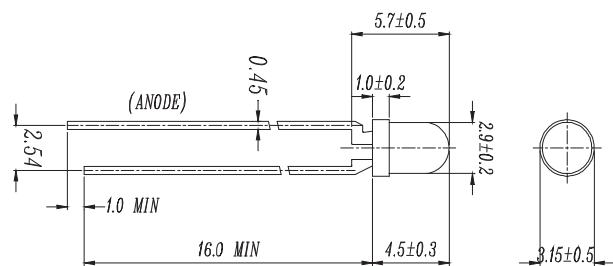
UNIT : mm



| Product            | Size (mm) | Color                                                                                           | Lens Type | $\lambda_d$ (nm) / CIE(x,y) | Resin Color    | $I_v$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V)    | Viewing Angle (°) |
|--------------------|-----------|-------------------------------------------------------------------------------------------------|-----------|-----------------------------|----------------|-----------------------|------------------------|-------------------|
| 209SDRSYGW/S530-A3 | 3         | <ul style="list-style-type: none"> <li>Deep Red</li> <li>Brilliant Yellow Green</li> </ul>      | Round     | 639 / 573                   | White Diffused | 25 / 50<br>16 / 32    | 2.0 / 2.4<br>2.0 / 2.4 | 80                |
| 209SURSYGW/S530-A3 | 3         | <ul style="list-style-type: none"> <li>Brilliant Red</li> <li>Brilliant Yellow Green</li> </ul> | Round     | 624 / 573                   | White Diffused | 40 / 80<br>25 / 50    | 2.0 / 2.4<br>2.0 / 2.4 | 80                |



UNIT : mm

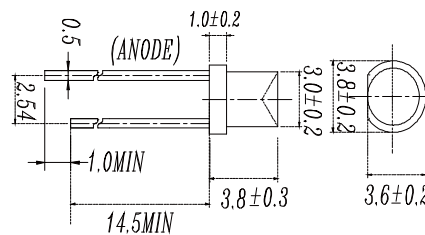


| Product           | Size (mm) | Color                  | Lens Type | $\lambda_d$ (nm) / CIE(x,y) | Resin Color | $I_v$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|-------------------|-----------|------------------------|-----------|-----------------------------|-------------|-----------------------|---------------------|-------------------|
| 264-7SDRC/S530-A3 | 2.9       | Deep Red               | Round     | 639                         | Water Clear | 40 / 100              | 2.0 / 2.4           | 40                |
| 264-7UYOC/S530-A3 | 2.9       | Brilliant Orange       | Round     | 605                         | Water Clear | 110 / 200             | 2.0 / 2.4           | 40                |
| 264-7SUGC/S400-A5 | 2.9       | Brilliant Green        | Round     | 530                         | Water Clear | 1000 / 2000           | 3.4 / 4.0           | 30                |
| 264-7SURC/S400-A8 | 2.9       | Brilliant Red          | Round     | 624                         | Water Clear | 400 / 800             | 2.0 / 2.4           | 40                |
| 264-7SYGC/S530-E3 | 2.9       | Brilliant Yellow Green | Round     | 573                         | Water Clear | 100 / 320             | 2.0 / 2.4           | 35                |
| 264-7UYC/S400-A9  | 2.9       | Brilliant Yellow       | Round     | 589                         | Water Clear | 630 / 1250            | 2.0 / 2.4           | 40                |

## LED Lamps ■ 3mm Round Type



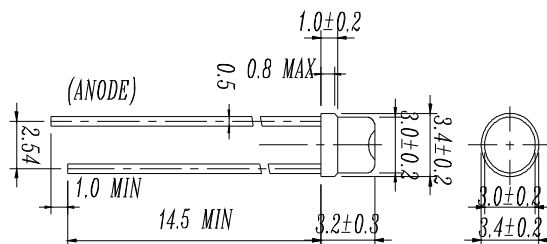
UNIT : mm



| Product            | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm) / CIE(x,y) | Resin Color  | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|--------------------|-----------|--------------------------|-----------|-----------------------------|--------------|-----------------------|---------------------|-------------------|
| 484-10SURT/S530-A3 | 3         | ● Brilliant Red          | Round     | 624                         | Red Trans    | 10 / 20               | 2.0 / 2.4           | 130               |
| 484-10UYT/S530-A3  | 3         | ● Brilliant Yellow       | Round     | 589                         | Yellow Trans | 16 / 32               | 2.0 / 2.4           | 110               |
| 484-10SYGT/S530-E2 | 3         | ● Brilliant Yellow Green | Round     | 573                         | Green Trans  | 6.3 / 12.5            | 2.0 / 2.4           | 80                |
| 484-10UYOC/S530-A3 | 3         | ● Brilliant Orange       | Round     | 605                         | Water Clear  | 40 / 80               | 2.0 / 2.4           | 160               |



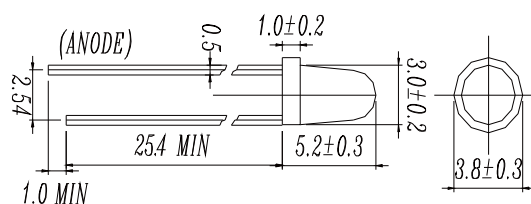
UNIT : mm



| Product            | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/ CIE(x,y) | Resin Color | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|--------------------|-----------|--------------------------|-----------|----------------------------|-------------|-----------------------|---------------------|-------------------|
| 494-10SURT/S530-A3 | 3         | ● Brilliant Red          | Round     | 624                        | Red Trans   | 16 / 32               | 2.0 / 2.4           | 100               |
| 494-10SYGT/S530-E2 | 3         | ● Brilliant Yellow Green | Round     | 573                        | Green Trans | 10 / 20               | 2.0 / 2.4           | 100               |



UNIT : mm

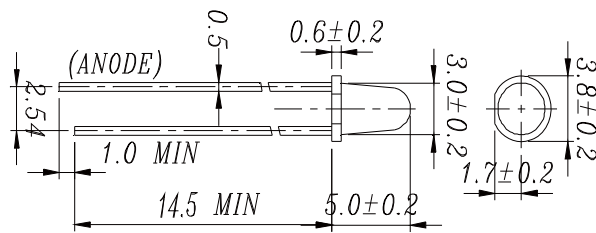


| Product          | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/CIE(x,y) | Resin Color | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|------------------|-----------|--------------------------|-----------|---------------------------|-------------|-----------------------|---------------------|-------------------|
| 1224SYGC/S530-E2 | 3         | ● Brilliant Yellow Green | Round     | 573                       | Water Clear | 63 / 100              | 2.0 / 2.4           | 25                |
| 1224USOC/S530-A3 | 3         | ● Super Sunset Orange    | Round     | 615                       | Water Clear | 188 / 295             | 2.0 / 2.4           | 25                |
| 1224UTC/S400-A6  | 3         | ○ White                  | Round     | x=0.29, y=0.28            | Water Clear | 1800 / -              | - / 4.0             | 25                |
| 1224SURC/S530-A3 | 3         | ● Brilliant Red          | Round     | 624                       | Water Clear | 160 / 400             | 2.0 / 2.4           | 25                |
| 1224SDRC/S530-A4 | 3         | ● Super Deep Red         | Round     | 639                       | Water Clear | 250 / 500             | 2.0 / 2.4           | 25                |
| 1224SUGC/S400-A5 | 3         | ● Green                  | Round     | 525                       | Water Clear | 1600 / 2000           | 3.3 / 3.7           | 30                |

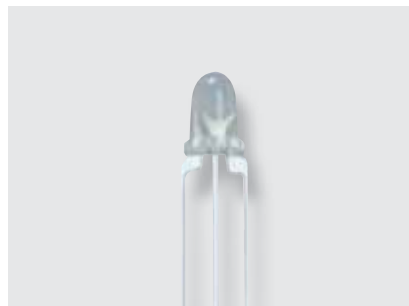
## LED Lamps ■ 3mm Round Type



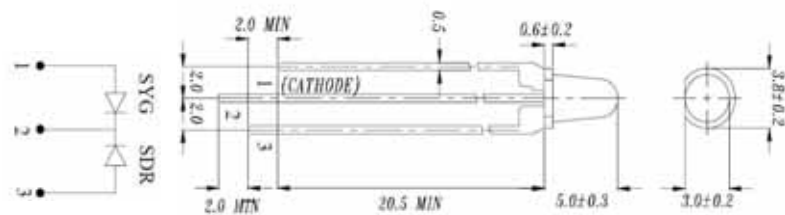
UNIT : mm



| Product             | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm) / CIE(x,y) | Resin Color     | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|---------------------|-----------|--------------------------|-----------|-----------------------------|-----------------|-----------------------|---------------------|-------------------|
| 1254-10SDRT/S530-A3 | 3         | ● Deep Red               | Round     | 639                         | Red Trans       | 160 / 320             | 2.0 / 2.4           | 30                |
| 1254-10SURT/S530-A3 | 3         | ● Hyper Red              | Round     | 624                         | Red Trans       | 160 / 320             | 2.0 / 2.4           | 30                |
| 1254-10SYGT/S530-E2 | 3         | ● Brilliant Yellow Green | Round     | 573                         | Green Trans     | 160 / 320             | 2.0 / 2.4           | 30                |
| 1254-10UYD/S530-A3  | 3         | ● Brilliant Yellow       | Round     | 589                         | Yellow Diffused | 100 / 200             | 2.0 / 2.4           | 30                |
| 1254-10UYOT/S530-A3 | 3         | ● Brilliant Orange       | Round     | 605                         | Orange Color    | 250 / 500             | 2.0 / 2.4           | 30                |



UNIT : mm

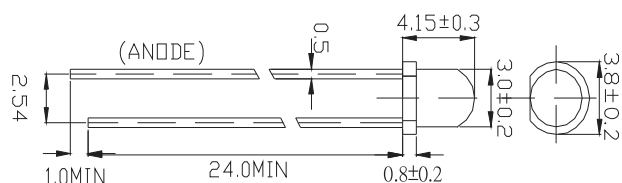


| Product               | Size (mm) | Color                                          | Lens Type | $\lambda_d$ (nm)/CIE(x,y) | Resin Color    | $I_V$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V)    | Viewing Angle (°) |
|-----------------------|-----------|------------------------------------------------|-----------|---------------------------|----------------|-----------------------|------------------------|-------------------|
| 1259-7SDRSYGW/S530-A3 | 3         | ● Deep Red<br>● Brilliant Yellow Green         | Round     | 639 / 573                 | White Diffused | 16 / 32<br>25 / 50    | 2.0 / 2.4<br>2.0 / 2.4 | 50                |
| 1259-7SURSYGW/S530-A3 | 3         | ● Brilliant Red<br>● Brilliant Yellow Green    | Round     | 624 / 573                 | White Diffused | 40 / 80<br>16 / 32    | 2.0 / 2.4<br>2.0 / 2.4 | 60                |
| 1259-7UYSYGW/S530-A3  | 3         | ● Brilliant Yellow<br>● Brilliant Yellow Green | Round     | 589 / 573                 | White Diffused | 63 / 125<br>40 / 80   | 2.0 / 2.4<br>2.0 / 2.4 | 40                |

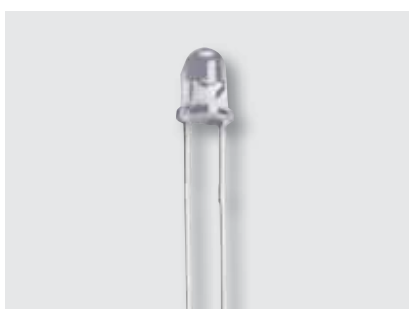
# LED Lamps | 3mm Round Type



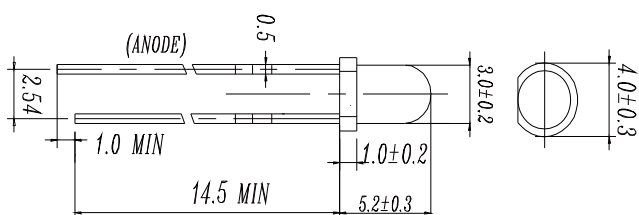
UNIT : mm



| Product             | Size (mm) | Color             | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|---------------------|-----------|-------------------|-----------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 3294-15SUBC/S400-A6 | 3         | ● Blue            | Round     | 470                           | Water Clear | 160 / 320                   | 3.3 / 3.7                 | 90                |
| 3294-15SUGC/S400-A6 | 3         | ● Brilliant Green | Round     | 525                           | Water Clear | 500 / 1250                  | 3.3 / 3.7                 | 50                |
| 3294-15SURC/S400-A7 | 3         | ● Brilliant Red   | Round     | 624                           | Water Clear | 100 / 200                   | 2.0 / 2.4                 | 90                |
| 3294-15UBGC/S400-A6 | 3         | ● Super Blue      | Round     | 505                           | Water Clear | 400 / 800                   | 3.5 / 4.3                 | 90                |



UNIT : mm



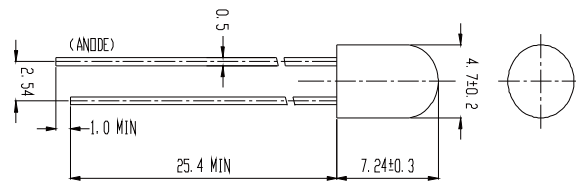
| Product             | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|---------------------|-----------|--------------------------|-----------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 4204-10SYGC/S530-E4 | 3         | ● Brilliant Yellow Green | Round     | 573                           | Water Clear | 250 / 500                   | 2.0 / 2.4                 | 20                |
| 4204-10SURC/S530-A3 | 3         | ● Brilliant Red          | Round     | 624                           | Water Clear | 320 / 500                   | 2.0 / 2.4                 | 25                |



## LED Lamps | 5mm Round Type



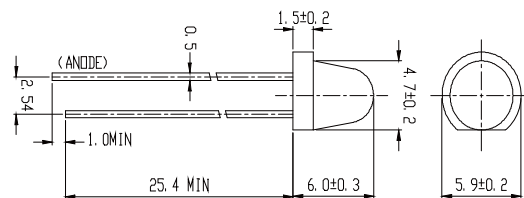
UNIT : mm



| Product                | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|------------------------|-----------|--------------------------|-----------|-------------------------------|-----------------|-----------------------------|---------------------------|-------------------|
| 313-2SYGC/S530-E2      | 4.7       | ● Brilliant Yellow Green | Round     | 573                           | Water Clear     | 250 / 500                   | 2.0 / 2.4                 | 20                |
| 313-2UYD/S530-A3       | 4.7       | ● Brilliant Yellow       | Round     | 589                           | Yellow Diffused | 100 / 200                   | 2.0 / 2.4                 | 50                |
| 313-2SUBC/C470/S400-A4 | 4.7       | ● Blue                   | Round     | 470                           | Water Clear     | 630 / 1000                  | 3.4 / 4.0                 | 20                |



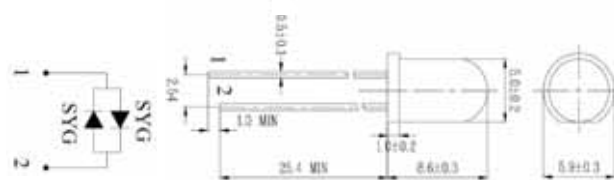
UNIT : mm



| Product           | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color    | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|-------------------|-----------|--------------------------|-----------|-------------------------------|----------------|-----------------------------|---------------------------|-------------------|
| 323-2SURD/S530-A3 | 4.7       | ● Brilliant Red          | Round     | 624                           | Red Diffused   | 63 / 100                    | 2.0 / 2.4                 | 40                |
| 323-2SYGD/S530-E2 | 4.7       | ● Brilliant Yellow Green | Round     | 573                           | Green Diffused | 40 / 80                     | 2.0 / 2.4                 | 60                |
| 323-2SDRD/S530-A3 | 4.7       | ● Deep Red               | Round     | 639                           | Red Diffused   | 25 / 50                     | 2.0 / 2.4                 | 60                |



UNIT : mm

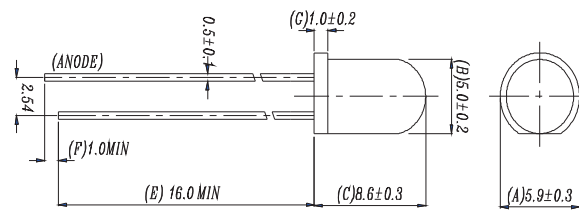


| Product            | Size (mm) | Color                                       | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color    | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|--------------------|-----------|---------------------------------------------|-----------|-------------------------------|----------------|-----------------------------|---------------------------|-------------------|
| 336SURSYGW/S530-A3 | 5         | ● Brilliant Red<br>● Brilliant Yellow Green | Round     | 624 / 573                     | White Diffused | 16 / 32<br>16 / 32          | 2.0 / 2.4<br>2.0 / 2.4    | 90                |
| 336SYGSYGD/S530-E2 | 5         | ● Brilliant Yellow Green                    | Round     | 573 / 573                     | Green Diffused | 8 / 16                      | 2.0 / 2.4                 | 90                |
| 336UYSYGW/S530-A3  | 5         | ● Super Yellow<br>● Super Yellow Green      | Round     | 589/573                       | White Diffused | 40 / 80<br>16 / 32          | 2.0 / 2.4<br>2.0 / 2.4    | 80                |

## LED Lamps | 5mm Round Type



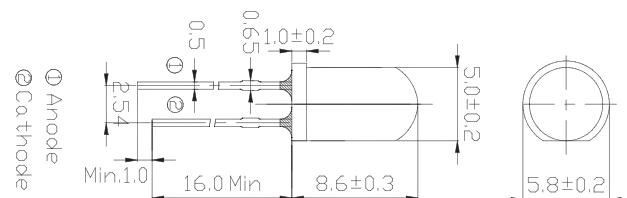
UNIT : mm



| Product                | Size (mm) | Color                  | Lens Type | $\lambda_d$ (nm)/CIE(x,y) | Resin Color | $I_v$ (Min/Typ) (mcd) | $V_F$ (Typ/Max) (V) | Viewing Angle (°) |
|------------------------|-----------|------------------------|-----------|---------------------------|-------------|-----------------------|---------------------|-------------------|
| 333-2SDRC/S530-A4      | 5         | Deep Red               | Round     | 639                       | Water Clear | 400 / 1000            | 2.0 / 2.4           | 10                |
| 333-2SUBC/C470/S400-A6 | 5         | Blue                   | Round     | 470                       | Water Clear | 1000 / 2000           | 3.4 / 4.0           | 10                |
| 333-2SUGC/S400-A5      | 5         | Brilliant Green        | Round     | 530                       | Water Clear | 4000 / 8000           | 3.4 / 4.0           | 10                |
| 333-2SURC/S400-A8      | 5         | Brilliant Red          | Round     | 624                       | Water Clear | 3200 / 5000           | 2.0 / 2.4           | 10                |
| 333-2SYGC/S530-E2      | 5         | Brilliant Yellow Green | Round     | 573                       | Water Clear | 400 / 800             | 2.0 / 2.4           | 10                |
| 333-2UYC/S400-A4       | 5         | Super Yellow           | Round     | 589                       | Water Clear | 1432 / 2148           | 2.0 / 2.4           | 10                |
| 333-2UYC/S530-A3       | 5         | Brilliant Yellow       | Round     | 589                       | Water Clear | 630 / 1250            | 2.0 / 2.4           | 10                |
| 333-2UYOC/S530-A3-L    | 5         | Yellow Orange          | Round     | 605                       | Water Clear | 630 / 1250            | 2.0 / 2.4           | 10                |



UNIT : mm

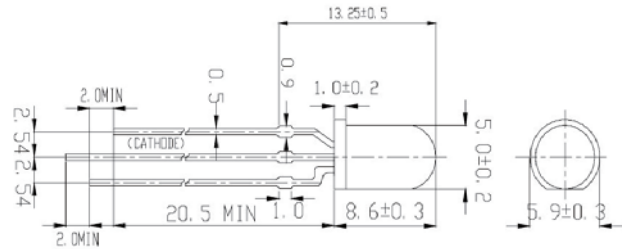


| Product          | Size (mm) | Color      | Lens Type | $\lambda_d$ (nm)/CIE(x,y) | Resin Color | $I_v$ (Min/Max) (mcd) | $V_F$ (Min/Max) (V) | Viewing Angle (°) |
|------------------|-----------|------------|-----------|---------------------------|-------------|-----------------------|---------------------|-------------------|
| 334-15/F1C1-1XZA | 5         | White      | Round     | x=0.29, y=0.28            | Water Clear | 18000 / 36000         | 2.8 / 3.6           | 15                |
| 334-15/T1C1-4WYA | 5         | White      | Round     | x=0.30, y=0.29            | Water Clear | 14250 / 28500         | 2.8 / 3.6           | 15                |
| 334-15/F1C2-7VXA | 5         | White      | Round     | x=0.30, y=0.29            | Water Clear | 11250 / 22500         | 2.8 / 3.6           | 20                |
| 334-15/T1C3-2TVA | 5         | White      | Round     | x=0.26, y=0.27            | Water Clear | 7150 / 14250          | 2.8 / 3.6           | 30                |
| 334-15/T2C3-2TVC | 5         | White      | Round     | x=0.26, y=0.27            | Water Clear | 7150 / 14250          | 2.8 / 3.6           | 30                |
| 334-15/F1C5-1RTA | 5         | White      | Round     | x=0.29, y=0.28            | Water Clear | 4500 / 9000           | 2.8 / 3.6           | 50                |
| 334-15/T1C5-7QSA | 5         | White      | Round     | x=0.30, y=0.29            | Water Clear | 3600 / 7150           | 2.8 / 3.6           | 50                |
| 334-15/T2C5-1QSB | 5         | White      | Round     | x=0.29, y=0.28            | Water Clear | 3600 / 7150           | 2.8 / 3.6           | 50                |
| 334-15/X2C1-1WYB | 5         | Warm White | Round     | x=0.40, y=0.39            | Water Clear | 14250 / 28500         | 2.8 / 3.6           | 15                |
| 334-15/X1C2-1UWA | 5         | Warm White | Round     | x=0.40, y=0.39            | Water Clear | 9000 / 18000          | 2.8 / 3.6           | 20                |
| 334-15/X2C3-1TVA | 5         | Warm White | Round     | x=0.40, y=0.39            | Water Clear | 7150 / 14250          | 2.8 / 3.6           | 30                |
| 334-15/X1C5-1QSA | 5         | Warm White | Round     | x=0.40, y=0.39            | Water Clear | 3500 / 7150           | 2.8 / 3.6           | 50                |
| 334-15/X2C5-1PSB | 5         | Warm White | Round     | x=0.40, y=0.39            | Water Clear | 2850 / 7150           | 2.8 / 3.6           | 50                |

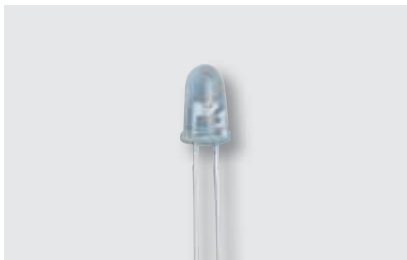
## LED Lamps | 5mm Round Type



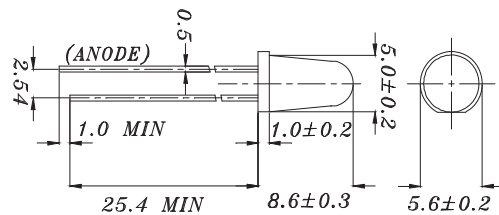
UNIT : mm



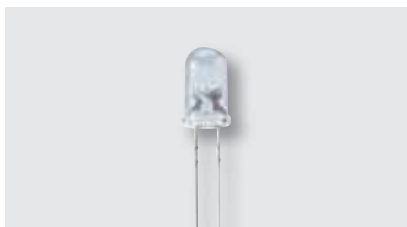
| Product              | Size (mm) | Color                                          | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color    | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|----------------------|-----------|------------------------------------------------|-----------|-------------------------------|----------------|-----------------------------|---------------------------|-------------------|
| 339-1SURSYGW/S530-A3 | 5         | ● Brilliant Red<br>● Brilliant Yellow Green    | Round     | 624 / 573                     | White Diffused | 25 / 50<br>16 / 32          | 2.0 / 2.4<br>2.0 / 2.4    | 70                |
| 339-1UYSYGW/S530-A3  | 5         | ● Brilliant Yellow<br>● Brilliant Yellow Green | Round     | 589 / 573                     | White Diffused | 63 / 100<br>32 / 50         | 2.0 / 2.4<br>2.0 / 2.4    | 70                |
| 339-1UYUBW/S530-A4   | 5         | ● Brilliant Yellow<br>● Blue                   | Round     | 589 / 470                     | White Diffused | 25 / 50<br>16 / 32          | 2.0 / 2.4<br>3.3 / 3.7    | 100               |



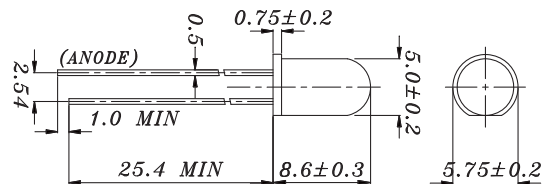
UNIT : mm



| Product                | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|------------------------|-----------|--------------------------|-----------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 383-2SDRC/S530-A3      | 5         | ● Super Deep Red         | Round     | 639                           | Water Clear | 1000 / 2000                 | 2.0 / 2.4                 | 6                 |
| 383-2SUGC/S400-A4      | 5         | ● Super Green            | Round     | 525                           | Water Clear | 2500 / 4000                 | 3.4 / 4.0                 | 20                |
| 383-2SUBC/C470/S400-A6 | 5         | ● Blue                   | Round     | 470                           | Water Clear | 1600 / 3200                 | 3.3 / 3.7                 | 20                |
| 383-2SURC/S530-A3      | 5         | ● Hyper Red              | Round     | 624                           | Water Clear | 1000 / 2500                 | 2.0 / 2.4                 | 6                 |
| 383-2SYGC/S530-E2      | 5         | ● Brilliant Yellow Green | Round     | 573                           | Water Clear | 160 / 320                   | 2.0 / 2.4                 | 10                |
| 383-2USOC/S530-A6      | 5         | ● Super Sunset Orange    | Round     | 615                           | Water Clear | 6300 / 8000                 | 2.0 / 2.4                 | 6                 |
| 383-2UYC/S530-A3       | 5         | ● Brilliant Yellow       | Round     | 589                           | Water Clear | 2713 / 4263                 | 2.0 / 2.4                 | 6                 |

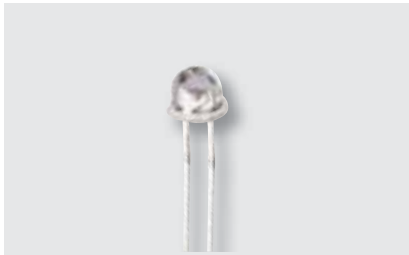


UNIT : mm

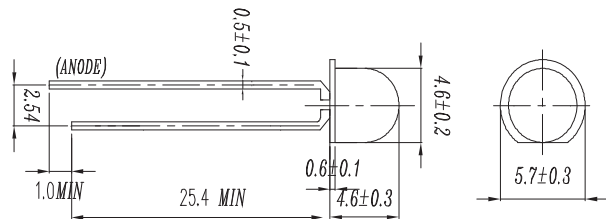


| Product            | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|--------------------|-----------|--------------------------|-----------|-------------------------------|-----------------|-----------------------------|---------------------------|-------------------|
| 1383-2SDRD/S530-A3 | 5         | ● Super Deep Red         | Round     | 639                           | Red Diffused    | 160 / 320                   | 2.0 / 2.4                 | 30                |
| 1383-2SURD/S530-A3 | 5         | ● Brilliant Red          | Round     | 624                           | Red Diffused    | 250 / 500                   | 2.0 / 2.4                 | 40                |
| 1383SYGD/S530-E2   | 5         | ● Brilliant Yellow Green | Round     | 573                           | Green Diffused  | 100 / 200                   | 2.0 / 2.4                 | 25                |
| 1383UYD/S530-A3    | 5         | ● Brilliant Yellow       | Round     | 589                           | Yellow Diffused | 400 / 800                   | 2.0 / 2.4                 | 25                |

## LED Lamps | 5mm Round Type



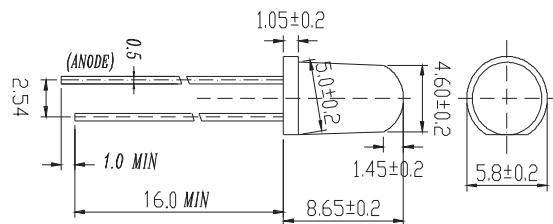
UNIT : mm



| Product              | Size (mm) | Color         | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|----------------------|-----------|---------------|-----------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 6324-15SUBC/S400-X10 | 4.6       | Blue          | Round     | 470                           | Water Clear | 250 / 500                   | 3.3 / 3.7                 | 60                |
| 6324-15SURC/S400-A9  | 4.6       | Brilliant Red | Round     | 624                           | Water Clear | 160 / 320                   | 2.0 / 2.4                 | 100               |
| 6324-15SUGC/S400-A5  | 4.6       | Super Green   | Round     | 530                           | Water Clear | 630 / 1250                  | 3.4 / 4.0                 | 60                |



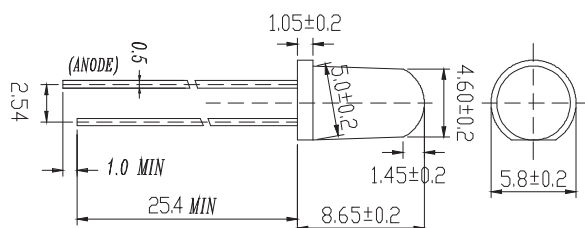
UNIT : mm



| Product            | Size (mm) | Color               | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|--------------------|-----------|---------------------|-----------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 7343-2SURC/S530-A3 | 4.6       | Brilliant Red       | Round     | 624                           | Water Clear | 400 / 800                   | 2.0 / 2.4                 | 20                |
| 7343-2SYGC/S530-E2 | 4.6       | Super Yellow Green  | Round     | 573                           | Water Clear | 160 / 320                   | 2.0 / 2.4                 | 20                |
| 7343-2USOC/S530-A3 | 4.6       | Super Sunset Orange | Round     | 615                           | Water Clear | 630 / 1250                  | 2.0 / 2.4                 | 20                |
| 7343-2SURC/S530-A3 | 4.6       | Brilliant Red       | Round     | 624                           | Water Clear | 400 / 800                   | 2.0 / 2.4                 | 20                |



UNIT : mm

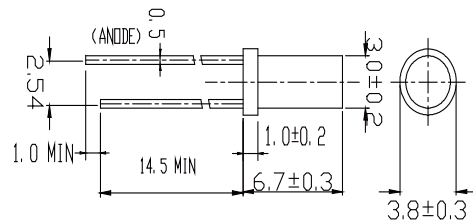


| Product                  | Size (mm) | Color           | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|--------------------------|-----------|-----------------|-----------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 7344-15SUBC/C470/S400-A6 | 4.6       | Blue            | Round     | 470                           | Water Clear | 1000 / 2000                 | 3.3 / 3.7                 | 20                |
| 7344-15SUGC/S400-A5      | 4.6       | Brilliant Green | Round     | 525                           | Water Clear | 5000 / 8000                 | 3.3 / 3.7                 | 30                |
| 7344-15SUGC/S400-X6      | 4.6       | Brilliant Green | Round     | 525                           | Water Clear | 8000 / 11000                | 3.3 / 3.7                 | 20                |

## LED Lamps ■ 3mm Cylindrical



UNIT : mm

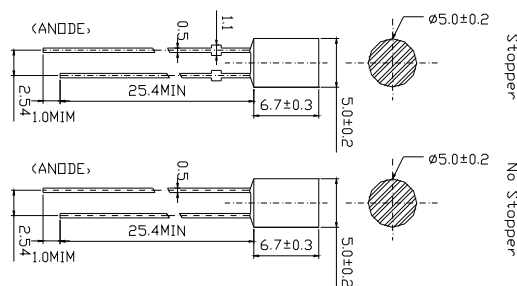


| Product            | Size (mm) | Color          | Lens Type   | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|--------------------|-----------|----------------|-------------|-------------------------------|-----------------|-----------------------------|---------------------------|-------------------|
| 414-10UYD/S530-A3  | 3         | ● Super Yellow | Cylindrical | 589                           | Yellow Diffused | 25 / 40                     | 2.0 / 2.4                 | 120               |
| 414-10SURD/S530-A3 | 3         | ● Hyper Red    | Cylindrical | 624                           | Red Diffused    | 16 / 32                     | 2.0 / 2.4                 | 120               |

## LED Lamps ■ 5mm Cylindrical



UNIT : mm

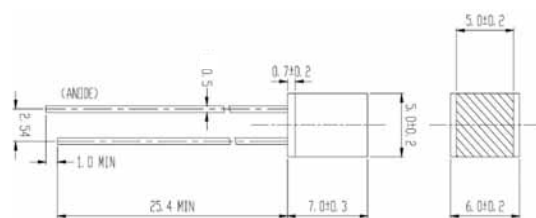


| Product           | Size (mm) | Color              | Lens Type   | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|-------------------|-----------|--------------------|-------------|-------------------------------|-------------|-----------------------------|---------------------------|-------------------|
| 423-2UYC/S530-A6  | 5         | ● Brilliant Yellow | Cylindrical | 589                           | Water Clear | 100 / 200                   | 2.0 / 2.4                 | 90                |
| 423-2SURC/S530-A3 | 5         | ● Brilliant Red    | Cylindrical | 624                           | Water Clear | 25 / 63                     | 2.0 / 2.4                 | 80                |
| 423-2SUBC/S400-X9 | 5         | ● Blue             | Cylindrical | 470                           | Water Clear | 100 / 200                   | 3.3 / 3.7                 | 80                |
| 423-2UYOC/S530-A6 | 5         | ● Brilliant Orange | Cylindrical | 605                           | Water Clear | 160 / 320                   | 2.0 / 2.4                 | 80                |

## LED Lamps ■ 5mm Square



UNIT : mm

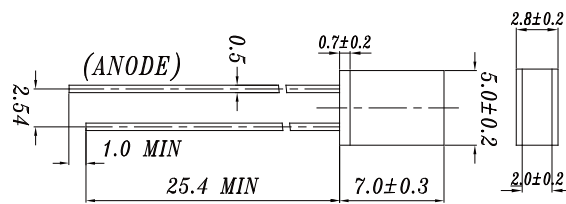


| Product         | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_v$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing Angle (°) |
|-----------------|-----------|--------------------------|-----------|-------------------------------|-----------------|-----------------------------|---------------------------|-------------------|
| 583SURD/S530-A3 | 5x5       | ● Brilliant Red          | Square    | 624                           | Red Diffused    | 12.5 / 20                   | 2.0 / 2.4                 | 130               |
| 583SYGD/S530-E2 | 5x5       | ● Brilliant Yellow Green | Square    | 573                           | Green Diffused  | 2.5 / 5                     | 2.0 / 2.4                 | 170               |
| 583UYD/S530-A3  | 5x5       | ● Brilliant Yellow       | Square    | 589                           | Yellow Diffused | 10 / 20                     | 2.0 / 2.4                 | 170               |

## LED Lamps | Rectangular



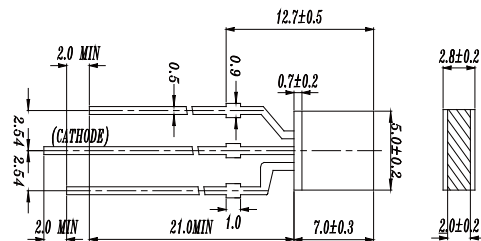
UNIT : mm



| Product         | Size (mm) | Color                | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_v$ (Min/Typ)<br>(mcd) | $V_F$ (Typ/Max)<br>(V) | Viewing Angle (°) |
|-----------------|-----------|----------------------|-----------|-------------------------------|-----------------|--------------------------|------------------------|-------------------|
| 513SURD/S530-A3 | 2x5       | ● Hyper Red          | Rectangle | 624                           | Water Clear     | 10 / 20                  | 2.0 / 2.4              | 180               |
| 513SYGD/S530-E2 | 2x5       | ● Super Yellow Green | Rectangle | 573                           | Green Diffused  | 6.3 / 12.5               | 2.0 / 2.4              | 140               |
| 513UYD/S530-A3  | 2x5       | ● Super Yellow       | Rectangle | 589                           | Yellow Diffused | 20 / 32                  | 2.0 / 2.4              | 150               |



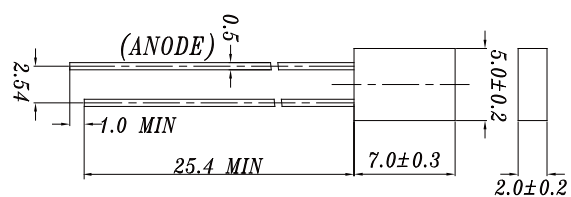
UNIT : mm



| Product              | Size (mm) | Color                                       | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color    | $I_v$ (Min/Typ)<br>(mcd) | $V_F$ (Typ/Max)<br>(V) | Viewing Angle (°) |
|----------------------|-----------|---------------------------------------------|-----------|-------------------------------|----------------|--------------------------|------------------------|-------------------|
| 519-1SURSYGW/S530-A3 | 2x5       | ● Brilliant Red<br>● Brilliant Yellow Green | Rectangle | 624 / 573                     | White Diffused | 6.3 / 12.5<br>2.5 / 5.0  | 2.0 / 2.4<br>2.0 / 2.4 | 180               |



UNIT : mm

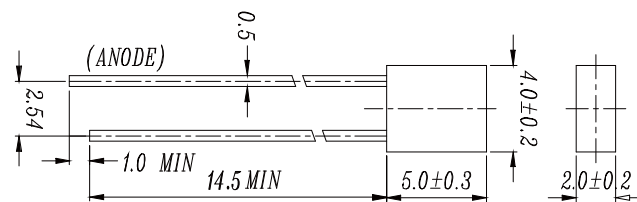


| Product           | Size (mm) | Color                    | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_v$ (Min/Typ)<br>(mcd) | $V_F$ (Typ/Max)<br>(V) | Viewing Angle (°) |
|-------------------|-----------|--------------------------|-----------|-------------------------------|-----------------|--------------------------|------------------------|-------------------|
| 523-2SDRD/S530-A3 | 2x5       | ● Deep Red               | Rectangle | 639                           | Red Diffused    | 10 / 16                  | 2.0 / 2.4              | 120               |
| 523-2SURD/S530-A3 | 2x5       | ● Brilliant Red          | Rectangle | 624                           | Red Diffused    | 16 / 32                  | 2.0 / 2.4              | 120               |
| 523-2SUGD/S400-A6 | 2x5       | ● Brilliant Green        | Rectangle | 525                           | Green Diffused  | 160 / 320                | 3.3 / 3.7              | 130               |
| 523-2UYD/S530-A3  | 2x5       | ● Brilliant Yellow       | Rectangle | 589                           | Yellow Diffused | 6.3 / 12.5               | 2.0 / 2.4              | 120               |
| 523SYGD/S530-E2   | 2x5       | ● Brilliant Yellow Green | Rectangle | 573                           | Green Diffused  | 4 / 8                    | 2.0 / 2.4              | 170               |

## LED Lamps | Rectangular



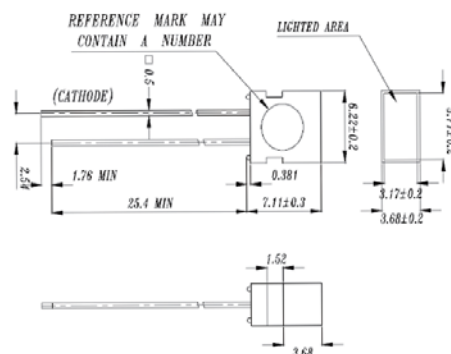
UNIT : mm



| Product         | Size (mm) | Color                    | Lens Type   | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_V$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing<br>Angle (°) |
|-----------------|-----------|--------------------------|-------------|-------------------------------|-----------------|-----------------------------|---------------------------|----------------------|
| 594SURD/S530-A3 | 2x4       | ● Brilliant Red          | Rectangular | 624                           | Red Diffused    | 10 / 16                     | 2.0 / 2.4                 | 170                  |
| 594UYD/S530-A3  | 2x4       | ● Brilliant Yellow       | Rectangular | 589                           | Yellow Diffused | 10 / 20                     | 2.0 / 2.4                 | 180                  |
| 594SYGD/S530-E2 | 2x4       | ● Brilliant Yellow Green | Rectangular | 573                           | Green Diffused  | 4.0 / 8.0                   | 2.0 / 2.4                 | 180                  |
| 594UYD/S530-A3  | 2x4       | ● Brilliant Yellow       | Rectangular | 589                           | Yellow Diffused | 10 / 20                     | 2.0 / 2.4                 | 180                  |



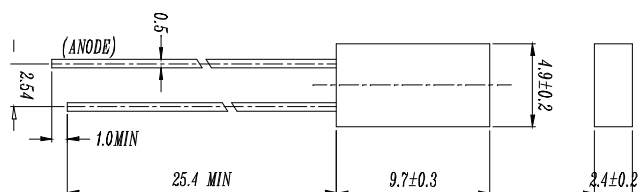
UNIT : mm



| Product          | Size (mm) | Color                    | Lens Type   | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color    | $I_V$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing<br>Angle (°) |
|------------------|-----------|--------------------------|-------------|-------------------------------|----------------|-----------------------------|---------------------------|----------------------|
| 1003SURD/S530-A3 | 3.68x6.22 | ● Brilliant Red          | Rectangular | 624                           | Red Diffused   | 25 / 50                     | 2.0 / 2.4                 | 110                  |
| 1003SYGD/S530-E2 | 3.68x6.22 | ● Brilliant Yellow Green | Rectangular | 573                           | Green Diffused | 6.3 / 12.5                  | 2.0 / 2.4                 | 110                  |
| 1003SUBD/S400-A6 | 3.68x6.22 | ● Blue                   | Rectangular | 470                           | Blue Diffused  | 10 / 20                     | 3.3 / 4.0                 | 110                  |
| 1003SUGD/S400-A4 | 3.68x6.22 | ● Brilliant Green        | Rectangular | 525                           | Green Diffused | 16 / 50                     | 3.3 / 4.0                 | 110                  |



UNIT : mm



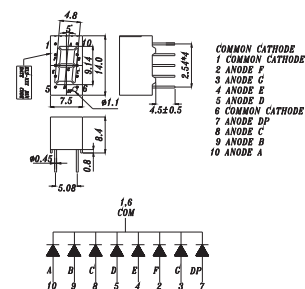
| Product          | Size (mm) | Color              | Lens Type | $\lambda_d$ (nm)/<br>CIE(x,y) | Resin Color     | $I_V$<br>(Min/Typ)<br>(mcd) | $V_F$<br>(Typ/Max)<br>(V) | Viewing<br>Angle (°) |
|------------------|-----------|--------------------|-----------|-------------------------------|-----------------|-----------------------------|---------------------------|----------------------|
| 1533SURD/S530-A3 | 2.4x4.9   | ● Brilliant Red    | Round     | 624                           | Red Diffused    | 10 / 20                     | 2.0 / 2.4                 | 170                  |
| 1533UYD/S530-A3  | 2.4x4.9   | ● Brilliant Yellow | Round     | 589                           | Yellow Diffused | 10 / 20                     | 2.0 / 2.4                 | 180                  |



# LED Digital Displays | Chip On Board Display | Single Digit Display



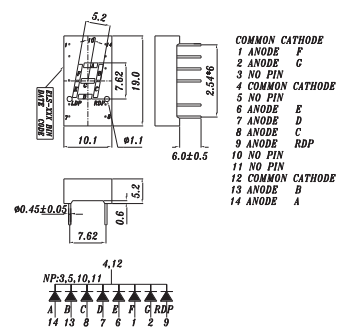
UNIT : mm



| Product           | Segement Height<br>mm (inch) | Color                  | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|------------------------------|------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| S315SYGWA/S530-E2 | 9.14 (0.3)                   | Brilliant Yellow Green | 4.8            | CC    | 573              | White       | Gray       | 2.0 / 3.2                   |



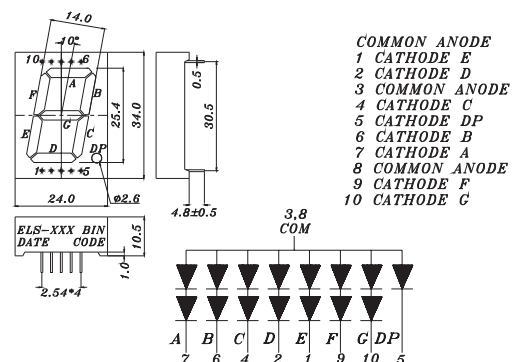
UNIT : mm



| Product           | Segement Height<br>mm (inch) | Color          | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|------------------------------|----------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| S321SURWA/S530-A3 | 7.62 (0.3)                   | Brilliant Red  | 5.2            | CC    | 624              | White       | Gray       | 5.6 / 11.0                  |
| S321USOWA/S530-A4 | 7.62 (0.3)                   | Reddish Orange | 5.2            | CC    | 615              | White       | Gray       | 7.8 / 17.6                  |



UNIT : mm



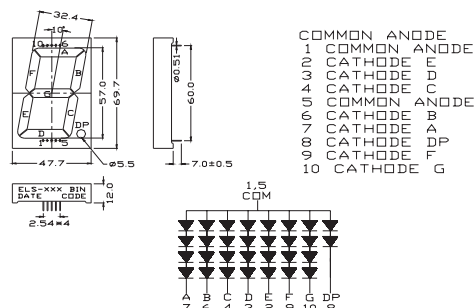
| Product            | Segement Height<br>mm (inch) | Color                  | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|--------------------|------------------------------|------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| S1006SURWA/S530-A3 | 25.4(1.0)                    | Brilliant Red          | 14             | CA    | 624              | White       | Gray       | 15 / 24                     |
| S1006SYGWA/S530-E2 | 25.4(1.0)                    | Brilliant Yellow Green | 14             | CA    | 573              | Green       | Gray       | 5.6 / 12.5                  |
| S1006SDRDB/A3/S660 | 25.4(1.0)                    | Deep-Red               | 14             | CA    | 639              | Red         | Black      | 11.0 / 24.0                 |



## LED Digital Displays | Chip On Board Display | Single Digit Display



UNIT : mm

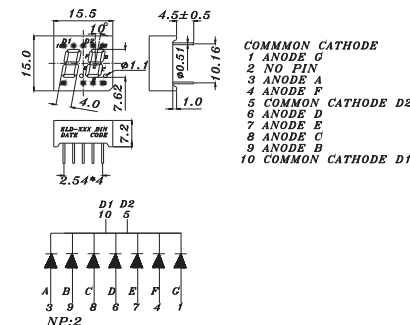


| Product            | Segment Height<br>mm (inch) | Color                  | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|--------------------|-----------------------------|------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| S2326SURWA/S530-A3 | 57 (2)                      | Brilliant Red          | 32.4          | CA    | 624              | White       | Gray       | 15 / 34                     |
| S2326USOWA/S530-A4 | 57 (2)                      | Reddish Orange         | 32.4          | CA    | 615              | White       | Gray       | 30 / 67                     |
| S2326SYGWA/S530-E2 | 57 (2)                      | Brilliant Yellow Green | 32.4          | CA    | 573              | White       | Gray       | 5.6 / 12.5                  |
| S2326UBWA/C470     | 57 (2)                      | Blue                   | 32.4          | CA    | 470              | White       | Gray       | 15 / 34                     |

## LED Digital Displays | Chip On Board Display | Dual Digit Display



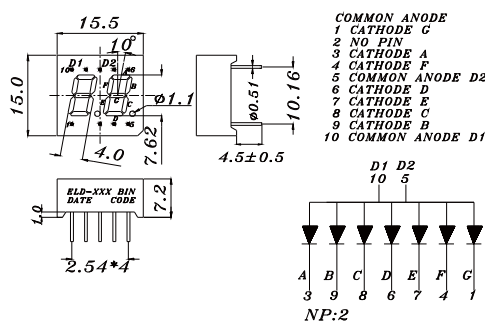
UNIT : mm



| Product           | Segment Height<br>mm (inch) | Color         | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|-----------------------------|---------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| D305SURWA/S530-A3 | 7.62 (0.3)                  | Brilliant Red | 4             | CC    | 624              | White       | Gray       | 4.0 / 6.4                   |
| D305SDRWB/S530-A3 | 7.62 (0.3)                  | Deep-Red      | 4             | CC    | 639              | White       | Black      | 2.0 / 4.5                   |



UNIT : mm

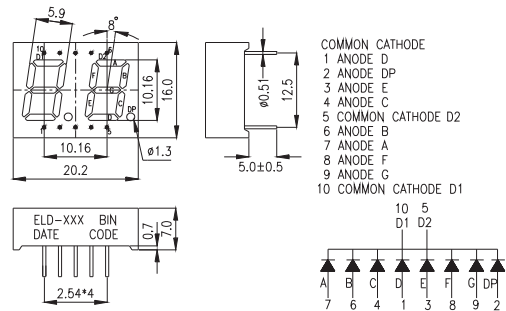


| Product           | Segment Height<br>mm (inch) | Color          | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|-----------------------------|----------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| D306SURWA/S530-A3 | 7.62 (0.3)                  | Brilliant Red  | 4             | CA    | 624              | White       | Gray       | 4.0 / 6.4                   |
| D306USOWA/S530-A3 | 7.62 (0.3)                  | Reddish Orange | 4             | CA    | 615              | White       | Gray       | 4.0 / 8.9                   |

LED Digital Displays | Chip On Board Display | Dual Digit Display



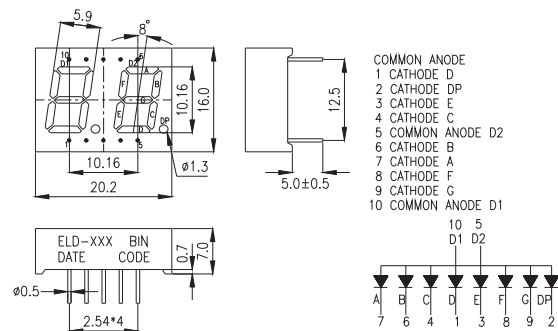
UNIT : mm



| Product           | Segement Height<br>mm (inch) | Color                    | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|------------------------------|--------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| D425SURWA/S530-A3 | 10.16 (0.4)                  | ● Brilliant Red          | 5.9            | CC    | 624              | White       | Gray       | 7.8 / 15.0                  |
| D425USOWA/S530-A4 | 10.16 (0.4)                  | ● Reddish Orange         | 5.9            | CC    | 615              | White       | Gray       | 11.0 / 24.0                 |
| D425SYGWA/S530-E2 | 10.16 (0.4)                  | ● Brilliant Yellow Green | 5.9            | CC    | 573              | White       | Gray       | 2.0 / 3.2                   |
| D425SDRWA/S530-A4 | 10.16 (0.4)                  | ● Deep-Red               | 5.9            | CC    | 639              | White       | Gray       | 4.0 / 8.9                   |



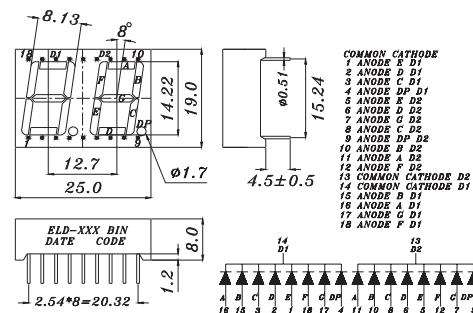
UNIT : mm



| Product           | Segement Height<br>mm (inch) | Color                    | Segement Width | CC/CA | λ <sub>d</sub> (nm) | Resin Color | Face Color | I <sub>v</sub><br>(Min/Typ)<br>(mcd) |
|-------------------|------------------------------|--------------------------|----------------|-------|---------------------|-------------|------------|--------------------------------------|
| D426SURWB/S530-A3 | 10.16 (0.4)                  | ● Brilliant Red          | 5.9            | CA    | 624                 | White       | Black      | 7.8 / 15                             |
| D426USOWA/S530-A3 | 10.16 (0.4)                  | ● Reddish Orange         | 5.9            | CA    | 615                 | White       | Gray       | 11 / 24                              |
| D426UYOWB/S530-A3 | 10.16 (0.4)                  | ● Orange                 | 5.9            | CA    | 605                 | White       | Black      | 5.6 / 12.5                           |
| D426SYGWA/S530-E2 | 10.16 (0.4)                  | ● Brilliant Yellow Green | 5.9            | CA    | 573                 | White       | Gray       | 2 / 3.2                              |



UNIT : mm

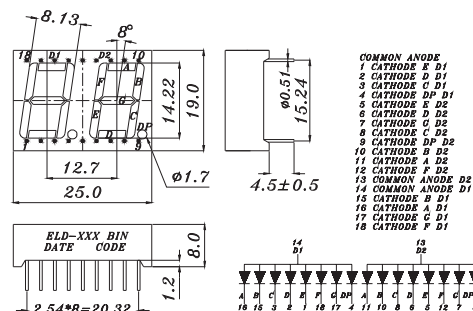


| Product           | Segement Height<br>mm (inch) | Color                    | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|------------------------------|--------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| D511SURWB/S530-A3 | 14.22 (0.5)                  | ● Brilliant Red          | 8.13           | CC    | 624              | White       | Black      | 7.8 / 15                    |
| D511SYGWB/S530-E2 | 14.22 (0.5)                  | ● Brilliant Yellow Green | 8.13           | CC    | 573              | White       | Black      | 2.8 / 6.4                   |

LED Digital Displays | Chip On Board Display | Dual Digit Display



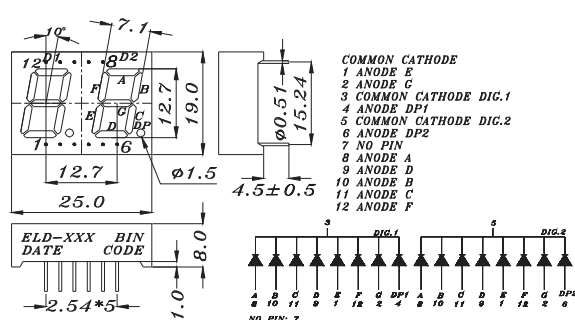
UNIT : mm



| Product           | Segment Height mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| D512SURWB/S530-A3 | 14.22 (0.5)              | ● Brilliant Red          | 8.13          | CA    | 624              | White       | Black      | 7.8 / 17.6            |
| D512SDRWB/S530-A3 | 14.22 (0.5)              | ● Deep-Red               | 8.13          | CA    | 639              | White       | Black      | 4.0 / 8.9             |
| D512SYGWA/S530-E2 | 14.22 (0.5)              | ● Brilliant Yellow Green | 8.13          | CA    | 573              | White       | Gray       | 2.8 / 6.4             |



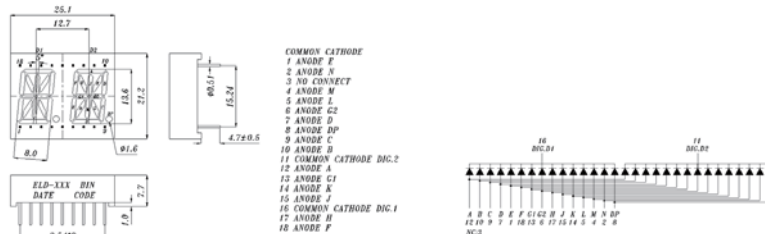
UNIT : mm



| Product           | Segment Height mm (inch) | Color           | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------------------|-----------------|---------------|-------|------------------|-------------|------------|-----------------------|
| D515SURWA/S530-A3 | 12.7 (0.5)               | ● Brilliant Red | 7.1           | CC    | 624              | White       | Gray       | 7.8 / 15              |



UNIT : mm

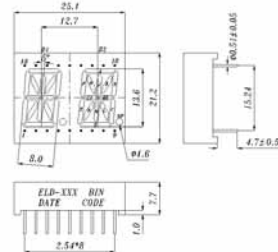


| Product           | Segment Height mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| D525SURWA/S530-A3 | 13.6 (0.5)               | ● Brilliant Red          | 8             | CC    | 624              | White       | Gray       | 7.8 / 12.5            |
| D525SYGWA/S530-E2 | 13.6 (0.5)               | ● Brilliant Yellow Green | 8             | CC    | 573              | White       | Gray       | 2.8 / 4.5             |

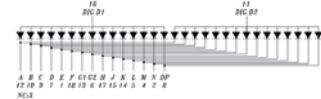
## LED Digital Displays | Chip On Board Display | Dual Digit Display



UNIT : mm



COMMON ANODE  
1 CATHODE E  
2 CATHODE N  
3 NO CONNECT  
4 CATHODE M  
5 CATHODE L  
6 CATHODE C2  
7 CATHODE D  
8 CATHODE DP  
9 CATHODE C  
10 CATHODE B  
11 COMMON ANODE DIG.2  
12 CATHODE A  
13 CATHODE C1  
14 CATHODE K  
15 CATHODE J  
16 COMMON ANODE DIG.1  
17 CATHODE H  
18 CATHODE F

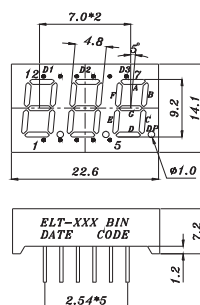


| Product           | Segment Height mm (inch) | Color          | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------------------|----------------|---------------|-------|------------------|-------------|------------|-----------------------|
| D526SURWA/S530-A3 | 13.6 (0.5)               | Brilliant Red  | 8             | CA    | 624              | White       | Gray       | 7.8 / 12.5            |
| D526USOWA/S530-A4 | 13.6 (0.5)               | Reddish Orange | 8             | CA    | 615              | White       | Gray       | 5.6 / 12.5            |

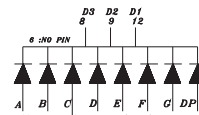
## LED Digital Display | Chip On Board Display | Three Digit Display



UNIT : mm



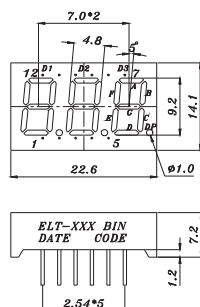
COMMON CATHODE  
1 ANODE E  
2 ANODE D  
3 ANODE DP  
4 ANODE C  
5 ANODE G  
6 NO PIN  
7 ANODE B  
8 COMMON CATHODE DIG.3  
9 COMMON CATHODE DIG.2  
10 ANODE F  
11 ANODE A  
12 COMMON CATHODE DIG.1



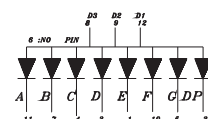
| Product           | Segment Height mm (inch) | Color                  | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------------------|------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| T315SYGWA/S530-E2 | 9.2 (0.3)                | Brilliant Yellow Green | 4.8           | CC    | 573              | White       | Gray       | 1.4 / 3.2             |
| T315UYOWA/S530-A3 | 9.2 (0.3)                | Orange                 | 4.8           | CC    | 605              | White       | Gray       | 4.0 / 8.9             |
| T315SURWA/S530-A2 | 9.2 (0.3)                | Brilliant Red          | 4.8           | CC    | 624              | White       | Gray       | 2.8 / 8.5             |
| T315SDRWA/S530-A3 | 9.2 (0.3)                | Deep-Red               | 4.8           | CC    | 639              | White       | Gray       | 4.0 / 6.4             |



UNIT : mm



COMMON ANODE  
1. CATHODE E  
2. CATHODE D  
3. CATHODE DP  
4. CATHODE C  
5. CATHODE G  
6. NO PIN  
7. CATHODE B  
8. COMMON ANODE D3  
9. COMMON ANODE D2  
10. CATHODE F  
11. CATHODE A  
12. COMMON ANODE D1

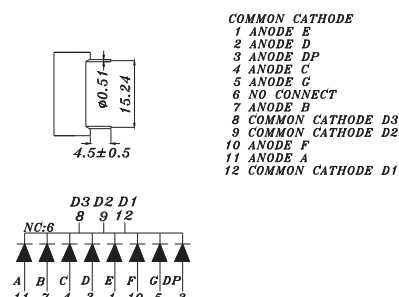
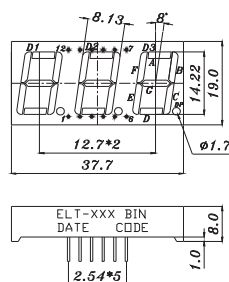


| Product           | Segment Height mm (inch) | Color                  | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------------------|------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| T316SURWA/S530-A3 | 9.2 (0.3)                | Brilliant Red          | 4.8           | CA    | 624              | White       | Gray       | 5.6 / 8.9             |
| T316SYGWA/S530-E2 | 9.2 (0.3)                | Brilliant Yellow Green | 4.8           | CA    | 573              | White       | Gray       | 1.4 / 3.2             |
| T316SDRWA/S530-A3 | 9.2 (0.3)                | Deep-Red               | 4.8           | CA    | 639              | White       | Gray       | 4.0 / 6.4             |

# LED Digital Displays | Chip On Board Display | Three Digit Display



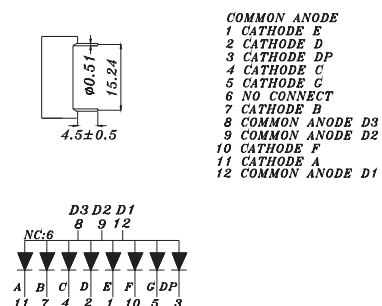
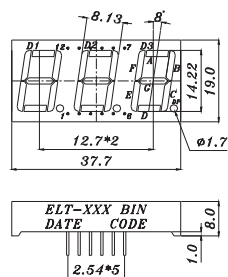
UNIT : mm



| Product                | Segment Height<br>mm (inch) | Color                  | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|------------------------|-----------------------------|------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| T511SURWA/S530-A3      | 14.22 (0.5)                 | Brilliant Red          | 8.13          | CC    | 624              | White       | Gray       | 7.8 / 17.6                  |
| T511SYGWA/S530-E2      | 14.22 (0.5)                 | Brilliant Yellow Green | 8.13          | CC    | 573              | White       | Gray       | 2.8 / 4.5                   |
| T511UYOWA/S530-A3      | 14.22 (0.5)                 | Orange                 | 8.13          | CC    | 605              | White       | Gray       | 5.6 / 12.5                  |
| T511SUGWB/S400-A4/S800 | 14.22 (0.5)                 | Brilliant Green        | 8.13          | CC    | 525              | White       | Black      | 30.0 / 67.0                 |



UNIT : mm

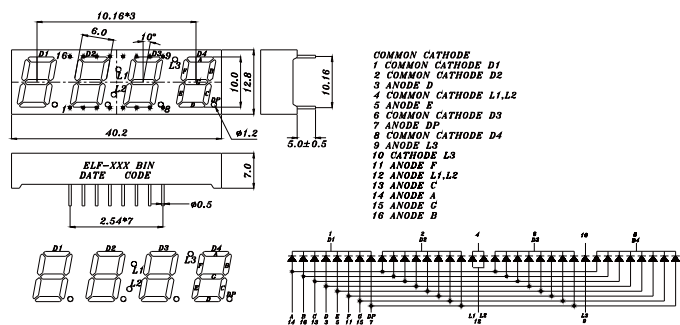


| Product           | Segment Height<br>mm (inch) | Color                  | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|-----------------------------|------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| T512SURWA/S530-A3 | 14.22 (0.5)                 | Brilliant Red          | 8.13          | CA    | 624              | White       | Gray       | 7.8 / 17.6                  |
| T512SYGWA/S530-E2 | 14.22 (0.5)                 | Brilliant Yellow Green | 8.13          | CA    | 573              | White       | Gray       | 2.8 / 4.5                   |
| T512UYOWA/S530-A3 | 14.22 (0.5)                 | Orange                 | 8.13          | CA    | 605              | White       | Gray       | 5.6 / 12.5                  |
| T512USOWA/S530-A4 | 14.22 (0.5)                 | Reddish Orange         | 8.13          | CA    | 615              | White       | Gray       | 7.8 / 17.6                  |
| T512SURWB/S530-A3 | 14.22 (0.5)                 | Brilliant Red          | 8.13          | CA    | 624              | White       | Black      | 7.8 / 17.6                  |
| T512SYGWB/S530-E2 | 14.22 (0.5)                 | Brilliant Yellow Green | 8.13          | CA    | 573              | White       | Black      | 2.8 / 4.5                   |

# LED Digital Displays | Chip On Board Display | Four Digit Display



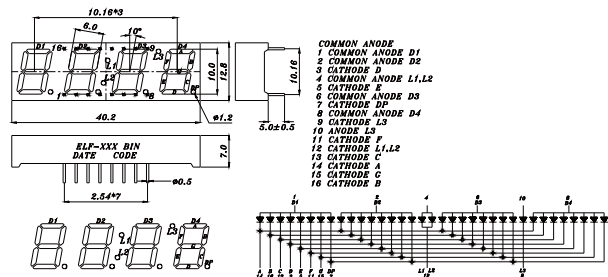
UNIT : mm



| Product           | Segment Height<br>mm (inch) | Color           | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|-----------------------------|-----------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| F415SURWA/S530-A3 | 10 (0.4)                    | ● Brilliant Red | 6             | CC    | 624              | White       | Gray       | 5.6 / 8.9                   |
| F415SURWB/S530-A3 | 10 (0.4)                    | ● Brilliant Red | 6             | CC    | 624              | White       | Black      | 5.0 / 8.9                   |



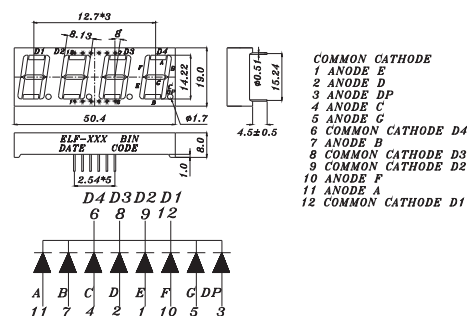
UNIT : mm



| Product           | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| F416SYGWA/S530-E3 | 10 (0.4)                    | ● Brilliant Yellow Green | 6             | CA    | 573              | White       | Gray       | 4 / 8.9                     |
| F416SURWA/S530-A3 | 10 (0.4)                    | ● Brilliant Red          | 6             | CA    | 624              | White       | Gray       | 5.6 / 12.5                  |
| F416USRWA/S530-A3 | 10 (0.4)                    | ● Dark-Red               | 6             | CA    | 631              | White       | Gray       | 5.6 / 8.9                   |
| F416SURWB/S530-A3 | 10 (0.4)                    | ● Brilliant Red          | 6             | CA    | 624              | White       | Black      | 5.6 / 8.9                   |



UNIT : mm



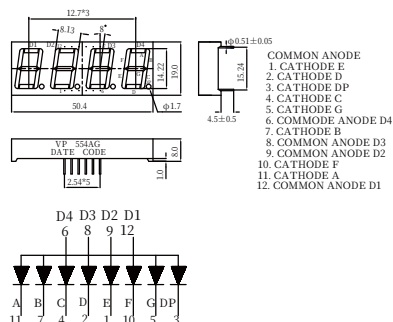
| Product           | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| F511SURWA/S530-A3 | 14.22 (0.5)                 | ● Brilliant Red          | 8.13          | CC    | 624              | White       | Gray       | 7.8 / 15                    |
| F511SYGWA/S530-E2 | 14.22 (0.5)                 | ● Brilliant Yellow Green | 8.13          | CC    | 573              | White       | Gray       | 2.8 / 6.4                   |
| F511SURWB/S530-A3 | 14.22 (0.5)                 | ● Brilliant Red          | 8.13          | CC    | 624              | White       | Black      | 11 / 24                     |



LED Digital Displays | Chip On Board Display | Four Digit Display

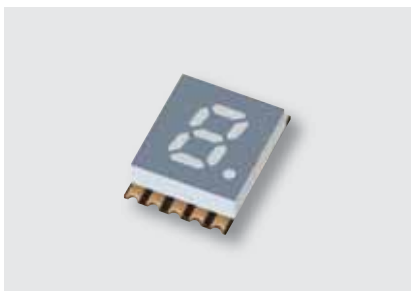


UNIT : mm

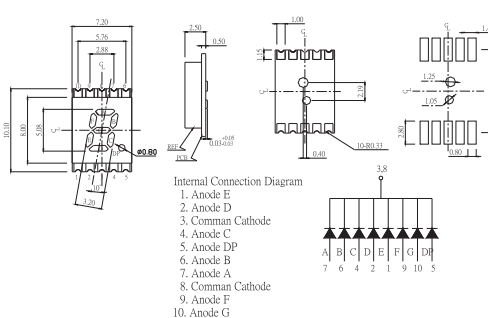


| Product           | Segement Height<br>mm (inch) | Color                    | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------|------------------------------|--------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| F512SURWA/S530-A3 | 14.22 (0.5)                  | ● Brilliant Red          | 8.13           | CA    | 624              | White       | Gray       | 7.8 / 15                    |
| F512SYGWA/S530-E2 | 14.22 (0.5)                  | ● Brilliant Yellow Green | 8.13           | CA    | 573              | White       | Gray       | 2.8 / 6.4                   |
| F512SDRWB/S530-A3 | 14.22 (0.5)                  | ● Deep-Red               | 8.13           | CA    | 639              | White       | Black      | 5.6 / 12.5                  |

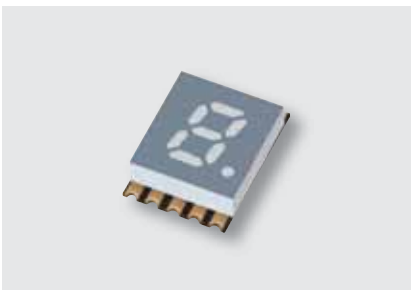
LED Digital Display | SMD Display | Single Digit Display



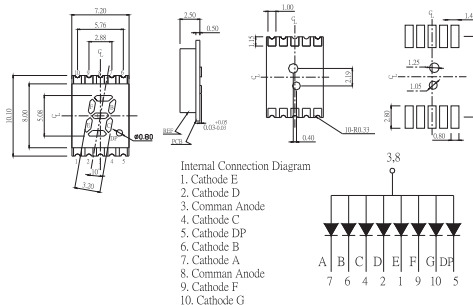
UNIT : mm



| Product                 | Segement Height<br>mm (inch) | Color                    | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|------------------------------|--------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| SS205UYOWA/S530-A3/S290 | 5.08 (0.2)                   | ● Brilliant Orange       | 3.2            | CC    | 605              | White       | Gray       | 7.8 / 17.6                  |
| SS205UYWA/S530-A3/S290  | 5.08 (0.2)                   | ● Brilliant Yellow       | 3.2            | CC    | 589              | White       | Gray       | 7.8 / 17.6                  |
| SS205SYGWA/S530-E2/S290 | 5.08 (0.2)                   | ● Brilliant Yellow Green | 3.2            | CC    | 573              | White       | Gray       | 4 / 8.9                     |

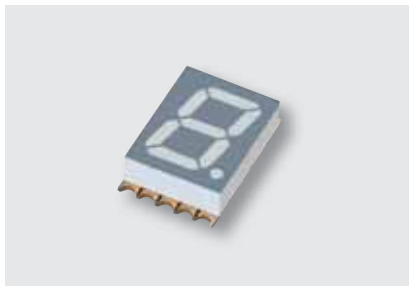


UNIT : mm

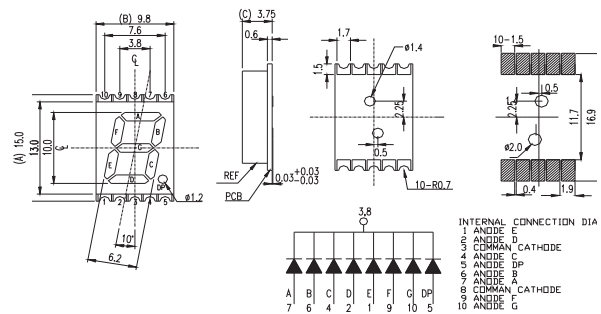


| Product                 | Segement Height<br>mm (inch) | Color                    | Segement Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|------------------------------|--------------------------|----------------|-------|------------------|-------------|------------|-----------------------------|
| SS206SURWA/S530-A3/S290 | 5.08 (0.2)                   | ● Brilliant Red          | 3.2            | CA    | 624              | White       | Gray       | 5.6 / 12.5                  |
| SS206SYGWA/S530-E2/S290 | 5.08 (0.2)                   | ● Brilliant Yellow Green | 3.2            | CA    | 573              | White       | Gray       | 4.0 / 8.9                   |
| SS206USRWA/S530-A3/S290 | 5.08 (0.2)                   | ● Dark-Red               | 3.2            | CA    | 631              | White       | Gray       | 4.0 / 8.9                   |

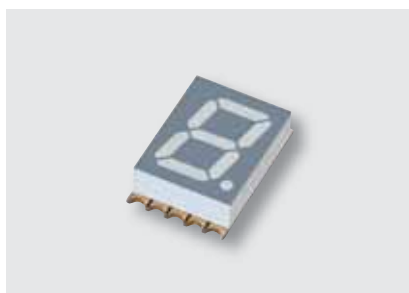
# LED Digital Displays | SMD Display | Single Digit Display



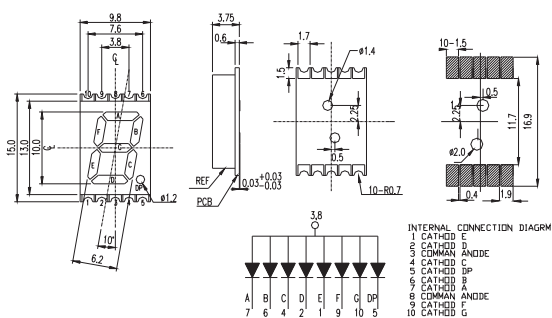
UNIT : mm



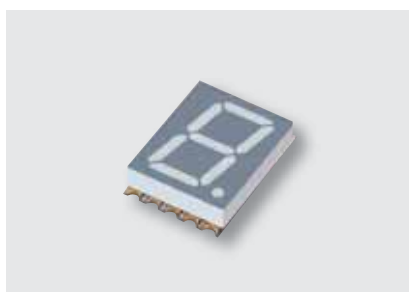
| Product            | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|--------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SS405SYGWA/S530-E2 | 10 (0.4)                    | ● Brilliant Yellow Green | 6.2           | CC    | 573              | White       | Gray       | 5.6 / 12.5                  |



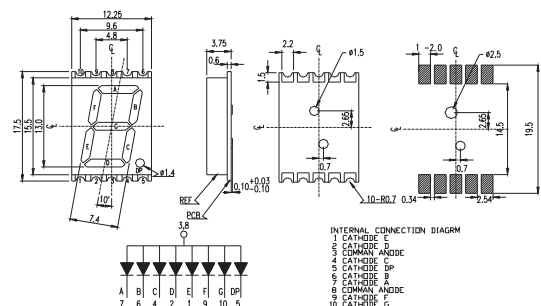
UNIT : mm



| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm)                   | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------------------------|-------------|------------|-----------------------------|
| SS406SYGWA/S530-E2      | 10 (0.4)                    | ● Brilliant Yellow Green | 6.2           | CA    | 573                                | White       | Gray       | 5.6 / 12.5                  |
| SS406USRWA/S530-A3/S290 | 10 (0.4)                    | ● Dark-Red               | 6.2           | CA    | 631                                | White       | Gray       | 5.6 / 12.5                  |
| SS406UBWA/C470/S290     | 10 (0.4)                    | ● Blue                   | 6.2           | CA    | 470                                | White       | Gray       | 15.0 / 40.5                 |
| SS406UWWA/S290          | 10 (0.4)                    | ○ Pure White             | 6.2           | CA    | X 0.270 / 0.310<br>Y 0.222 / 0.343 | White       | Gray       | 30.0 / 67.0                 |



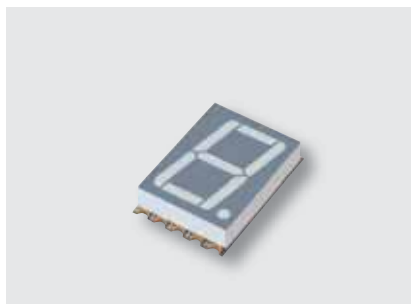
UNIT : mm



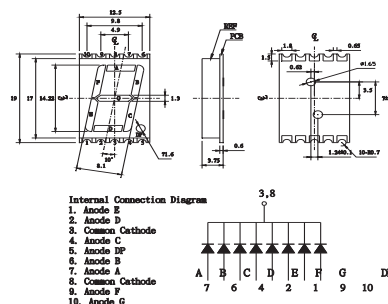
| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SS506SYGWA/S530-E2      | 13.0 (0.5)                  | ● Brilliant Yellow Green | 7.4           | CA    | 573              | White       | Gray       | 5.6 / 9.1                   |
| SS506SURWA/S530-A4/S290 | 13.0 (0.5)                  | ● Brilliant Red          | 7.4           | CA    | 624              | White       | Gray       | 7.8 / 15.0                  |



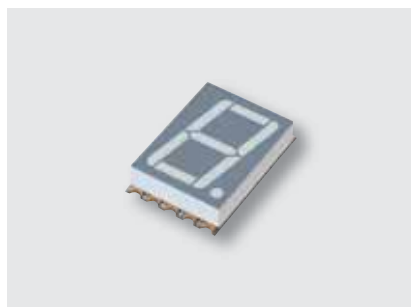
# LED Digital Displays | SMD Display | Single Digit Display



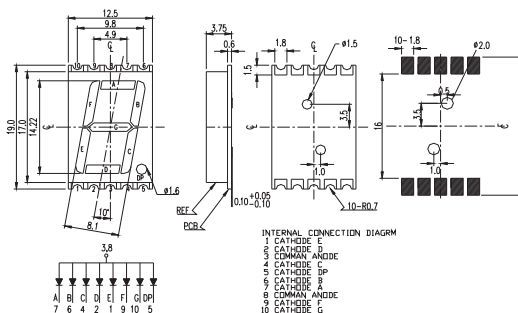
UNIT : mm



| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SS511SURWA/S530-A3/S290 | 14.22 (0.5)                 | ● Hyper Red              | 8.1           | CC    | 624              | White       | Gray       | 15 / 34                     |
| SS511SYGWA/S530-E2/S290 | 14.22 (0.5)                 | ● Brilliant Yellow Green | 8.1           | CC    | 573              | White       | Gray       | 4 / 8.9                     |
| SS511UBWA/C470          | 14.22 (0.5)                 | ● Blue                   | 8.1           | CC    | 470              | White       | Gray       | 11.0 / 24.0                 |

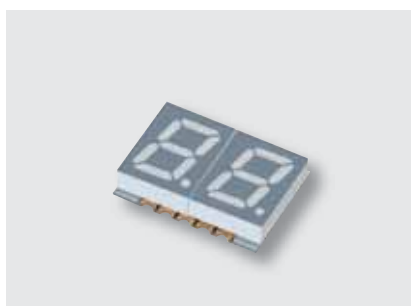


UNIT : mm

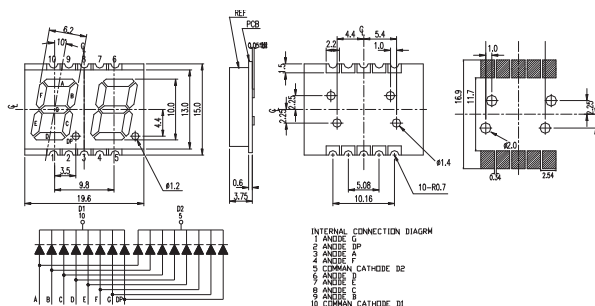


| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SS512SURWA/S530-A3/S290 | 14.22 (0.5)                 | ● Brilliant Red          | 8.1           | CA    | 624              | White       | Gray       | 11 / 24                     |
| SS512SYGWA/S530-E2      | 14.22 (0.5)                 | ● Brilliant Yellow Green | 8.1           | CA    | 573              | White       | Gray       | 4.0 / 8.9                   |

# LED Digital Display | SMD Display | Dual Digit Display

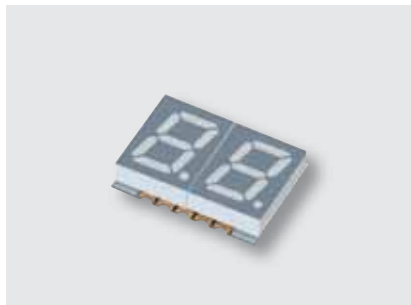


UNIT : mm

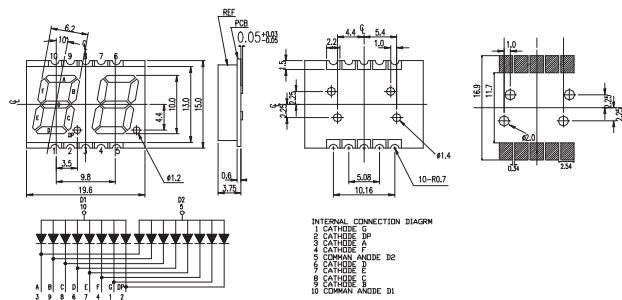


| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SD405SURWA/S530-A3/S290 | 10 (0.4)                    | ● Brilliant Red          | 6.2           | CA    | 624              | White       | Gray       | 7.8 / 17.6                  |
| SD405SYGWA/S530-E2      | 10 (0.4)                    | ● Brilliant Yellow Green | 6.2           | CA    | 573              | White       | Gray       | 5.6 / 12.5                  |

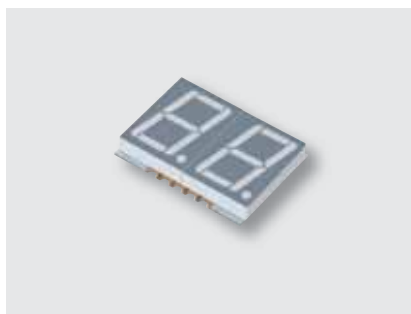
# LED Digital Displays | SMD Display | Dual Digit Display



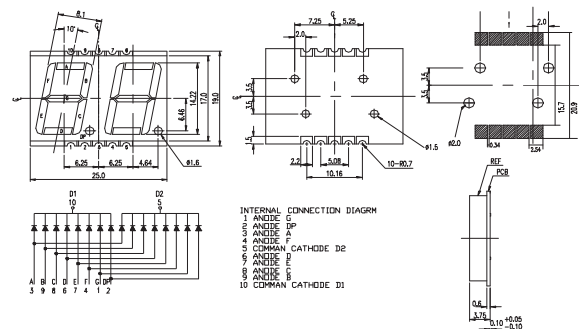
UNIT : mm



| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SD406SURWA/S530-A4/S290 | 10 (0.4)                    | ● Brilliant Red          | 6.2           | CA    | 624              | White       | Gray       | 7.8 / 17.6                  |
| SD406SYGWA/S530-E2/S290 | 10 (0.4)                    | ● Brilliant Yellow Green | 6.2           | CA    | 573              | White       | Gray       | 5.6 / 12.5                  |



UNIT : mm

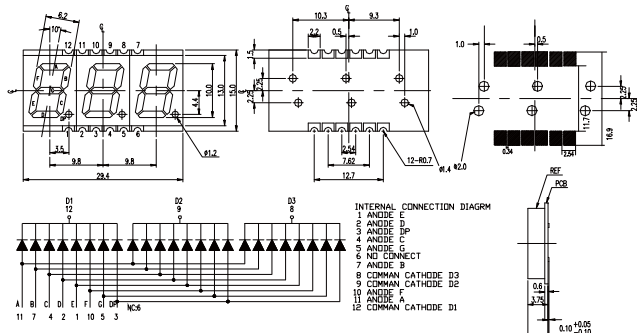


| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SD511SYGWA/S530-E2/S290 | 14.22 (0.5)                 | ● Brilliant Yellow Green | 8.1           | CC    | 573              | White       | Gray       | 5.6 / 12.5                  |

# LED Digital Display | SMD Display | Three Digit Display



UNIT : mm

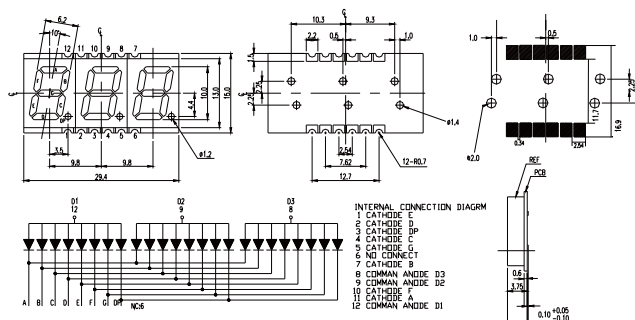


| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| ST405SYGWA/S530-E2      | 10 (0.4)                    | ● Brilliant Yellow Green | 6.2           | CC    | 573              | White       | Gray       | 4.0 / 8.9                   |
| ST405UYOWA/S530-A3/S290 | 10 (0.4)                    | ● Brilliant Orange       | 6.2           | CC    | 605              | White       | Gray       | 18.0 / 34.0                 |
| ST405SUGWA/S530-A4/S290 | 10 (0.4)                    | ● Brilliant Green        | 6.2           | CC    | 525              | White       | Gray       | 21.0 / 48.0                 |

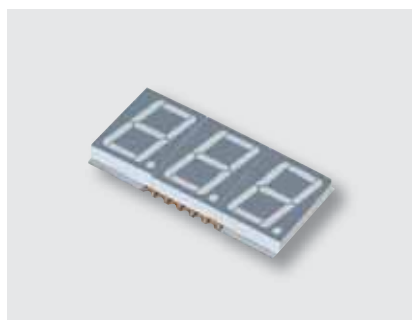
# LED Digital Displays | SMD Display | Three Digit Display



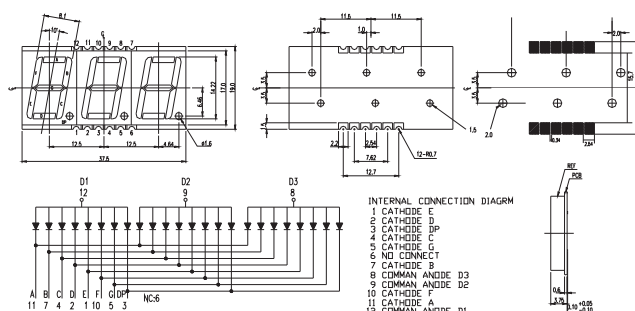
UNIT : mm



| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| ST406SURWA/S530-A3/S290 | 10 (0.4)                    | ● Brilliant Red          | 6.2           | CA    | 624              | White       | Gray       | 7.8 / 17.6                  |
| ST406SYGWA/S530-E2      | 10 (0.4)                    | ● Brilliant Yellow Green | 6.2           | CA    | 573              | White       | Gray       | 4.0 / 8.9                   |



UNIT : mm

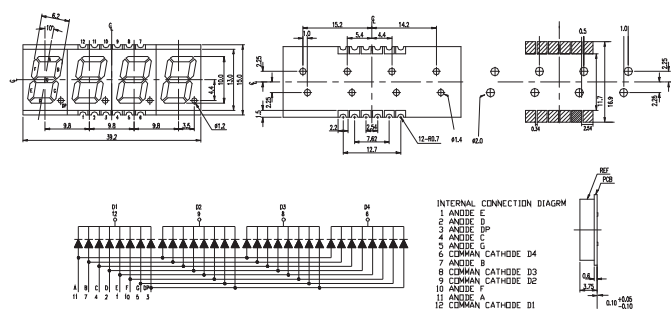


| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| ST512SURWA/S530-A3/S290 | 14.22 (0.5)                 | ● Brilliant Red          | 8.1           | CA    | 624              | White       | Gray       | 7.8 / 17.6                  |
| ST512SYGWA/S530-E2/S290 | 14.22 (0.5)                 | ● Brilliant Yellow Green | 8.1           | CA    | 573              | White       | Gray       | 7.8 / 17.6                  |
| ST512UBWA/C470/S290     | 14.22 (0.5)                 | ● Blue                   | 8.1           | CA    | 470              | White       | Gray       | 15.0 / 37.2                 |

# LED Digital Displays | SMD Display | Four Digit Display



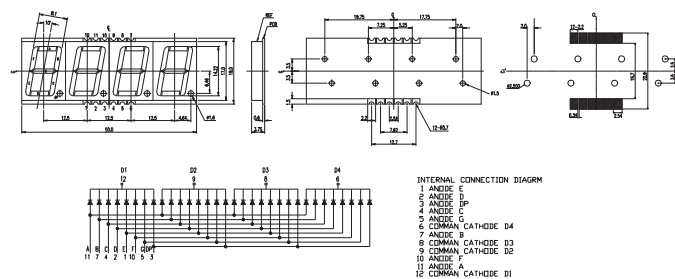
UNIT : mm



| Product                 | Segment Height<br>mm (inch) | Color              | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SF405SURWA/S530-A3/S290 | 10 (0.4)                    | ● Brilliant Red    | 6.2           | CC    | 624              | White       | Gray       | 7.8 / 17.6                  |
| SF405UYOWA/A3/S290      | 10 (0.4)                    | ● Brilliant Orange | 6.2           | CA    | 605              | White       | Gray       | 11.0 / 24.0                 |



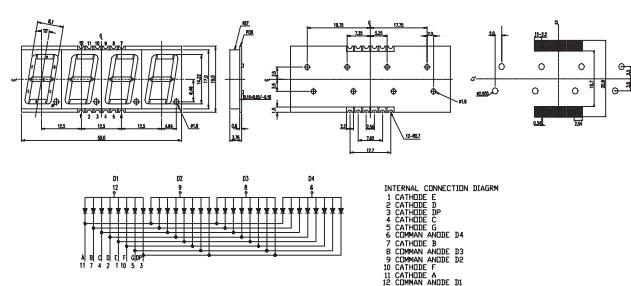
UNIT : mm



| Product                 | Segment Height<br>mm (inch) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SF511SURWA/S530-A3/S290 | 14.22 (0.5)                 | ● Brilliant Red          | 8.1           | CC    | 624              | White       | Gray       | 11 / 24                     |
| SF511SYGWA/S530-E2/S796 | 14.22 (0.5)                 | ● Brilliant Yellow Green | 8.1           | CC    | 573              | White       | Gray       | 4 / 8.9                     |



UNIT : mm

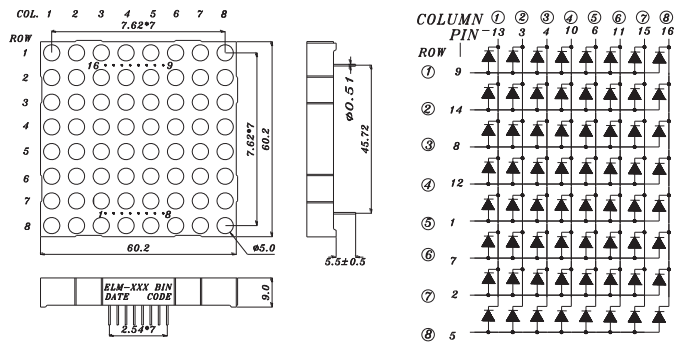


| Product                 | Segment Height<br>mm (inch) | Color           | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$<br>(Min/Typ)<br>(mcd) |
|-------------------------|-----------------------------|-----------------|---------------|-------|------------------|-------------|------------|-----------------------------|
| SF512SURWA/S530-A3/S290 | 14.22 (0.5)                 | ● Brilliant Red | 8.1           | CA    | 624              | White       | Gray       | 11 / 24                     |

## LED Digital Displays | Dot Matrix Display

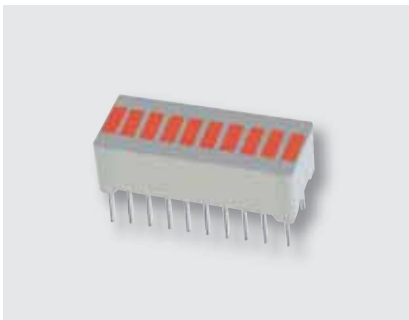


UNIT : mm

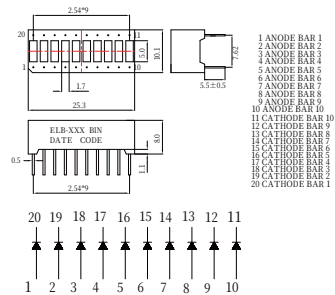


| Product            | Size (LxWmm) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|--------------------|--------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| M2881SURWA/S530-A3 | 60.2x60.2    | ● Brilliant Red          | --            | CC    | 624              | White       | Gray       | 7.8 / 21              |
| M2881SYGWA/S530-E2 | 60.2x60.2    | ● Brilliant Yellow Green | --            | CC    | 573              | White       | Gray       | 7.8 / 17.6            |
| M2881UYWA/S530-A3  | 60.2x60.2    | ● Brilliant Yellow       | --            | CC    | 589              | White       | Gray       | 11 / 17.6             |

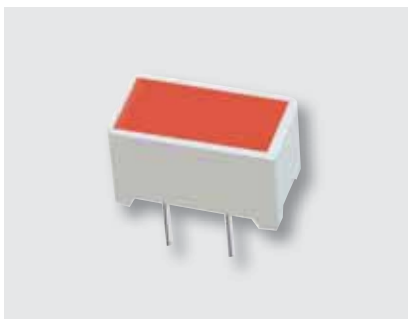
## LED Digital Displays | Light Bar Display



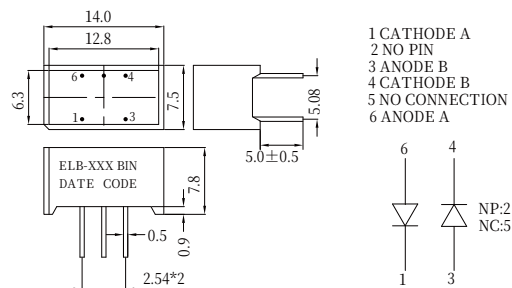
UNIT : mm



| Product            | Size (LxWmm) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|--------------------|--------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| B1001USOWA/S530-A4 | 25.3x10.1    | ● Reddish Orange         | --            | CC    | 615              | White       | Gray       | 7.8 / 17.6            |
| B1001SYGWA/S530-E2 | 25.3x10.1    | ● Brilliant Yellow Green | --            | CC    | 573              | White       | Gray       | 2.8 / 4.5             |



UNIT : mm

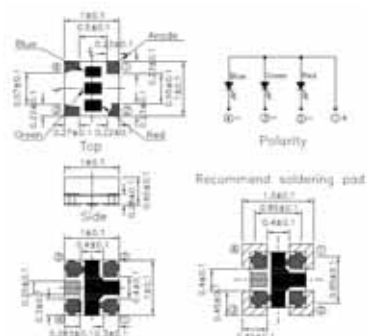


| Product           | Size (LxWmm) | Color                    | Segment Width | CC/CA | $\lambda_d$ (nm) | Resin Color | Face Color | $I_v$ (Min/Typ) (mcd) |
|-------------------|--------------|--------------------------|---------------|-------|------------------|-------------|------------|-----------------------|
| B1010SURD/S530-A3 | 14.0x7.5     | ● Brilliant Red          | --            | CA    | 624              | Red         | White      | 11 / 24               |
| B1010SYGD/S530-E3 | 14.0x7.5     | ● Brilliant Yellow Green | --            | CA    | 573              | Green       | White      | 2.8 / 6.4             |

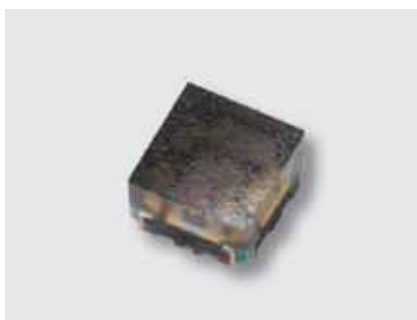
# Signage LED | Surface Mount Chip LED (PCB)



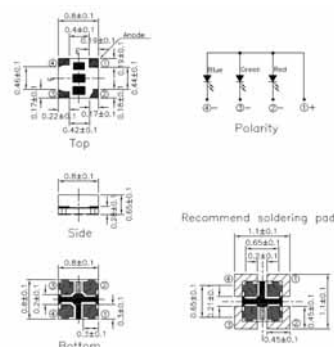
UNIT : mm



| Product         | Size<br>(LxWxHmm)    | Color | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-----------------|----------------------|-------|------------------|---------------------|-----------|------|------------|----------------------|
|                 |                      |       |                  |                     | Typ.      | Max. |            |                      |
| 18-038BT Series | 1.0x1.0x0.65 (4-pin) | Red   | 619~626          | 28                  | 1.7       | 2.4  | 5          | 120                  |
|                 |                      | Green | 523.5~532.5      | 75                  | 2.5       | 3.2  |            |                      |
|                 |                      | Blue  | 463.5~472.5      | 12                  | 2.5       | 3.2  |            |                      |



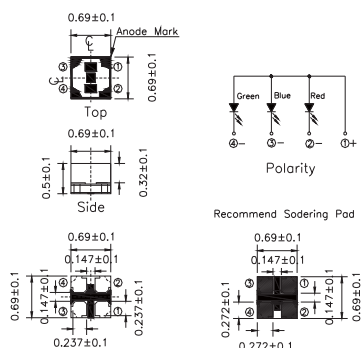
UNIT : mm



| Product        | Size<br>(LxWxHmm)    | Color | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|----------------|----------------------|-------|------------------|---------------------|-----------|------|------------|----------------------|
|                |                      |       |                  |                     | Typ.      | Max. |            |                      |
| 18-039B Series | 0.8x0.8x0.65 (4-pin) | Red   | 619~626          | 14.1                | 1.7       | 2.4  | 3          | 120                  |
|                |                      | Green | 523.5~532.5      | 69.7                | 2.5       | 3.2  | 5          |                      |
|                |                      | Blue  | 463.5~472.5      | 12.8                | 2.5       | 3.2  | 5          |                      |



UNIT : mm



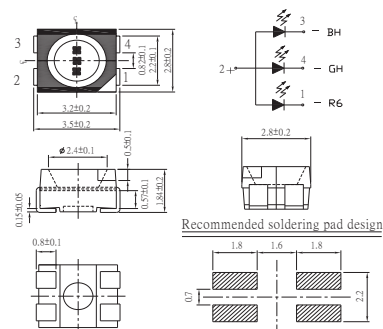
| Product         | Size<br>(LxWxHmm)     | Color | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-----------------|-----------------------|-------|------------------|---------------------|-----------|------|------------|----------------------|
|                 |                       |       |                  |                     | Typ.      | Max. |            |                      |
| 18-036BD Series | 0.69x0.69x0.5 (4-pin) | Red   | 619~626          | 28.8                | 1.7       | 2.4  | 5          | 120                  |
|                 |                       | Green | 523~532.5        | 69.9                | 2.5       | 3.2  |            |                      |
|                 |                       | Blue  | 463.5~472.5      | 12.8                | 2.5       | 3.2  |            |                      |



# Signage LED ■ Surface Mount PLCC LED (Reflector)



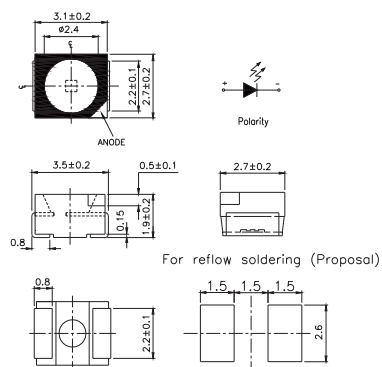
UNIT : mm



| Product                  | Size<br>(LxWxHmm) | Color   | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|--------------------------|-------------------|---------|------------------|---------------------|-----------|------|------------|----------------------|
|                          |                   |         |                  |                     | Typ.      | Max. |            |                      |
| 67-03A/R6GHBHW-A01/2T/MS | 3.5x2.8x1.84      | ● Red   | 620.5~627.5      | 226                 | 1.7       | 2.6  | 20         | 120                  |
|                          |                   | ● Green | 513~533          | 1000                | 2.7       | 3.6  |            |                      |
|                          |                   | ● Blue  | 456.5~471.5      | 230                 | 2.7       | 3.6  |            |                      |



UNIT : mm



| Product               | Size<br>(LxWxHmm)      | Color    | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-----------------------|------------------------|----------|------------------|---------------------|-----------|------|------------|----------------------|
|                       |                        |          |                  |                     | Typ.      | Max. |            |                      |
| 67-01/Y2W-MV1W1/2T/MS | 2.7X3.1X1.9<br>(2 pin) | ● Yellow | 585-594          | 1067.5              | 2.1       | 2.4  | 20         | 120                  |
|                       |                        | ● Red    | 620-629          | 1010                |           |      |            |                      |

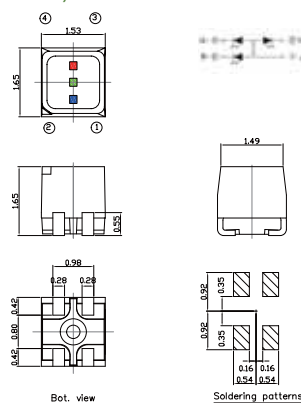


# Signage LED | Surface Mount PLCC LED (Reflector)

For outdoor



UNIT : mm

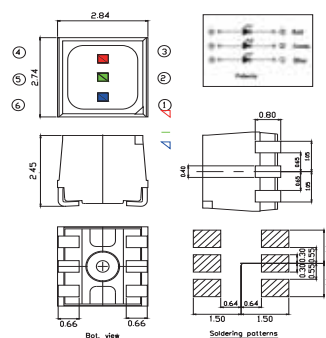


| Product       | Size<br>(LxWxHmm)        | Color | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|---------------|--------------------------|-------|------------------|---------------------|-----------|------|------------|----------------------|
|               |                          |       |                  |                     | Typ.      | Max. |            |                      |
| HNA1515W-OS01 | 1.65x1.5x1.65<br>(4-pin) | Red   | 614~629          | 250                 | 1.9       | 2.4  | 10         | 110                  |
|               |                          | Green | 516~534          | 350                 | 2.8       | 3.4  | 10         |                      |
|               |                          | Blue  | 465~480          | 50                  | 2.8       | 3.4  | 5          |                      |

• Product Availability : Please visit EVERLIGHT website for more updated information ( [www.everlight.com](http://www.everlight.com) ) or contact EVERLIGHT sales for regional options.



UNIT : mm



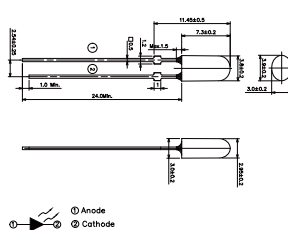
| Product       | Size<br>(LxWxHmm)       | Color | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|---------------|-------------------------|-------|------------------|---------------------|-----------|------|------------|----------------------|
|               |                         |       |                  |                     | Typ.      | Max. |            |                      |
| HNB2727W-OS05 | 2.7x2.8x2.45<br>(6-pin) | Red   | 615~630          | 865                 | 2.1       | 2.6  | 20         | 110                  |
|               |                         | Green | 526~535          | 1905                | 3.1       | 3.5  | 15         |                      |
|               |                         | Blue  | 465~480          | 295                 | 3.1       | 3.5  | 10         |                      |

Signage LED ■ Lamp Type LED ■ 3mm Oval Type

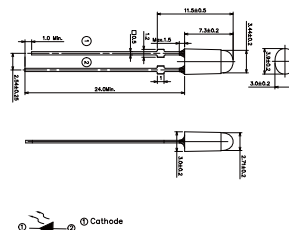


UNIT : mm

3474BAGR  
3474BABR



3474BARR

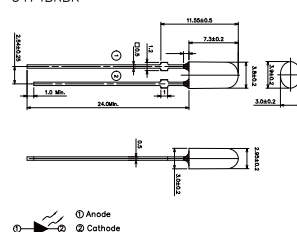


| Product  | Size<br>(LxWxHmm) | Color | Lens Type | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|----------|-------------------|-------|-----------|------------------|---------------------|-----------|------|------------|----------------------|
|          |                   |       |           |                  |                     | Typ.      | Max. |            |                      |
| 3474BARR | 3.9x3x7.3         | Red   | OVAL      | 619~629          | 1035                | 2.1       | 2.6  | 15         | 110°/60°             |
| 3474BAGR | 3.9x3x7.3         | Green | OVAL      | 520~535          | 2125                | 3.0       | 3.4  | 10         | 110°/60°             |
| 3474BABR | 3.9x3x7.3         | Blue  | OVAL      | 460~475          | 420                 | 3.0       | 3.4  | 10         | 110°/60°             |

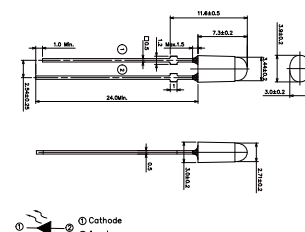


UNIT : mm

3474BKGR  
3474BKBR



3474BKRR



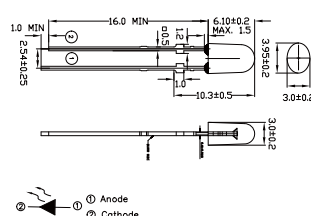
| Product     | Size<br>(LxWxHmm) | Color | Lens Type | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-------------|-------------------|-------|-----------|------------------|---------------------|-----------|------|------------|----------------------|
|             |                   |       |           |                  |                     | Typ.      | Max. |            |                      |
| 3474BKRR/MS | 3.9x3x7.3         | Red   | OVAL      | 619~629          | 1605                | 2.1       | 2.6  | 20         | 110°/60°             |
| 3474BKGR/MS | 3.9x3x7.3         | Green | OVAL      | 520~535          | 4635                | 3.0       | 3.4  | 20         | 110°/60°             |
| 3474BKBR/MS | 3.9x3x7.3         | Blue  | OVAL      | 460~475          | 800                 | 3.0       | 3.4  | 20         | 110°/60°             |

• Product Availability : Please visit EVERLIGHT website for more updated information ( [www.everlight.com](http://www.everlight.com) ) or contact EVERLIGHT sales for regional options.

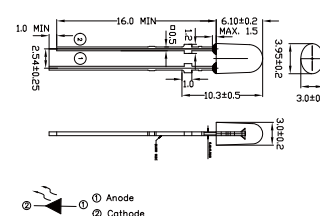


UNIT : mm

3474DKGR  
3474DKBR



3474DKRR



| Product     | Size<br>(LxWxHmm) | Color | Lens Type | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-------------|-------------------|-------|-----------|------------------|---------------------|-----------|------|------------|----------------------|
|             |                   |       |           |                  |                     | Typ.      | Max. |            |                      |
| 3474DKRR/MS | 3.95x3x6.1        | Red   | OVAL      | 619~629          | 2800                | 2.1       | 2.6  | 20         | 90°/45°              |
| 3474DKGR/MS | 3.95x3x6.1        | Green | OVAL      | 520~535          | 6480                | 3.0       | 3.4  | 20         | 90°/45°              |
| 3474DKBR/MS | 3.95x3x6.1        | Blue  | OVAL      | 460~475          | 1140                | 3.0       | 3.4  | 20         | 90°/45°              |

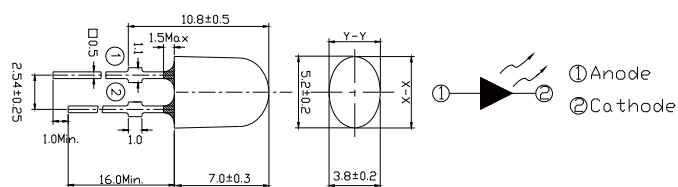
• Product Availability : Please visit EVERLIGHT website for more updated information ( [www.everlight.com](http://www.everlight.com) ) or contact EVERLIGHT sales for regional options.

# Signage LED | Lamp Type LED | 5mm Oval Type



UNIT : mm

( With Stopper )

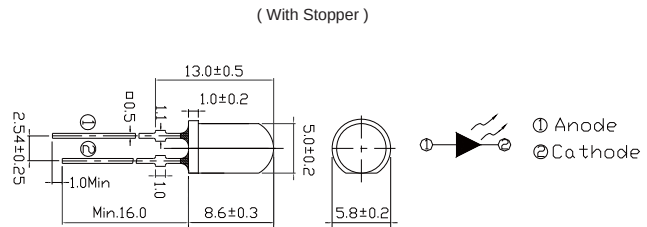


| Product               | Size<br>(LxWxHmm) | Color  | Lens Type | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-----------------------|-------------------|--------|-----------|------------------|---------------------|-----------|------|------------|----------------------|
|                       |                   |        |           |                  |                     | Typ.      | Max. |            |                      |
| 5484BN/R7DC-AHJB/P/MS | 5.2x3.8x7.0       | Red    | Oval      | 619~628          | 1630                | 1.8       | 2.4  | 20         | 110 / 40             |
| 5484BN/GADC-AMNA/P/MS | 5.2x3.8x7.0       | Green  | Oval      | 525~535          | 3925                | 2.8       | 3.6  | 20         | 110 / 40             |
| 5484BN/BADC-AGJA/P/MS | 5.2x3.8x7.0       | Blue   | Oval      | 465~475          | 1085                | 2.8       | 3.6  | 20         | 110 / 40             |
| 5484BN/Y7DC-AHJB/P/MS | 5.2x3.8x7.0       | Yellow | Oval      | 586~694          | 1440                | 1.8       | 2.2  | 20         | 110 / 40             |

Signage LED ■ Lamp Type LED ■ 5mm Round Type



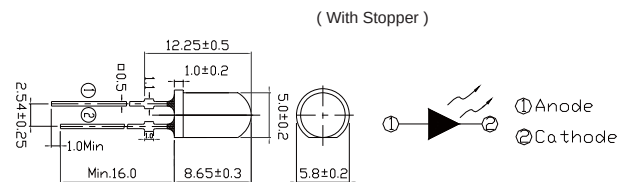
UNIT : mm



| Product          | Size<br>(LxWxHmm) | Color  | Lens Type | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|------------------|-------------------|--------|-----------|------------------|---------------------|-----------|------|------------|----------------------|
|                  |                   |        |           |                  |                     | Typ.      | Max. |            |                      |
| 333/R5C1-ATWB/MS | 5.0x5.0x8.6       | Red    | Clear     | 620~628          | 11250               | 2         | 2.6  | 20         | 15                   |
| 333/Y5C1-ATWB/MS | 5.0x5.0x8.6       | Yellow | Clear     | 586~594          | 11250               | 2         | 2.6  | 20         | 15                   |
| 333/G1C1-AVYA/MS | 5.0x5.0x8.6       | Green  | Clear     | 525~535          | 28500               | 3.2       | 3.6  | 20         | 15                   |
| 333/B1C1-ARUA/MS | 5.0x5.0x8.6       | Blue   | Clear     | 465~475          | 7150                | 3.2       | 3.6  | 20         | 15                   |
| 333/V7C1-BVXA/MS | 5.0x5.0x8.6       | Green  | Clear     | 499~507          | 14250               | 3.2       | 3.6  | 20         | 13                   |



UNIT : mm

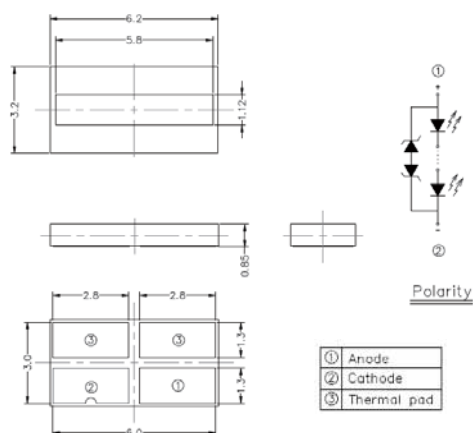


| Product           | Size<br>(LxWxHmm) | Color  | Lens Type | $\lambda_d$ (nm) | Typ. $I_v$<br>(mcd) | $V_F$ (V) |      | $I_F$ (mA) | Viewing<br>Angle (°) |
|-------------------|-------------------|--------|-----------|------------------|---------------------|-----------|------|------------|----------------------|
|                   |                   |        |           |                  |                     | Typ.      | Max. |            |                      |
| 7383/R7C3-ARUB/MS | 5x5x8.7           | Red    | Clear     | 619~628          | 4000                | 2.0       | 2.6  | 20         | 30                   |
| 7383/Y7C3-ARUB/MS | 5x5x8.7           | Yellow | Clear     | 619~628          | 7150                | 2.0       | 2.6  | 20         | 30                   |
| 7383/G1C3-ATVA/MS | 5x5x8.7           | Green  | Clear     | 586~594          | 4500                | 2.0       | 2.6  | 20         | 30                   |
| 7383/BAC3-ANQA/MS | 5x5x8.7           | Blue   | Clear     | 586~594          | 7150                | 2.0       | 2.6  | 20         | 30                   |
| 7383/V7C3-ARTA/MS | 5x5x8.7           | Green  | Clear     | 525~535          | 9000                | 3.2       | 3.6  | 20         | 30                   |
| 7343/R5C2-ASUB/MS | 5x5x8.7           | Red    | Clear     | 620~628          | 7150                | 2.0       | 2.6  | 20         | 23                   |
| 7343/Y5C2-ASVB/MS | 5x5x8.7           | Yellow | Clear     | 586~594          | 9000                | 2.0       | 2.6  | 20         | 23                   |
| 7344/V7C2-ASVA/MS | 5x5x8.7           | Green  | Clear     | 498~513          | 7150                | 3.2       | 3.6  | 20         | 20                   |
| 7343/G1C2-AUWA/MS | 5x5x8.7           | Green  | Clear     | 525~535          | 14250               | 3.2       | 3.6  | 20         | 23                   |
| 7343/B1C2-APSA/MS | 5x5x8.7           | Blue   | Clear     | 465~475          | 4500                | 3.2       | 3.6  | 20         | 23                   |

# Automotive LED ■ Exterior Application ■ High Power LED



UNIT : mm



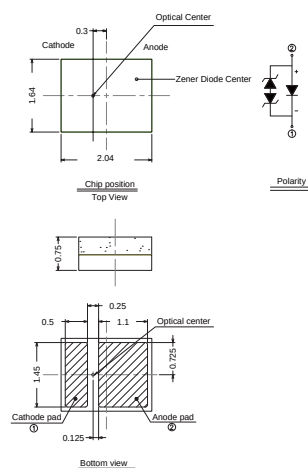
ALFS-B

| Product              | Size<br>(LxWxHmm) | Color   | CIE(K)      | I <sub>v</sub> Min.<br>(lm) | I <sub>v</sub> Max.<br>(lm) | V <sub>F</sub> Min.<br>(V) | V <sub>F</sub> Max.<br>(V) | I <sub>F</sub><br>(mA) | Viewing<br>Angle (°) |
|----------------------|-------------------|---------|-------------|-----------------------------|-----------------------------|----------------------------|----------------------------|------------------------|----------------------|
| ALFS5BD-C010001L1-AM | 6.2x3.2x0.85      | ○ White | 5180K-6680K | 1500                        | 1900                        | 14.5                       | 18.85                      | 1000                   | 120                  |
| ALFS4BD-C010001L1-AM | 6.2x3.2x0.85      | ○ White | 5180K-6680K | 1240                        | 1600                        | 11.6                       | 15.95                      | 1000                   | 120                  |
| ALFS3BD-C010001L1-AM | 4.0x2.4x0.85      | ○ White | 5180K-6680K | 800                         | 1100                        | 8.7                        | 11.25                      | 1000                   | 120                  |
| ALFS2BD-C010001L1-AM | 2.9x2.4x0.85      | ○ White | 5180K-6680K | 550                         | 750                         | 5.8                        | 7.6                        | 1000                   | 120                  |
| ALFS1BD-C007001L1-AM | 1.64x2.04x0.85    | ○ White | 5180K-6680K | 200                         | 280                         | 2.9                        | 3.75                       | 700                    | 120                  |

## Automotive LED | Exterior Application | High Power LED

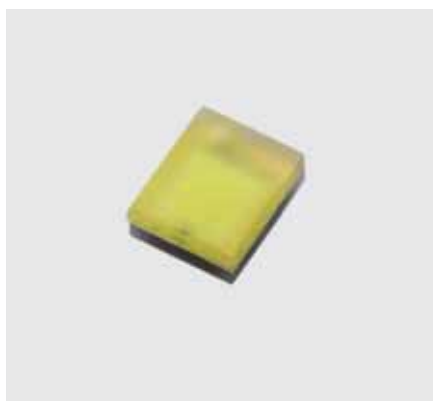


UNIT : mm

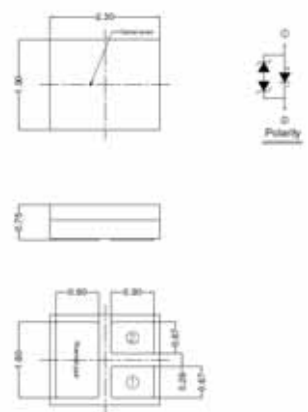


EL Compact 2016

| Product            | Size (LxWxHmm) | Color   | $\lambda_d$ (nm)/CCT(K)/CIE | $I_V$ Min. (lm) | $I_V$ Max. (lm) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|--------------------|----------------|---------|-----------------------------|-----------------|-----------------|----------------|----------------|------------|-------------------|
| CH2016E-C07001L-AM | 2.04x1.64x0.75 | ○ White | 5180~6680K                  | 150             | 275             | 3.0            | 3.75           | 700        | 120               |
| CH2016-UR3501H-AM  | 2.04x1.64x0.75 | ● Red   | 615-627nm                   | 39              | 70              | 2.25           | 3.0            | 350        | 130               |



UNIT : mm



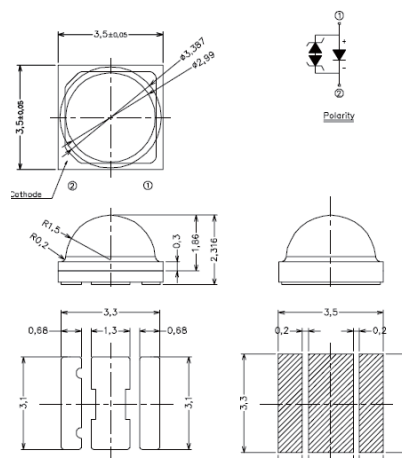
EL 2319

| Product            | Size (LxWxHmm) | Color      | CCT(K)/CIE     | $I_V$ Min. (lm) | $I_V$ Max. (lm) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|--------------------|----------------|------------|----------------|-----------------|-----------------|----------------|----------------|------------|-------------------|
| CH2319-C07001H-AM  | 2.3x1.9x0.75   | ○ White    | 5180K-6680K    | 225             | 325             | 2.75           | 4              | 700        | 140               |
| CH2319-PA07001H-AM | 2.3x1.9x0.75   | ● PC-Amber | X0.57, Y0.42   | 130             | 180             | 2.75           | 3.5            | 700        | 120               |
| CH2319-PR03501H-AM | 2.3x1.9x0.75   | ● PC Red   | X0.673, Y0.318 | 33              | 52              | 2.75           | 3.5            | 700        | 120               |

# Automotive LED | Exterior Application | High Power LED



UNIT : mm

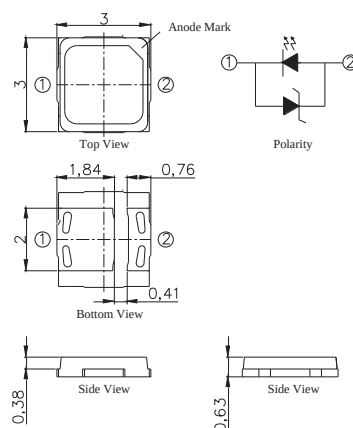


EL 3535E

| Product            | Size (LxWxHmm) | Color      | $\lambda_d$ (nm)/ CCT(K)/CIE | $I_v$ Min. (lm) | $I_v$ Max. (lm) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|--------------------|----------------|------------|------------------------------|-----------------|-----------------|----------------|----------------|------------|-------------------|
| CH3535E-C03501L-AM | 3.5x3.5x2.3    | ○ White    | 5180~6680K                   | 120             | 160             | 3.0            | 4.0            | 350        | 120               |
| CH3535E-UR3501L-AM | 3.5x3.5x2.3    | ● Red      | 615~627nm                    | 60              | 100             | 1.75           | 2.5            | 350        | 120               |
| CH3535E-PA3501H-AM | 3.5x3.5x2.3    | ● PC-Amber | X0.57,Y0.42                  | 80              | 140             | 2.75           | 3.5            | 350        | 120               |



UNIT : mm



EL 3030E

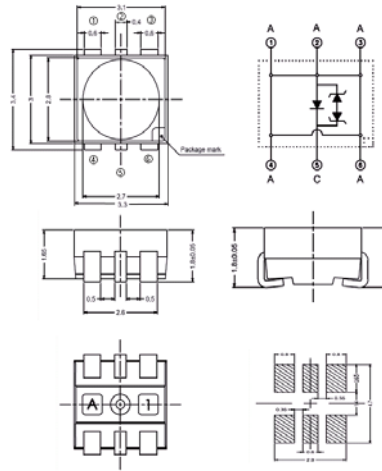
| Product           | Size (LxWxHmm) | Color      | $\lambda_d$ (nm)/ CCT(K)/ CIE | $I_v$ Min. (lm) | $I_v$ Max. (lm) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|-------------------|----------------|------------|-------------------------------|-----------------|-----------------|----------------|----------------|------------|-------------------|
| XI3030-C03501H-AM | 3.0x3.0x0.63   | ○ White    | 5180~6680K                    | 100             | 150             | 2.5            | 3.5            | 350        | 120               |
| XI3030-UR3501H-AM | 3.0x3.0x0.63   | ● Red      | 606~621nm                     | 39              | 70              | 1.75           | 3.0            | 350        | 120               |
| XI3030-PA3501H-AM | 3.0x3.0x0.63   | ● PC-Amber | X0.575,Y0.415                 | 52              | 90              | 2.5            | 3.5            | 350        | 120               |



Automotive LED | Exterior Application | Mid Power LED



UNIT : mm



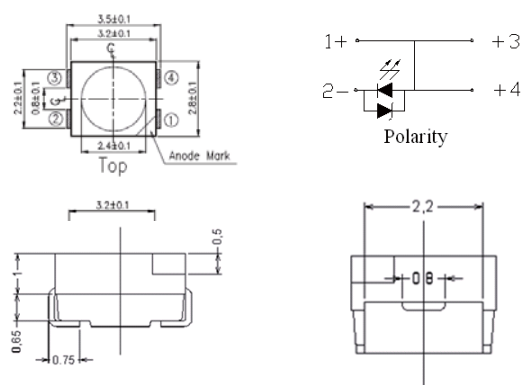
EL Advanced Power Top View

| Product         | Size<br>(LxWxHmm) | Color       | $\lambda_d$ (nm)/<br>CCT(K)/CIE | $I_v$ Min.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min.<br>(V) | $V_F$ Max.<br>(V) | $I_F$<br>(mA) | Viewing<br>Angle (°) |
|-----------------|-------------------|-------------|---------------------------------|---------------------|---------------------|-------------------|-------------------|---------------|----------------------|
| A09K-C71501H-AM | 3.4x3.3x1.8       | ○ White     | 5180~6680K                      | 7100                | 14000               | 2.75              | 3.75              | 150           | 120                  |
| A09K-UR1501H-AM | 3.4x3.3x1.8       | ● Red       | 612~624nm                       | 4500                | 9000                | 1.75              | 2.75              | 150           | 120                  |
| A09K-SR1501H-AM | 3.4x3.3x1.8       | ● Super Red | 627~639nm                       | 3550                | 7100                | 1.75              | 2.75              | 150           | 120                  |
| A09K-UY1501H-AM | 3.4x3.3x1.8       | ● Yellow    | 582~594nm                       | 3550                | 7100                | 1.75              | 2.75              | 150           | 120                  |
| A09K-PA1501H-AM | 3.4x3.3x1.8       | ● PC-Amber  | X 0.57, Y 0.42                  | 5600                | 11200               | 2.75              | 3.75              | 150           | 120                  |

# Automotive LED ■ Exterior Application ■ Low Power LED



UNIT : mm

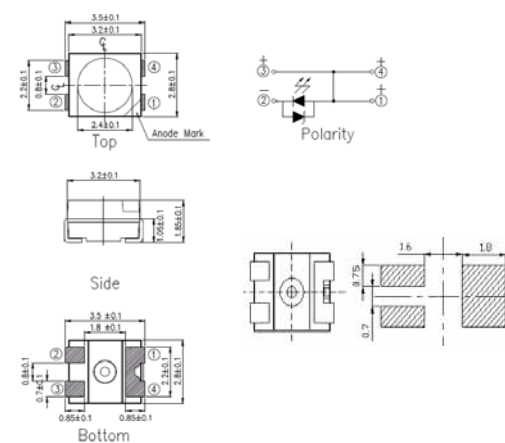


EL Power Top View PLCC-4

| Product          | Size (LxWxHmm) | Color       | $\lambda_d$ (nm)/ CCT(K) | $I_v$ Min. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|------------------|----------------|-------------|--------------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 67-41-C70301H-AM | 3.5x2.8x1.85   | ○ White     | 5180~6680K               | 2240             | 4500             | 2.75           | 3.75           | 30         | 120               |
| 67-41-UR0501H-AM | 3.5x2.8x1.85   | ● Red       | 612~624nm                | 1800             | 3550             | 1.75           | 2.75           | 50         | 120               |
| 67-41-SR0501H-AM | 3.5x2.8x1.85   | ● Super Red | 627~639nm                | 1400             | 2240             | 1.75           | 2.75           | 50         | 120               |
| 67-41-UY0501H-AM | 3.5x2.8x1.85   | ● Yellow    | 585~594nm                | 1400             | 2800             | 1.75           | 2.75           | 50         | 120               |



UNIT : mm



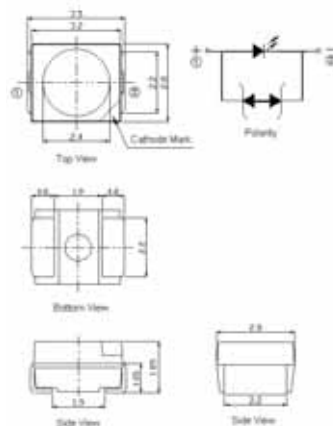
EL Power Top View PLCC-3

| Product          | Size (LxWxHmm) | Color    | $\lambda_d$ (nm)/ CCT(K) | $I_v$ Min. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|------------------|----------------|----------|--------------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 67-31-C70301H-AM | 3.5x2.8x1.85   | ○ White  | 5180~6680K               | 2240             | 4500             | 2.75           | 3.75           | 30         | 120               |
| 67-31-UR0501H-AM | 3.5x2.8x1.85   | ● Red    | 612~624nm                | 1800             | 3550             | 1.75           | 2.75           | 50         | 120               |
| 67-31-UY0501H-AM | 3.5x2.8x1.85   | ● Yellow | 585~594nm                | 1400             | 2800             | 1.75           | 2.75           | 50         | 120               |

## Automotive LED | Exterior Application | Low Power LED



UNIT : mm

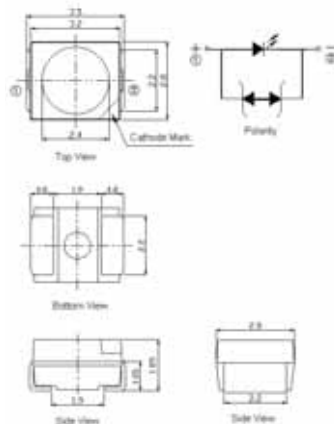


EL Top View

| Product          | Size (LxWxHmm) | Color    | $\lambda_d$ (nm)/CIE           | $I_V$ Min. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|------------------|----------------|----------|--------------------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 67-11-C70201H-AM | 3.5x2.8x1.85   | ○ White  | X=0.227~0.365<br>Y=0.205~0.408 | 1400             | 3550             | 2.75           | 3.75           | 20         | 120               |
| 67-21-UR0201H-AM | 3.5x2.8x1.85   | ● Red    | 612~624nm                      | 710              | 1400             | 1.75           | 2.75           | 20         | 120               |
| 67-21-UY0201H-AM | 3.5x2.8x1.85   | ● Yellow | 585~594nm                      | 710              | 1400             | 1.75           | 2.75           | 20         | 120               |



UNIT : mm



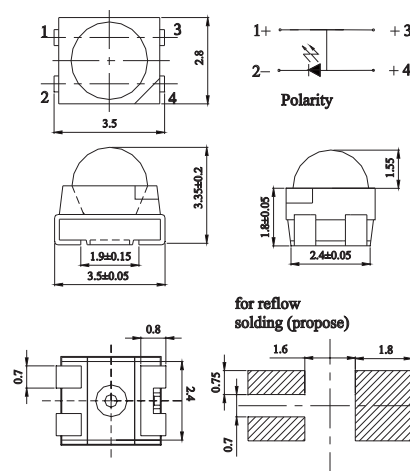
EL Top View

| Product          | Size (LxWxHmm) | Color      | $\lambda_d$ (nm)/CIE(K)        | $I_V$ Min. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|------------------|----------------|------------|--------------------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 67-11-C70200H-AM | 3.5x2.8x1.85   | ○ White    | X=0.227~0.365<br>Y=0.205~0.408 | 1400             | 3550             | 2.75           | 3.75           | 20         | 120               |
| 67-11-IB0100L-AM | 3.5x2.8x1.85   | ○ Ice Blue | X=0.132~0.245<br>Y=0.117~0.360 | 224              | 710              | 2.75           | 3.75           | 10         | 120               |
| 67-11-SB0100L-AM | 3.5x2.8x1.85   | ● Sky Blue | X=0.143~0.180<br>Y=0.055~0.109 | 224              | 560              | 2.75           | 3.75           | 10         | 120               |
| 67-11-UB0200H-AM | 3.5x2.8x1.85   | ● Blue     | 463~475nm                      | 224              | 560              | 2.75           | 3.75           | 20         | 120               |
| 67-11-UG0200H-AM | 3.5x2.8x1.85   | ● Green    | 520~535nm                      | 710              | 1400             | 2.75           | 3.75           | 20         | 120               |
| 67-21-UR0200H-AM | 3.5x2.8x1.85   | ● Red      | 618~627nm                      | 710              | 1400             | 1.75           | 2.75           | 20         | 120               |
| 67-21-UR0200L-AM | 3.5x2.8x1.85   | ● Red      | 618~630nm                      | 140              | 450              | 1.75           | 2.75           | 20         | 120               |
| 67-21-UY0200H-AM | 3.5x2.8x1.85   | ● Yellow   | 585~594nm                      | 710              | 1400             | 1.75           | 2.75           | 20         | 120               |
| 67-21-UY0200L-AM | 3.5x2.8x1.85   | ● Yellow   | 582~594nm                      | 140              | 450              | 1.75           | 2.75           | 20         | 120               |

## Automotive LED ■ Exterior Application ■ Low Power LED



UNIT : mm



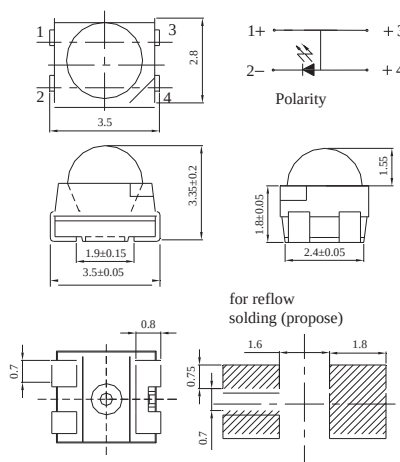
EL Top View Lens 30°

| Product             | Size (LxWxHmm) | Color  | $\lambda_d$ (nm) | $I_V$ Min. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|---------------------|----------------|--------|------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 67-31EP3-UR0500H-AM | 3.5x2.8x3.35   | Red    | 612~624nm        | 5600             | 18000            | 1.75           | 2.75           | 50         | 30                |
| 67-31EP3-UY0500H-AM | 3.5x2.8x3.35   | Yellow | 582~594nm        | 5600             | 18000            | 1.75           | 2.75           | 50         | 30                |

## Automotive LED ■ Interior Application ■ Low Power LED



UNIT : mm



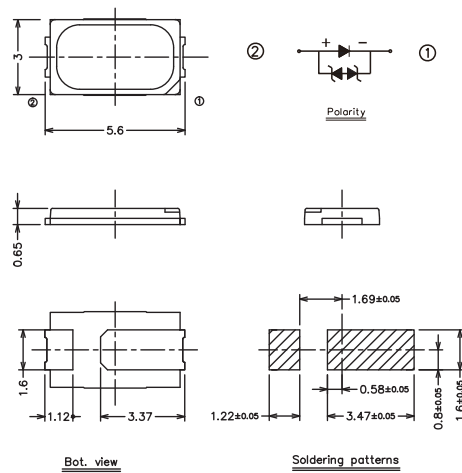
EL Top View Lens 60°

| Product             | Size (LxWxHmm) | Color  | $\lambda_d$ (nm) | $I_V$ Min. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|---------------------|----------------|--------|------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 67-31EP6-UR0500H-AM | 3.5x2.8x3.35   | Red    | 612~624nm        | 3550             | 11200            | 1.75           | 2.75           | 50         | 60                |
| 67-31EP6-UY0500H-AM | 3.5x2.8x3.35   | Yellow | 582~594nm        | 2800             | 9000             | 1.75           | 2.75           | 50         | 60                |

Automotive LED ■ Interior Application ■ Low Power LED



UNIT : mm

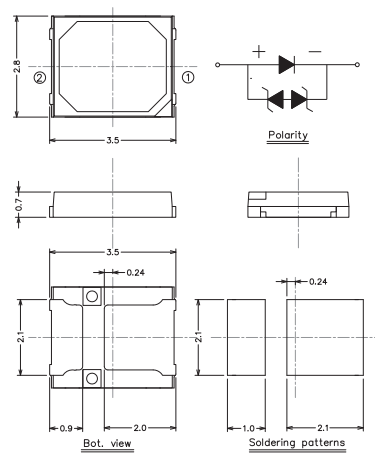


EL 5630D

| Product            | Size (LxWxHmm) | Color   | CCT(K)     | I <sub>V</sub> Min. (lm) | I <sub>V</sub> Max. (lm) | V <sub>F</sub> Min. (V) | V <sub>F</sub> Max. (V) | I <sub>F</sub> (mA) | Viewing Angle (°) |
|--------------------|----------------|---------|------------|--------------------------|--------------------------|-------------------------|-------------------------|---------------------|-------------------|
| 62-117D-W80650H-AM | 5.6x3.0x0.65   | ○ White | 2700~3500K | 24                       | 40                       | 2.5                     | 3.5                     | 65                  | 120               |
| 62-117D-N80650H-AM | 5.6x3.0x0.65   | ○ White | 4000~4500K | 24                       | 40                       | 2.5                     | 3.5                     | 65                  | 120               |
| 62-117D-C80650H-AM | 5.6x3.0x0.65   | ○ White | 5000~6500K | 24                       | 40                       | 2.5                     | 3.5                     | 65                  | 120               |



UNIT : mm



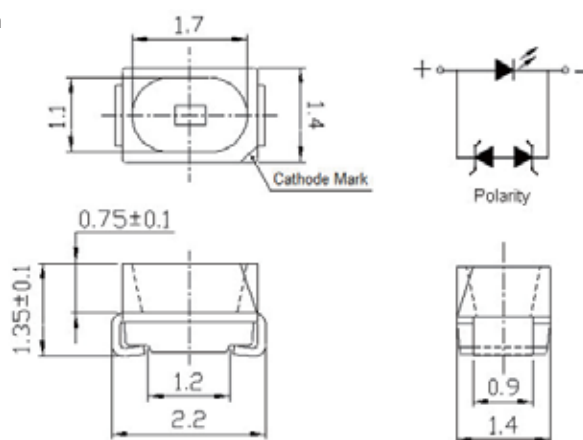
EL 2835

| Product           | Size (LxWxHmm) | Color   | CCT(K)     | I <sub>V</sub> Min. (mcd) | I <sub>V</sub> Max. (mcd) | V <sub>F</sub> Min. (V) | V <sub>F</sub> Max. (V) | I <sub>F</sub> (mA) | Viewing Angle (°) |
|-------------------|----------------|---------|------------|---------------------------|---------------------------|-------------------------|-------------------------|---------------------|-------------------|
| 67-11S-W81000H-AM | 2.8x3.5x0.7    | ○ White | 2700~3500K | 35                        | 50                        | 2.5                     | 3.5                     | 100                 | 120               |
| 67-11S-N81000H-AM | 2.8x3.5x0.7    | ○ White | 4000~4500K | 35                        | 50                        | 2.5                     | 3.5                     | 100                 | 120               |
| 67-11S-C81000H-AM | 2.8x3.5x0.7    | ○ White | 5000~6500K | 35                        | 50                        | 2.5                     | 3.5                     | 100                 | 120               |

# Automotive LED ■ Interior Application ■ Low Power LED



UNIT : mm



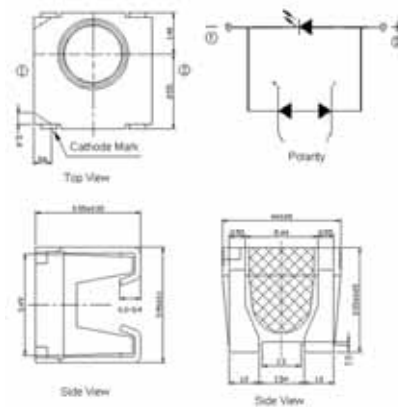
## EL Mini Top View

| Product          | Size<br>(LxWxHmm) | Color      | $\lambda_d$ (nm)/<br>CIE(K)    | $I_v$ Min.<br>(mcd) | $I_v$ Max.<br>(mcd) | $V_F$ Min.<br>(V) | $V_F$ Max.<br>(V) | $I_F$ (mA) | Viewing<br>Angle (°) |
|------------------|-------------------|------------|--------------------------------|---------------------|---------------------|-------------------|-------------------|------------|----------------------|
| 65-11-C70200H-AM | 2.2x1.4x1.35      | ○ White    | X=0.227~0.365<br>Y=0.205~0.408 | 1400                | 3550                | 2.75              | 3.75              | 20         | 120                  |
| 65-11-IB0100L-AM | 2.2x1.4x1.35      | ○ Ice Blue | X=0.132~0.245<br>Y=0.117~0.360 | 224                 | 710                 | 2.75              | 3.75              | 10         | 120                  |
| 65-11-SB0100L-AM | 2.2x1.4x1.35      | ● Sky Blue | X=0.143~0.180<br>Y=0.055~0.109 | 224                 | 560                 | 2.75              | 3.75              | 10         | 120                  |
| 65-11-UB0200L-AM | 2.2x1.4x1.35      | ● Blue     | 463~475nm                      | 224                 | 560                 | 2.75              | 3.75              | 20         | 120                  |
| 65-11-UG0200H-AM | 2.2x1.4x1.35      | ● Green    | 520~535nm                      | 710                 | 1400                | 2.75              | 3.75              | 20         | 120                  |
| 65-21-UR0200H-AM | 2.2x1.4x1.35      | ● Red      | 618~627nm                      | 710                 | 1400                | 1.75              | 2.75              | 20         | 120                  |
| 65-21-UY0200H-AM | 2.2x1.4x1.35      | ● Yellow   | 585~594nm                      | 710                 | 1400                | 1.75              | 2.75              | 20         | 120                  |

## Automotive LED ■ Interior Application ■ Low Power LED



UNIT : mm



EL Side View

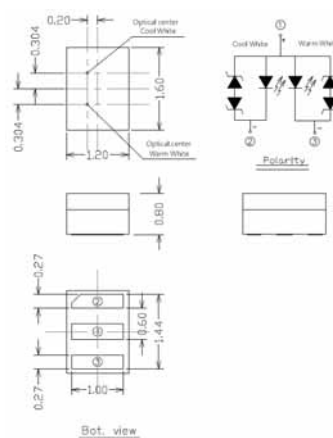
| Product          | Size<br>(LxWxHmm) | Color      | $\lambda_d$ (nm)/<br>CIE(K)          | $I_V$ Min.<br>(mcd) | $I_V$ Max.<br>(mcd) | $V_F$ Min.<br>(V) | $V_F$ Max.<br>(V) | $I_F$ (mA) | Viewing<br>Angle (°) |
|------------------|-------------------|------------|--------------------------------------|---------------------|---------------------|-------------------|-------------------|------------|----------------------|
| 57-11-C70200H-AM | 4.0x4.0x3.55      | ○ White    | X: 0.258-0.3582<br>Y: 0.227-0.3792   | 900                 | 2240                | 2.75              | 3.75              | 20         | 120                  |
| 57-11-IB0100L-AM | 4.0x4.0x3.55      | ○ Ice Blue | X: 0.1324-0.2395<br>Y: 0.1201-0.3605 | 140                 | 560                 | 2.75              | 3.75              | 10         | 120                  |
| 57-11-SB0100L-AM | 4.0x4.0x3.55      | ● Sky Blue | X: 0.1378-0.1700<br>Y: 0.0620-0.1252 | 140                 | 560                 | 2.75              | 3.75              | 10         | 120                  |
| 57-11-UB0200H-AM | 4.0x4.0x3.55      | ● Blue     | 463nm~475nm                          | 224                 | 560                 | 2.75              | 3.75              | 20         | 120                  |
| 57-21-UR0200H-AM | 4.0x4.0x3.55      | ● Red      | 618nm~627nm                          | 710                 | 1400                | 1.75              | 2.75              | 20         | 120                  |
| 57-21-UY0200H-AM | 4.0x4.0x3.55      | ● Yellow   | 585nm~594nm                          | 710                 | 1400                | 1.75              | 2.75              | 20         | 120                  |



# Automotive LED | Interior Application | Low Power LED



UNIT : mm

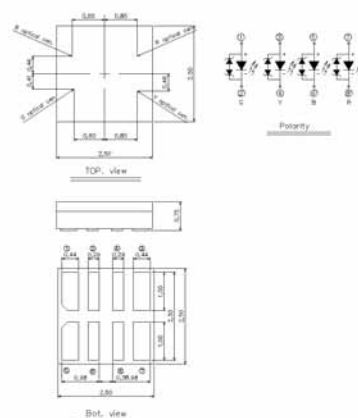


## EL Micro Multi

| Product             | Size (LxWxHmm) | Color | CCT(K)                             | I <sub>V</sub> Min. (mcd) | I <sub>V</sub> Max. (mcd) | V <sub>F</sub> Min. (V) | V <sub>F</sub> Max. (V) | I <sub>F</sub> (mA) | Viewing Angle (°) |
|---------------------|----------------|-------|------------------------------------|---------------------------|---------------------------|-------------------------|-------------------------|---------------------|-------------------|
| CH1216-C8W80801H-AM | 1.2x1.6x0.8    | CW/WW | CW: 5180K-6680K<br>WW: 2700K-3000K | CW: 20<br>WW: 20          | CW: 33<br>WW: 33          | 2.75                    | 3.5                     | 80                  | 120               |



UNIT : mm



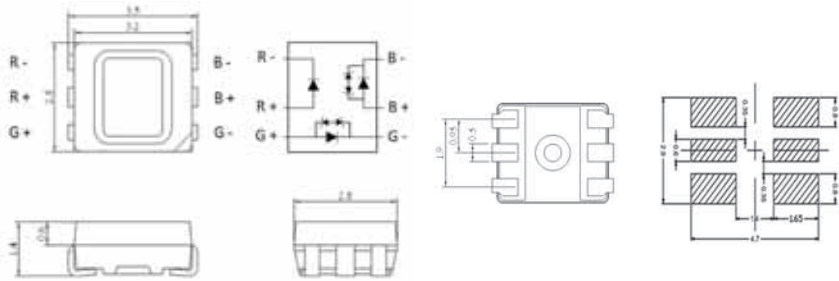
## EL Multi Color

| Product             | Size (LxWxHmm) | Color   | λ <sub>d</sub> (nm)                                  | I <sub>V</sub> Min. (mcd)             | I <sub>V</sub> Max. (mcd)             | V <sub>F</sub> Min. (V)                  | V <sub>F</sub> Max. (V)                 | I <sub>F</sub> (mA) | Viewing Angle (°) |
|---------------------|----------------|---------|------------------------------------------------------|---------------------------------------|---------------------------------------|------------------------------------------|-----------------------------------------|---------------------|-------------------|
| CH2525-RGBY0201H-AM | 2.5x2.5x0.75   | R/G/B/Y | R: 615-627<br>G: 515-535<br>B: 451-467<br>Y: 585-597 | R: 450<br>G: 1120<br>B: 140<br>Y: 450 | R: 900<br>G: 2240<br>B: 280<br>Y: 900 | R: 1.75<br>G: 2.25<br>B: 2.75<br>Y: 2.00 | R: 2.75<br>G: 3.5<br>B: 3.75<br>Y: 2.75 | 20                  | 140               |

Automotive LED | Interior Application | Low Power LED

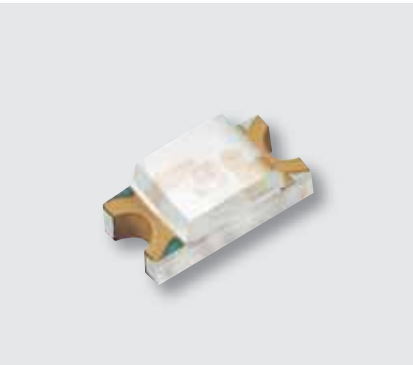


UNIT : mm

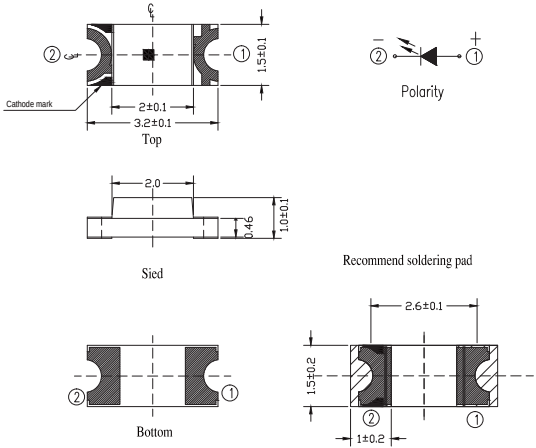


EL Top View RGB

| Product           | Size (LxWxHmm) | Color                | $\lambda_d$ (nm)                    | $I_v$ Min. (mcd)   | $I_v$ Max. (mcd)    | $V_F$ Min. (V)       | $V_F$ Max. (V)       | $I_F$ (mA) | Viewing Angle (°) |
|-------------------|----------------|----------------------|-------------------------------------|--------------------|---------------------|----------------------|----------------------|------------|-------------------|
| 67-63-RGB0201H-AM | 3.5x2.8x1.4    | Red<br>Green<br>Blue | 621~636nm<br>520~535nm<br>447~471nm | 560<br>1120<br>180 | 1120<br>1800<br>450 | 1.75<br>2.75<br>2.75 | 2.75<br>3.75<br>3.75 | 20         | 120               |



UNIT : mm



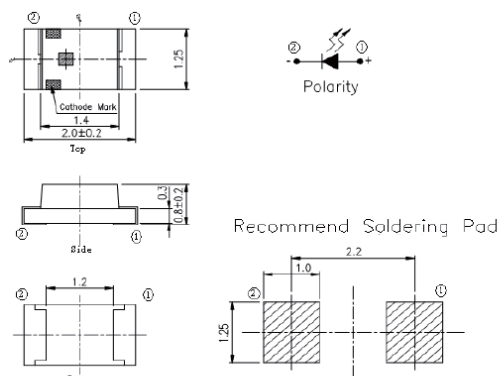
1206

| Product                     | Size (LxWxHmm) | Color        | $\lambda_d$ (nm) | $I_v$ Min. (mcd) | $I_v$ Max. (mcd) | $V_F$ Min.(V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|-----------------------------|----------------|--------------|------------------|------------------|------------------|---------------|----------------|------------|-------------------|
| 15-21-G6C-A0N1P2B0E-2T-AM   | 3.2x1.5x1.0    | Yellow Green | 569.5~577.5nm    | 28               | 71               | 1.75          | 2.35           | 20         | 130               |
| 15-21-R6C-B0Q1R2B0E-2T8-AM  | 3.2x1.5x1.0    | Red          | 617.5~629.5nm    | 71               | 180              | 1.75          | 2.35           | 20         | 130               |
| 15-21-Y2SC-A0S1T1B25E-2T-AM | 3.2x1.5x1.0    | Yellow       | 585.5~594.5nm    | 180              | 355              | 1.7           | 2.4            | 20         | 130               |

# Automotive LED ■ Interior Application ■ Low Power LED



UNIT : mm

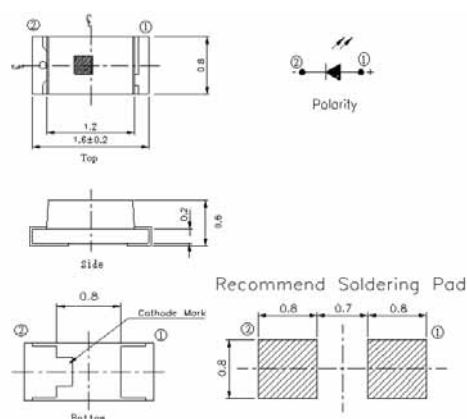


0805

| Product                    | Size (LxWxHmm) | Color          | $\lambda_d$ (nm) | $I_V$ Min. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|----------------------------|----------------|----------------|------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 17-215-G6C-F5M1N2B0E-3T-AM | 2.0x1.25x0.8   | ● Yellow Green | 568~574nm        | 18               | 45               | 1.75           | 2.35           | 20         | 130               |
| 17-215-R6C-A0Q2R2B0E-3T-AM | 2.0x1.25x0.8   | ● Red          | 617.5~633.5nm    | 90               | 180              | 1.75           | 2.35           | 20         | 130               |
| 17-215-S3C-5UQ2R2B0E-3T-AM | 2.0x1.25x0.8   | ● Orange       | 611~619nm        | 90               | 180              | 1.75           | 2.35           | 20         | 130               |
| 17-215-Y2C-P9Q2S1B0E-3T-AM | 2.0x1.25x0.8   | ● Yellow       | 584~596nm        | 90               | 224              | 1.75           | 2.35           | 20         | 130               |



UNIT : mm



0603

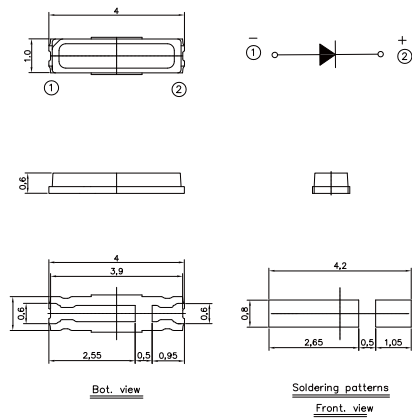
| Product                     | Size (LxWxHmm) | Color          | $\lambda_d$ (nm) | $I_V$ Min. (mcd) | $I_V$ Max. (mcd) | $V_F$ Min. (V) | $V_F$ Max. (V) | $I_F$ (mA) | Viewing Angle (°) |
|-----------------------------|----------------|----------------|------------------|------------------|------------------|----------------|----------------|------------|-------------------|
| 19-213-G6SC-M0P1Q1B0E-3T-AM | 1.6x0.8x0.6    | ● Yellow Green | 569.5~575.5nm    | 45               | 90               | 1.75           | 2.35           | 20         | 120               |
| 19-213-R6C-A0R2S2B0E-3T-AM  | 1.6x0.8x0.6    | ● Red          | 617.5~633.5nm    | 140              | 280              | 1.75           | 2.35           | 20         | 120               |
| 19-213-S3SC-B0S1T1B0E-3T-AM | 1.6x0.8x0.6    | ● Orange       | 613.5~621.5nm    | 180              | 355              | 1.75           | 2.35           | 20         | 120               |
| 19-213-Y2SC-9AS1T1B0E-3T-AM | 1.6x0.8x0.6    | ● Yellow       | 589~595nm        | 180              | 355              | 1.75           | 2.35           | 20         | 120               |

## Backlighting LED I TV/Monitor

Application/ TFT Edge



UNIT : mm

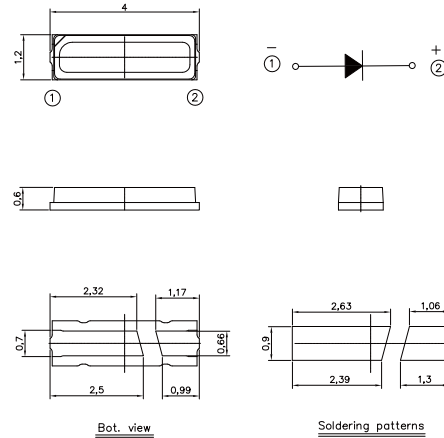


4010

| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 50-415  | 4.0x1.0x0.5    | ○ White | 0.2      | (0.28,0.26) | 18-28   | 2.7-3.4 | 120              |



UNIT : mm



4012

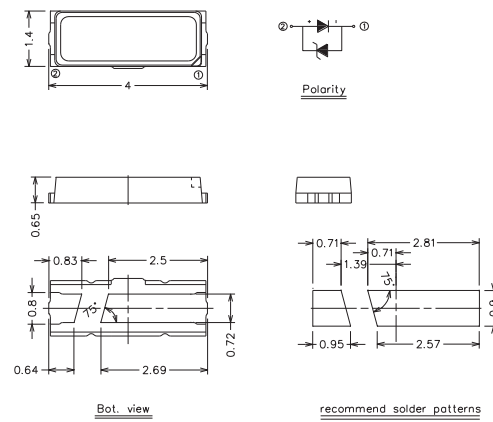
| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 50-515  | 4.0x1.2x0.6    | ○ White | 0.4      | (0.28,0.26) | 36-46   | 2.7-3.4 | 120              |

# Backlighting LED ITV/Monitor

Application/ TFT Edge



UNIT : mm

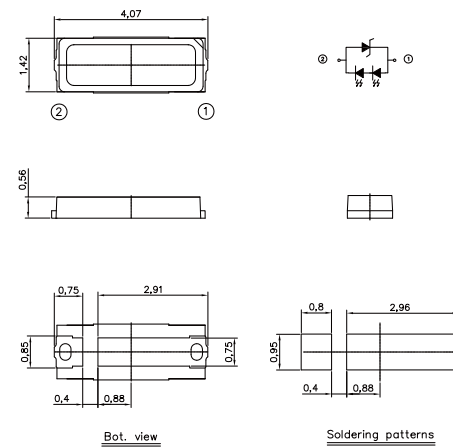


4014

| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 50-315C | 4.0x1.4x0.65   | ○ White | 0.4      | (0.28,0.26) | 38-48   | 2.7-3.4 | 120              |



UNIT : mm



4014

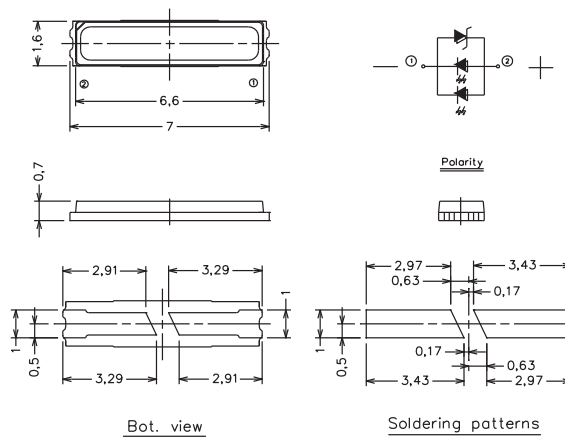
| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 50-625P | 4.0x1.4x0.56   | ○ White | 0.8      | (0.28,0.26) | 86-98   | 5.8-6.4 | 120              |

## Backlighting LED I TV/Monitor

Application/ TFT Edge



UNIT : mm

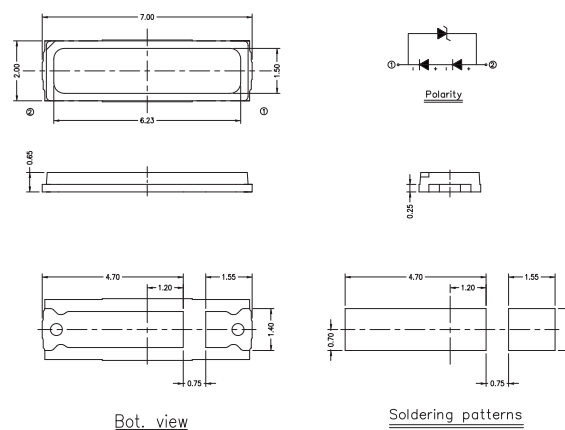


7016

| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 62-125  | 7.0x1.6x0.7    | ○ White | 0.8      | (0.28,0.26) | 86-96   | 2.7-3.4 | 120              |



UNIT : mm

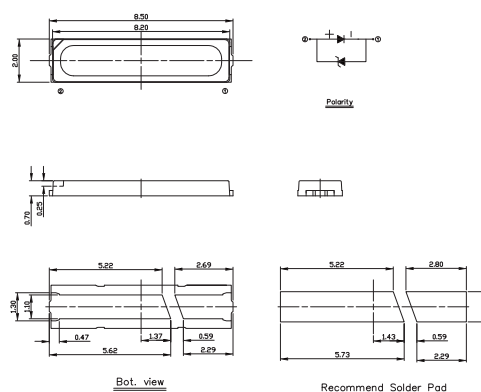


7020

| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 62-129P | 7.0x2.0x0.65   | ○ White | 0.93     | (0.28,0.26) | 106-116 | 5.8-6.4 | 120              |



UNIT : mm



8520

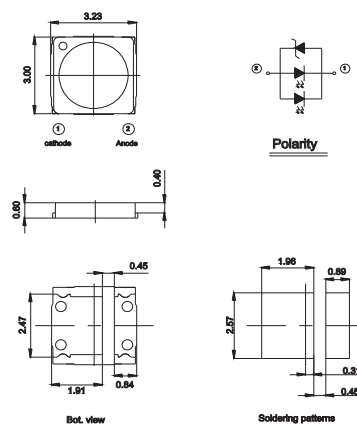
| Product | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)    | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|---------|----------|-------------|---------|---------|------------------|
| 62-112  | 8.5x2.0x0.7    | ○ White | 0.4      | (0.28,0.26) | 26-36   | 2.7-3.4 | 120              |

# Backlighting LED ITV/Monitor

Application/ TFT Direct

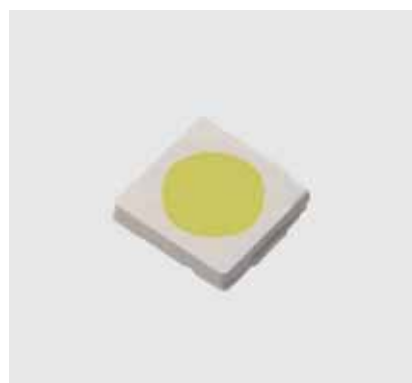


UNIT : mm

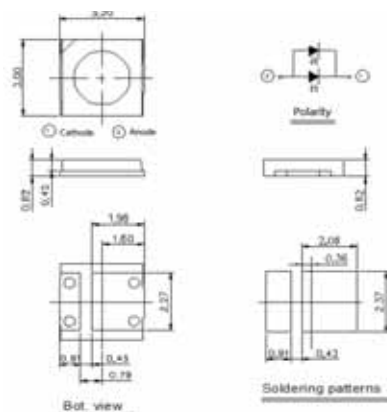


3030 Punch 2.5φ

| Product                       | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)        | Iv (lm) | VF (V)  | Viewing Angle(°) |
|-------------------------------|----------------|---------|----------|-----------------|---------|---------|------------------|
| 62-123PAUN3W/F120135VM68PBD-T | 3.0x3.0x0.8    | ○ White | 1.8      | (0.2735,0.2293) | 140-170 | 3.0-3.6 | 120              |



UNIT : mm



3030 punch 2.1φ

| Product   | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)        | Iv (lm) | VF (V) | Viewing Angle(°) |
|-----------|----------------|---------|----------|-----------------|---------|--------|------------------|
| 3030 2.1φ | 30x30x0.8      | ○ White | 1.8      | (0.2735,0.2293) | 135-165 | 3-3.6  | 120              |

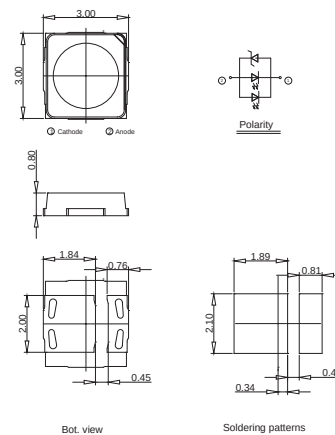


## Backlighting LED I TV/Monitor

Application/TFT Direct



UNIT : mm

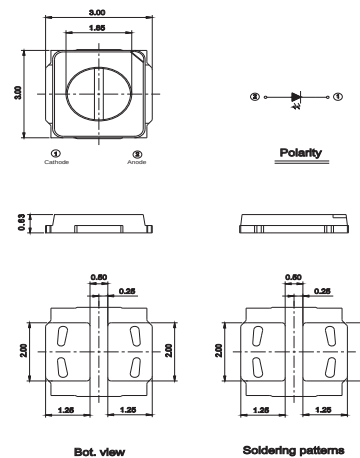


3030 Punch 2.3  $\phi$

| Product                     | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)        | Iv (lm) | VF (V) | Viewing Angle( $^{\circ}$ ) |
|-----------------------------|----------------|---------|----------|-----------------|---------|--------|-----------------------------|
| 62-223PUNC/F125150ZM35SBE-T | 3.0x3.0x0.8    | ○ White | 1.8      | (0.2735,0.2293) | 135-165 | 3-3.6  | 120                         |



UNIT : mm



3030FC Punch 1.8  $\phi$

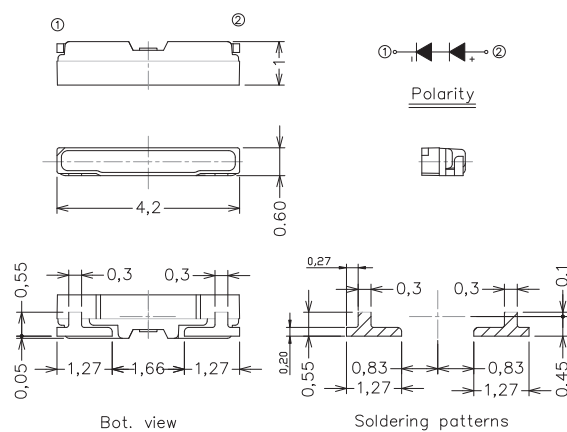
| Product                     | Size (LxWxHmm) | Color   | Power(W) | CIE(x,y)        | Iv (lm) | VF (V)  | Viewing Angle( $^{\circ}$ ) |
|-----------------------------|----------------|---------|----------|-----------------|---------|---------|-----------------------------|
| S3030FPBUD2C/F120145N37BF-T | 3.0x3.0x0.63   | ○ White | 1.65     | (0.2735,0.2293) | 120-160 | 3.0-3.6 | 120                         |

# Backlighting LED I Portable

## Application/ Side View



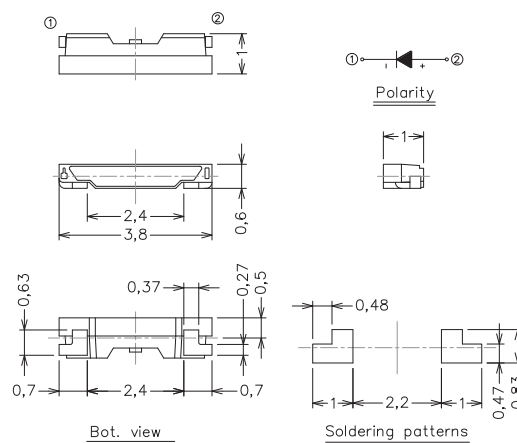
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|---------|---------|------------------|
| 99-826  | 4.2x1x0.6      | White | 0.12     | X=0.295,Y=0.28 | 14-17   | 5.4-6.8 | 120              |



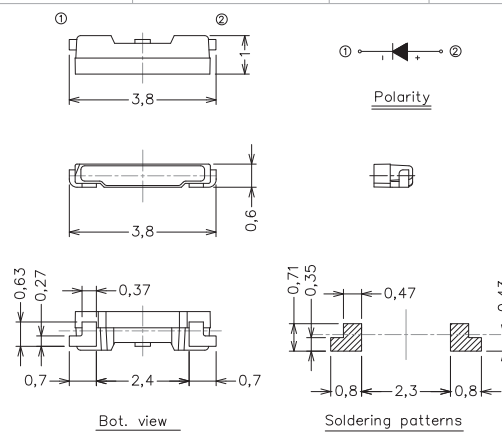
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)    | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|------------|---------|------------------|
| 99-616  | 3.8x1.0x0.6    | White | 0.06     | X=0.295,Y=0.28 | 6.0 0-8.00 | 2.7-3.4 | 120              |



UNIT : mm



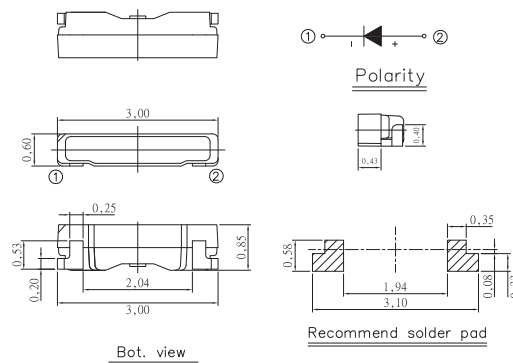
| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|-----------|---------|------------------|
| 99-616K | 3.8x1.0x0.6    | White | 0.06     | X=0.295,Y=0.28 | 7.00-9.00 | 2.7-3.4 | 120              |

# Backlighting LED | Portable

## Application/ Side View



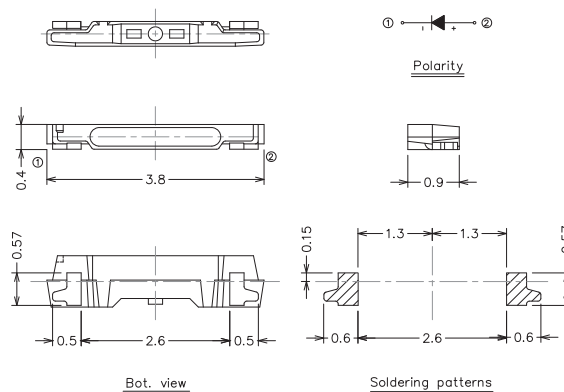
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|-----------|---------|------------------|
| 3006    | 3.0x0.85x0.6   | White | 0.06     | X=0.295,Y=0.28 | 6.75-9.00 | 2.7-3.4 | 120              |



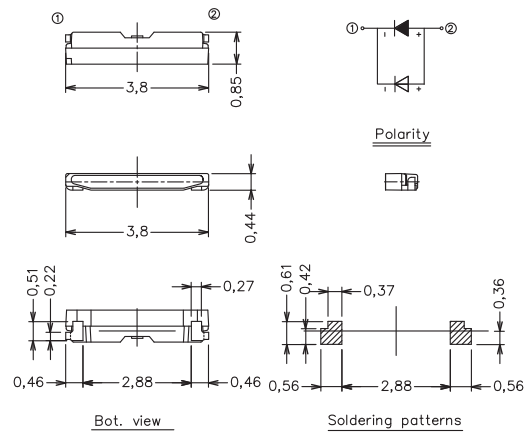
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|-----------|---------|------------------|
| 99-218G | 3.8x0.9x0.4    | White | 0.06     | X=0.295,Y=0.28 | 6.25-9.00 | 2.7-3.4 | 120              |



UNIT : mm



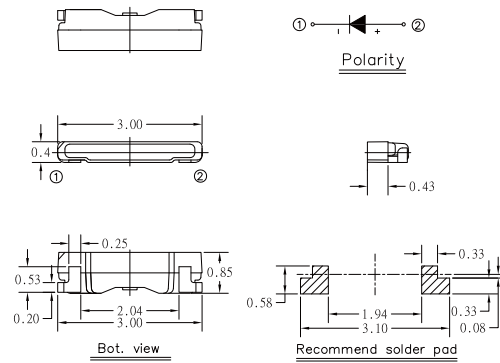
| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|-----------|---------|------------------|
| 99-228T | 3.8x0.85x0.4   | White | 0.06     | X=0.295,Y=0.28 | 6.25-9.00 | 2.7-3.2 | 120              |

# Backlighting LED | Portable

## Application/ Side View



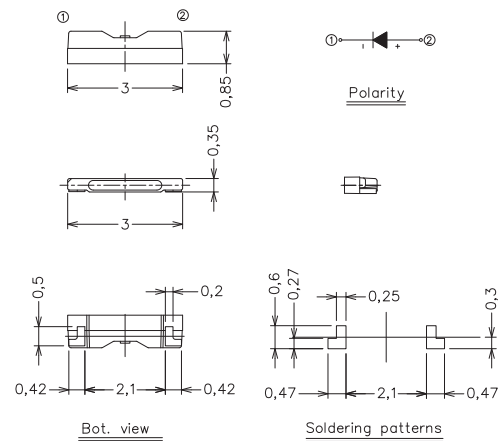
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|-----------|---------|------------------|
| 3004    | 3.0x0.85x0.4   | White | 0.06     | X=0.295,Y=0.28 | 6.25-8.50 | 2.7-3.4 | 115              |



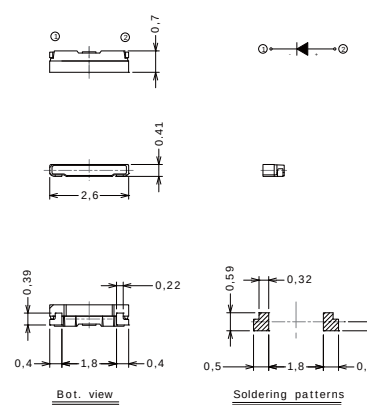
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)       | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------------|-----------|---------|------------------|
| 3003    | 3.0x0.85x0.3   | White | 0.06     | X=0.295,Y=0.28 | 5.25-7.75 | 2.7-3.4 | 115              |



UNIT : mm

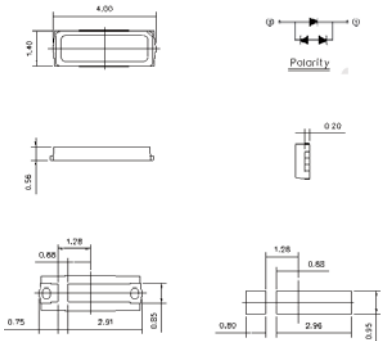


| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)        | Iv (lm)   | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|-----------------|-----------|---------|------------------|
| 2604    | 2.6x0.7x0.4    | White | 0.06     | X=0.295, Y=0.28 | 5.50-8.25 | 2.7-3.4 | 115              |

Backlighting LED | Automotive  
Application/ Automotive backlight



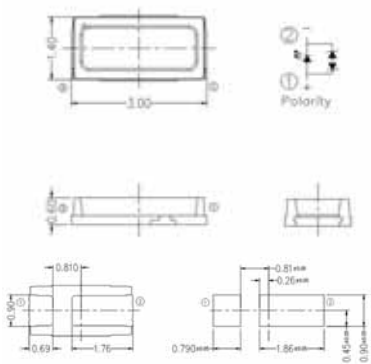
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)         | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|------------------|---------|---------|------------------|
| 50-615P | 4.0x1.4x0.56   | White | 0.36     | X=0.295, Y=0.272 | 22-56   | 2.8-3.3 | 120              |



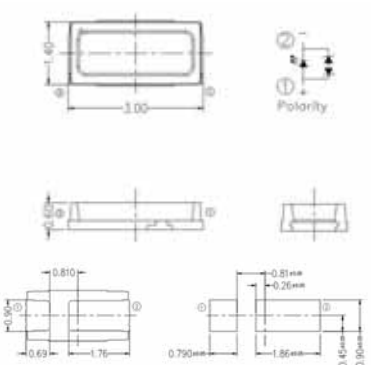
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y)         | Iv (lm) | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|------------------|---------|---------|------------------|
| 3014U   | 3.0x1.4x0.6    | White | 0.36     | X=0.295, Y=0.272 | 22-44   | 2.7-3.4 | 120              |



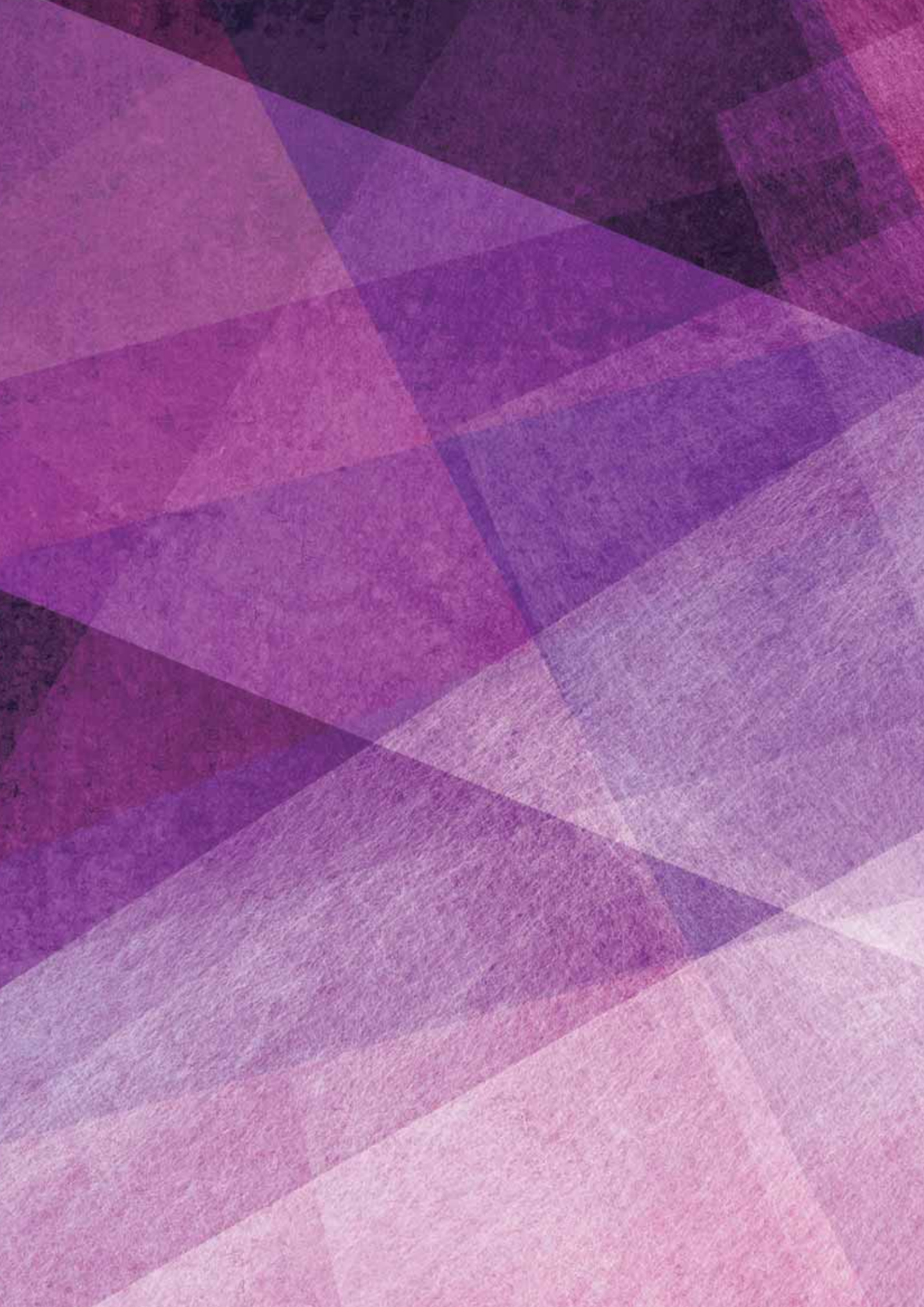
UNIT : mm



| Product | Size (LxWxHmm) | Color | Power(W) | CIE(x,y) | Iv (mW) | VF (V)  | Viewing Angle(°) |
|---------|----------------|-------|----------|----------|---------|---------|------------------|
| 3014U   | 3.0x1.4x0.6    | Blue  | 0.36     | -        | 120-180 | 2.7-3.4 | 120              |









# INFRARED LED, SENSORS, COUPLERS

**178** INFRARED LED AND SILICON DETECTOR

**214** INFRARED RECEIVER MODULE

**224** OPTIC-FIBER DEVICE ( PHOTO LINK )

**232** OPTICAL SENSOR

**248** PHOTO COUPLER

Technical drawing of a PCB component showing top, side, and detail views with dimensions and assembly instructions.

**Top View:**

- Overall dimensions:  $3.2 \pm 0.2$  (width) and  $1.5$  (height).
- Internal dimensions:  $2.0$  (width of the central pad) and  $0.6$  (width of the side pads).
- Radius:  $R0.4$  for the outer corners.
- Labels: ① Anode, ② Cathode, Cathode mark.

**Side View:**

- Dimensions:  $0.6$  (height of the central pad) and  $1.1 \pm 0.2$  (height of the side pads).

**Detail View:**

- Dimensions:  $2.0$  (width of the central pad) and  $1.5$  (height of the side pads).

**Assembly Instructions:**

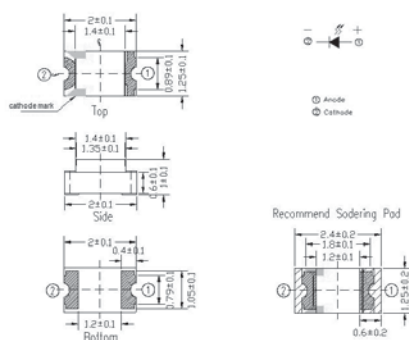
- For reflow soldering (propose)

178

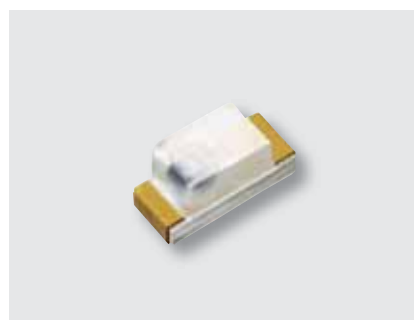
Infrared LED and Silicon Detector | Emitter | SMD



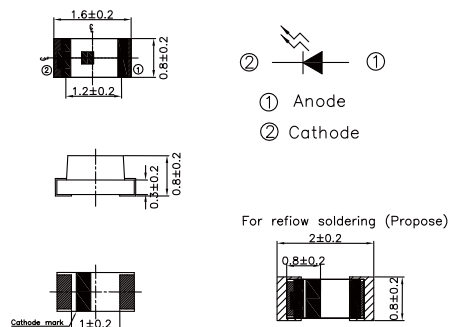
UNIT : mm



| Product            | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|--------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR17-21C/TR8       | 2x1.25x1.0     | 940              | 1.2           | 1.5           | 0.2                  | 0.8                  | 120               |
| HIR17-21C/TR8      | 2x1.25x1.0     | 850              | 1.45          | 1.65          | 0.5                  | 2                    | 120               |
| HIR17-21C/L289/TR8 | 2x1.25x1.0     | 850              | 1.4           | 1.7           | 1.6                  | 2.1                  | 120               |



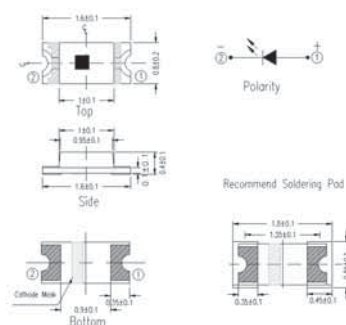
UNIT : mm



| Product            | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|--------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR19-21C/TR8       | 1.6x0.8x0.8    | 940              | 1.2           | 1.5           | 0.2                  | 0.7                  | 150               |
| SIR19-21C/TR8      | 1.6x0.8x0.8    | 875              | 1.3           | 1.6           | 0.2                  | 0.5                  | 145               |
| HIR19-21C/L11/TR8  | 1.6x0.8x0.8    | 850              | 1.45          | 1.65          | 0.2                  | 0.8                  | 145               |
| HIR19-21C/L289/TR8 | 1.6x0.8x0.8    | 850              | 1.4           | 1.7           | 1.0                  | 1.85                 | 145               |



UNIT : mm



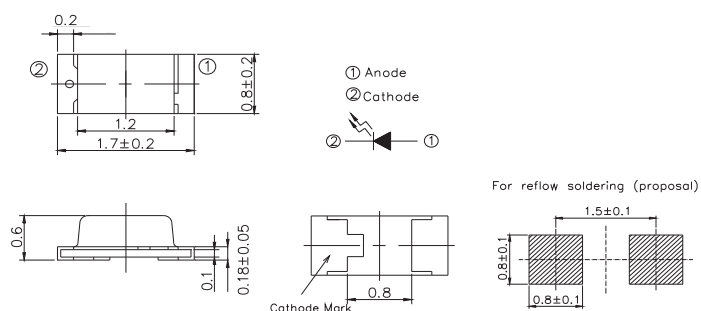
| Product       | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR19-217C/TR8 | 1.6x0.8x0.4    | 940              | 1.20          | 1.50          | 0.20                 | 0.80                 | 160               |



## Infrared LED and Silicon Detector | Emitter | SMD



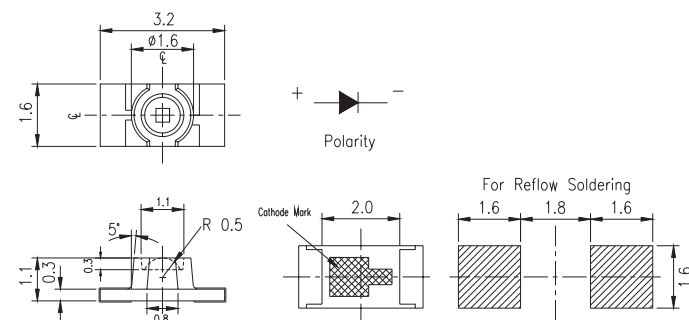
UNIT : mm



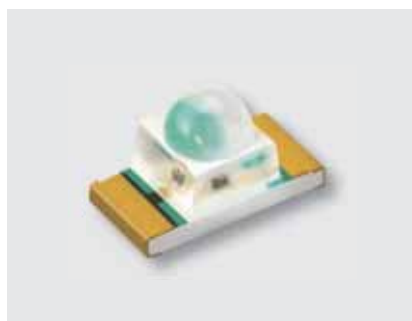
| Product             | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR19-315C/TR8       | 1.7x0.8x0.6    | 940              | 1.2           | 1.5           | 0.2                  | 0.6                  | 140               |
| HIR19-315C/L289/TR8 | 1.7x0.8x0.6    | 850              | 1.40          | 1.70          | 1.00                 | 1.80                 | 125               |
| SIR19-315C/TR8      | 1.7x0.8x0.6    | 870              | 1.35          | 1.70          | 1.00                 | 1.30                 | 140               |



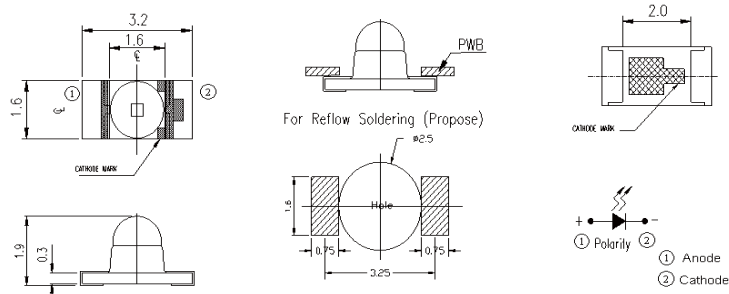
UNIT : mm



| Product            | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|--------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR25-21C/TR8       | 3.2x1.6x1.1    | 940              | 1.2           | 1.5           | 0.5                  | 1.5                  | 160               |
| HIR25-21C/L423/TR8 | 3.2x1.6x1.1    | 850              | 1.45          | 1.65          | 3.0                  | 5.5                  | 70                |
| HIR25-21C/L423/2T  | 3.2x1.6x1.1    | 850              | 1.6@50mA      | 2.0@50mA      | 3.0                  | 5.5                  | 70                |



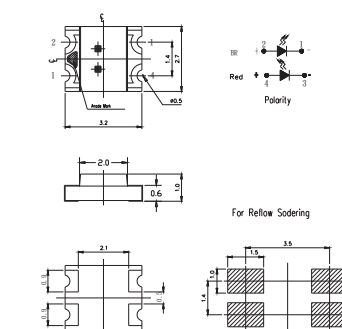
UNIT : mm



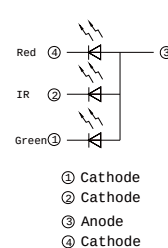
| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR26-21C/L110/TR8 | 3.2x1.6x1.9    | 940              | 1.2           | 1.5           | 1                    | 3.0                  | 20                |
| HIR26-21C/L423/CT | 3.2x1.6x1.9    | 855              | 1.45          | 1.7           | 14                   | 25                   | 20                |
| HIR26-21C/L289/CT | 3.2x1.6x1.9    | 850              | 1.4           | 1.7           | 10                   | 17                   | 20                |

## Infrared LED and Silicon Detector | Emitter | SMD

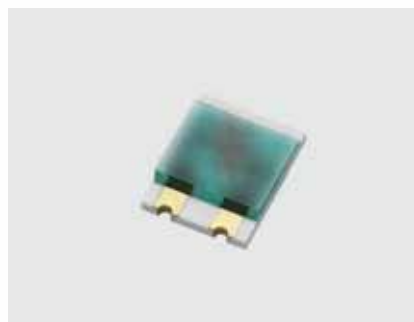
UNIT : mm



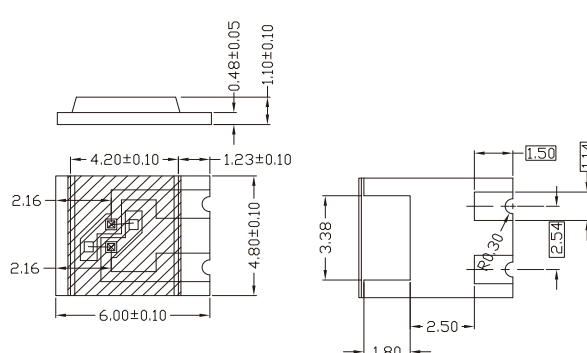
| Product             | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|---------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| BR15-22C/L586/TR8   | 3.2x2.7x1         | 660/905             | 1.9/1.3                   | 2.5/1.6                   | 0.5/0.2                        | 1.5/0.5                        | 120               |
| BR15-22C/L586/R/TR8 | 3.2x2.7x1         | 660/905             | 1.8/1.3                   | 2.6/1.8                   | 0.5/0.2                        | 1.5/0.5                        | 140               |
| IRR15-22C/L491/TR8  | 3.2x2.7x1         | 660/940             | 1.9/1.3                   | 2.5/1.7                   | 1.0/1.0                        | 2.3/2.1                        | 120               |



| Product             | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|---------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| IRRG25-16C/L491/TR8 | 2.5x1.6x0.55      | 525/660/940         | 3.0/1.9/1.3               | 3.5/2.3/1.7               | 1200mcd/150mcd/1.5             | -                              | 120               |



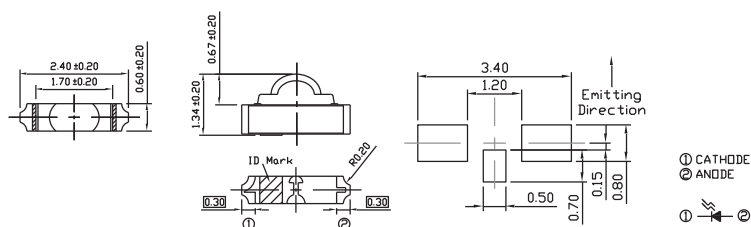
UNIT : mm



| Product            | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|--------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| IRR60-48C/TR8      | 6x4.8x1.1         | 660/905             | 2.1/1.4                   | 2.5/1.6                   | 1.0/0.5                        | 2.3/1.0                        | 140/130           |
| IRR60-48C/L661/TR8 | 6x4.8x1.1         | 660/910             | 2.1/1.4                   | 2.5/1.6                   | 1.0/1.0                        | 2.3/1.5                        | 140/130           |



UNIT : mm

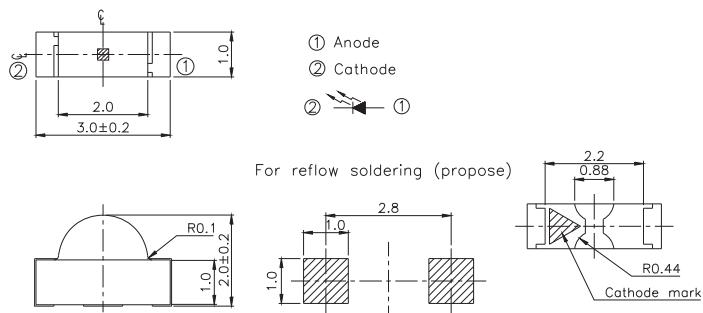


| Product            | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|--------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| IR12-206C/L268/TR8 | 2.4x0.6x1.34      | 940                 | 1.2                       | 1.4                       | 0.8                            | 1.5                            | 160(X) 120(Y)     |
| IR12-206C/L774/TR8 | 2.4x0.6x1.34      | 940                 | 1.20                      | 1.50                      | 0.80                           | 1.50                           | 155(X) 140(Y)     |

# Infrared LED and Silicon Detector | Emitter | SMD



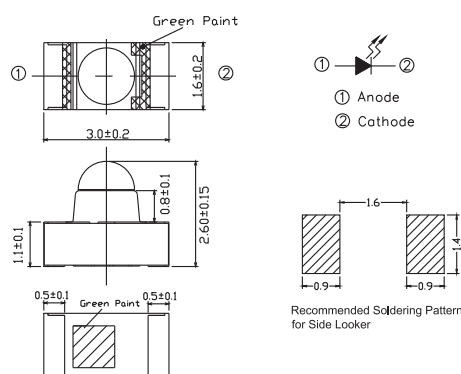
UNIT : mm



| Product       | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR12-21C/TR8  | 3x1x2          | 940              | 1.2           | 1.5           | 0.5                  | 0.8                  | 160               |
| SIR12-21C/TR8 | 3x1x2          | 875              | 1.3           | 1.6           | 0.5                  | 0.9                  | 160               |
| HIR12-21C/TR8 | 3x1x2          | 850              | 1.45          | 1.65          | 0.7                  | 1.3                  | 145               |



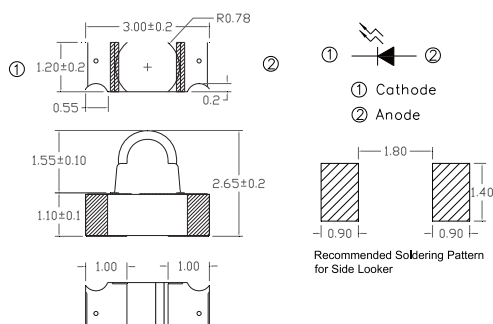
UNIT : mm



| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR26-51C/L110/TR8 | 3.0x1.6x2.6    | 940              | 1.2           | 1.5           | 2                    | 4.5                  | 20                |
| IR26-51C/L746/TR8 | 3.0x1.6x2.6    | 940              | 1.25          | 1.50          | 4.00                 | -                    | 20                |



UNIT : mm



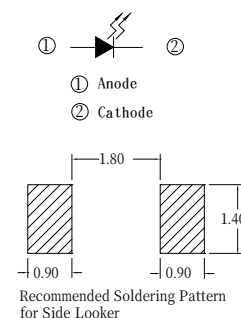
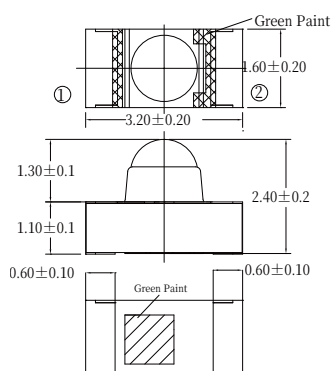
| Product             | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR26-61C/L746/TR8   | 3x1.2x2.65     | 940              | 1.25          | 1.5           | 4                    | 8                    | 20                |
| IR26-61C/L745/TR8   | 3x1.2x2.65     | 940              | 1.20          | 1.5           | 13                   | 20                   | 25                |
| IR26-61C/L675/TR8   | 3x1.2x2.65     | 940              | 1.2           | 1.5           | 4                    | 8                    | 40                |
| IR26-61C/L786/R/TR8 | 3x1.2x2.65     | 940              | 1.30          | 1.50          | 10                   | 20                   | 20                |



## Infrared LED and Silicon Detector | Emitter | SMD



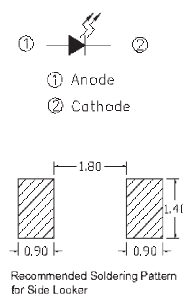
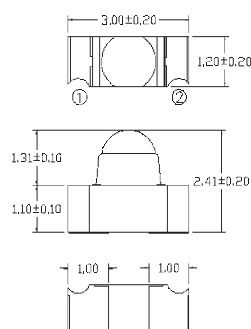
UNIT : mm



| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR26-71C/L746/TR8 | 3.2x1.6x2.4    | 940              | 1.25          | 1.5           | 2.0                  | 4.5                  | 45                |



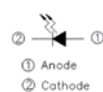
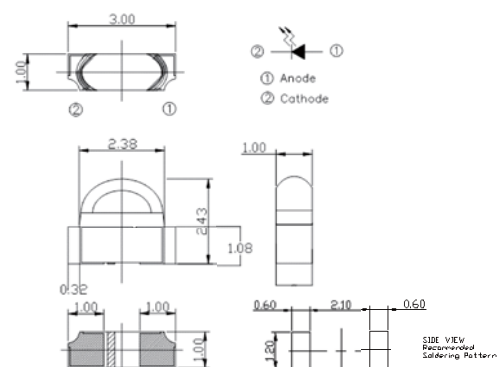
UNIT : mm



| Product               | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-----------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR26-71C/L447/S63/TR8 | 3.0x2.4x1.2    | 940              | 1.3           | 1.6           | 5                    | 8.5                  | 50                |



UNIT : mm

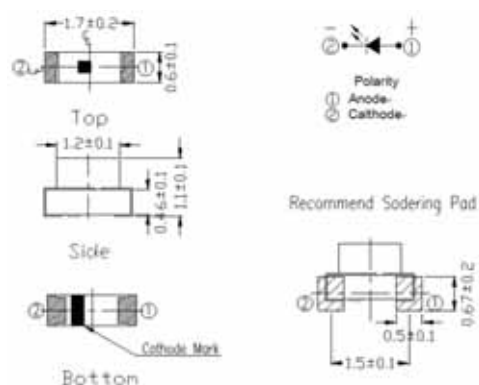


| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR26-91C/L510/2D | 3x2.43x1       | 940              | 1.3           | 1.6           | -                    | 8                    | 130(X)20(Y)       |
| IR26-91C/L675/2D | 3x2.43x1       | 940              | 1.2           | 1.6           | -                    | 3.5                  | 120(X)45(Y)       |
| IR26-91C/L710/2D | 3x2.43x1       | 940              | 1.2           | 1.6           | -                    | 4                    | 125(X)55(Y)       |

Infrared LED and Silicon Detector | Emitter | SMD



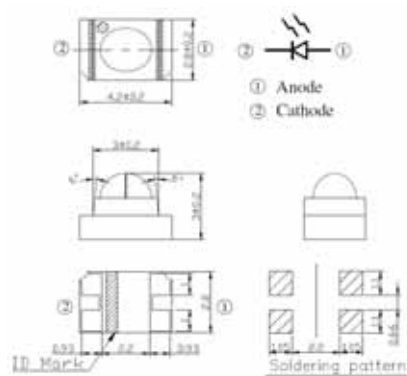
UNIT : mm



| Product      | Size (mm)   | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|--------------|-------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR27-21C/TR8 | 1.7x0.6x1.1 | 940              | 1.20          | 1.50          | 0.20                 | 0.80                 | 150               |



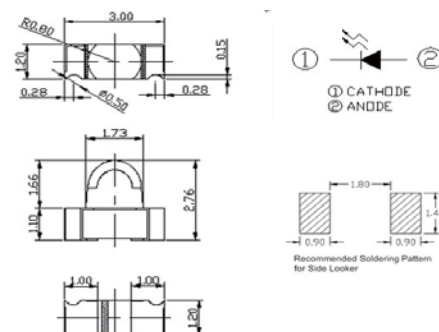
UNIT : mm



| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR28-01C/L491/2R | 4.2x2.8x3      | 940              | 1.3           | 1.6           | 7                    | 11                   | 75(X) 40(Y)       |
| IR28-01C/L698/2R | 4.2x2.8x3      | 940              | 1.3           | 1.6           | 4                    | 6                    | 80(X) 40(Y)       |
| IR28-01C/L710/2R | 4.2x2.8x3      | 940              | 1.2           | 1.6           | 7                    | 9.5                  | 70(X) 40(Y)       |



UNIT : mm



| Product             | Size (mm)  | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------------|------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR29-01C/L510/R/TR8 | 3x1.2x2.76 | 940              | 1.30          | 1.60          | 20.00                | 25.00                | 15                |

①

②

③

① Anode  
② Cathode

soldering pattern for side looker

| Product           | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|-------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| HIR83-01B/TR8     | 1.6x0.8x1.52      | 850                 | 1.4                       | 1.7                       | 2                              | 5                              | 100(X) 40(Y)      |
| IR83-01C/L491/TR8 | 1.6x0.8x1.52      | 940                 | 1.2                       | 1.5                       | 2                              | 4                              | 100(X) 40(Y)      |

[illegible]

| Product             | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | $V_F$ Typ<br>(V) | $V_F$ Max<br>(V) | $I_{e\_Min}$<br>(mW/sr) | $I_{e\_Typ}$<br>(mW/sr) | Viewing Angle (°) |
|---------------------|-------------------|---------------------|------------------|------------------|-------------------------|-------------------------|-------------------|
| IR57-21C/TR8        | 4x3.95x3.55       | 940                 | 1.3              | 1.7              | 1                       | 1.5                     | 120               |
| IR57-21C/L491/R/TR8 | 4x3.95x3.55       | 940                 | 1.40             | 1.80             | 1.00                    | 3.00                    | 120               |

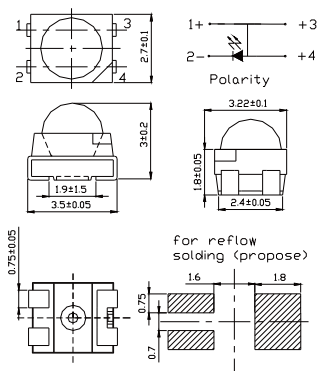


| Product            | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|--------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| HIR67-21C/L11/TR8  | 3.5x2.7x1.9       | 850                 | 1.45                      | 1.65                      | 1                              | 2                              | 120               |
| IR67-21C/TR8       | 3.5x2.7x1.9       | 940                 | 1.2                       | 1.5                       | 1                              | 1.5                            | 120               |
| SIR67-21C/TR8      | 3.5x2.7x1.9       | 875                 | 1.3                       | 1.6                       | 0.5                            | 1.1                            | 120               |
| HIR67-21C/L289/TR8 | 3.5x2.7x1.9       | 850                 | 1.4                       | 1.7                       | 2                              | 3                              | 120               |

## Infrared LED and Silicon Detector | Emitter | SMD



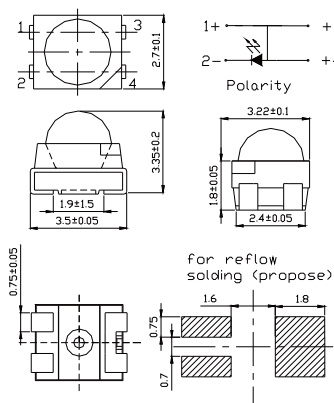
UNIT : mm



| Product             | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR67-31AC/L638/TR8 | 3.5x2.7x3      | 850              | 2.85          | 3.3           | 8                    | 15                   | 60                |



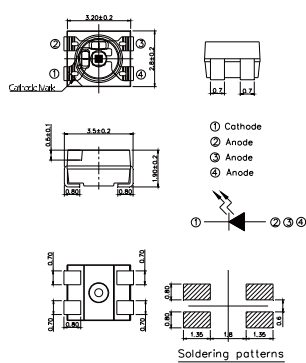
UNIT : mm



| Product             | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR67-31JC/L638/TR8 | 3.5x2.7x3.35   | 850              | 2.85          | 3.3           | 13                   | 20                   | 35                |



UNIT : mm



| Product           | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR67-41C/L491/TR8 | 3.5x2.7x1.9    | 940              | 1.30          | 1.60          | 1.10                 | 1.30                 | 20                |



Figure 1: Dimensions of LED package. The figure includes several technical drawings of the LED package. Top left: Top view showing a circular die with a central hole, dimensions 3.10 ± 0.20, 1.20, 1.13, and 2.25 ± 0.10. Top right: Side view showing a rectangular package with dimensions 1.60 ± 0.20, 0.30 ± 0.15, 0.60 ± 0.15, 0.85 ± 0.15, and 1.40 ± 0.15. Bottom left: Front view showing a rectangular package with dimensions 0.85 ± 0.15, 1.10 ± 0.15, and 1.40 ± 0.15. Bottom right: Soldering pattern for top linker showing dimensions 4.00, 1.30, 2.40, and 1.35. A legend indicates 'Cu pad for heat dissipation' and 'solder resist'.

| Product          | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| HIR89-01C/1R     | 3.1x2.25x1.6      | 850                 | 1.4                       | 1.7                       | 40@70mA                        | 125(Max)                       | 30                |
| IR89-01C/L447/1R | 3.1x2.25x1.6      | 940                 | 1.75@100mA                | 2.2@100mA                 | 40@70mA                        | 60                             | 30                |



Figure 1: Dimensions of the LED package. The figure includes a top view, a side view, and a cross-sectional view. The top view shows a square package with a central circular LED chip. Dimensions include a total width of  $2.20 \pm 0.10$  mm, a chip diameter of 0.90 mm, a chip thickness of 0.975 mm, and a package height of  $1.95 \pm 0.20$  mm. The side view shows a package height of  $0.90 \pm 0.10$  mm. The cross-sectional view shows a package width of 2.63 mm, a chip width of 1.23 mm, and a chip height of 0.70 mm. A legend indicates that ① is the Cathode and ② is the Anode.

| Product           | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing<br>Angle (°) |
|-------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|----------------------|
| HIR91-01C/L297/2T | 2.2x1.95x0.9      | 850                 | 1.4                       | 1.7                       | 25@70mA                        | 40@70mA                        | 40                   |
| IR91-01C/L491/2R  | 2.2x1.95x0.9      | 940                 | 1.4                       | 1.7                       | 25@70mA                        | 50@70mA                        | 40                   |

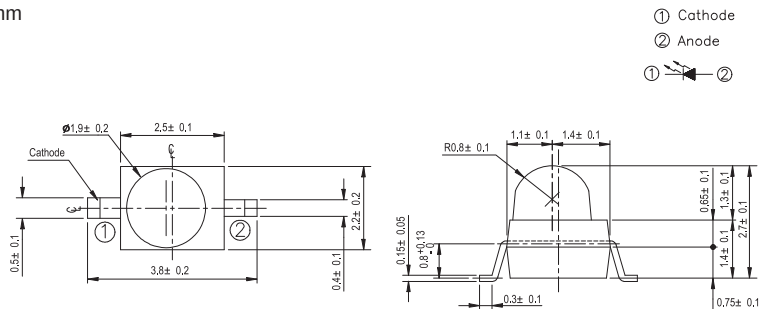


| Product          | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing<br>Angle (°) |
|------------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|----------------------|
| IR92-01C/L491/2R | 2.0x1.4x0.7       | 940                 | 1.30                      | 1.70                      | -                              | 8.00                           | 45                   |
| IR92-01C/L735/2R | 2.0x1.4x0.7       | 940                 | 1.40                      | 1.80                      | 7.00                           | 10.00                          | 25                   |

## Infrared LED and Silicon Detector | Emitter | SMD



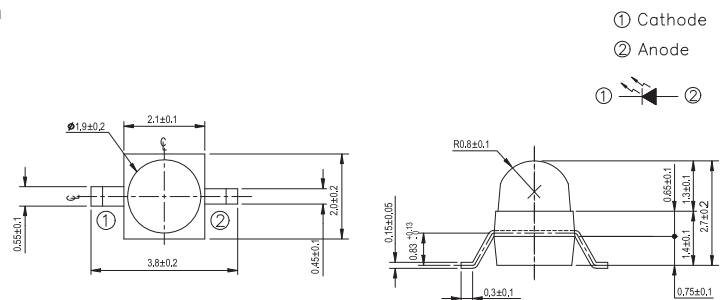
UNIT : mm



| Product       | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR91-21C      | 2.5x2.2x2.7    | 940              | 1.2           | 1.5           | 3                    | 5                    | 25                |
| IR91-21C/TR7  | 2.5x2.2x2.7    | 940              | 1.2           | 1.5           | 3                    | 5                    | 25                |
| IR91-21C/TR10 | 2.5x2.2x2.7    | 940              | 1.2           | 1.5           | 3                    | 5                    | 25                |
| SIR91-21C/TR7 | 2.5x2.2x2.7    | 875              | 1.3           | 1.6           | 3                    | 5                    | 20                |

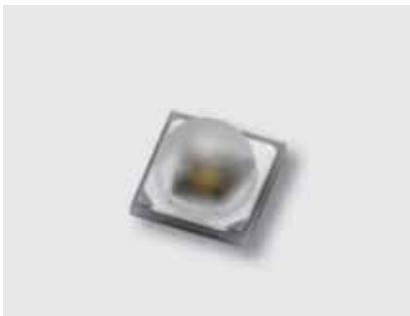


UNIT : mm

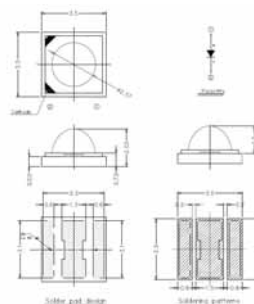


| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-------------------|----------------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR95-21C/TR7      | 2.1x2x2.7      | 940              | 1.2           | 1.5           | 3                    | 5                    | 25                |
| SIR95-21C/TR10    | 2.1x2x2.7      | 875              | 1.3           | 1.6           | 2                    | 4                    | 25                |
| IR95-21C/L491/TR7 | 2.1x2x2.7      | 940              | 1.20          | 1.50          | 20.00                | 30.00                | 20                |

## Infrared LED and Silicon Detector | Emitter | High Power



UNIT : mm



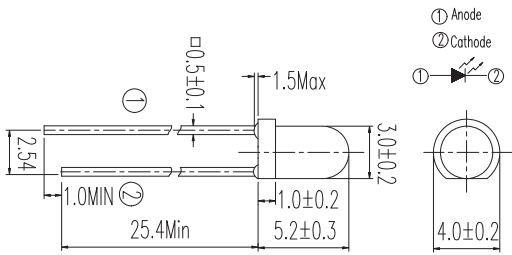
| Product                    | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_F$ Typ (V)<br>( $I_f = 350mA$ ) | $I_{e\_Typ}$ (mW/sr)<br>( $I_f = 350mA$ ) | Power_Typ (mW)<br>( $I_f = 350mA$ ) | Viewing Angle (°) |
|----------------------------|----------------|------------------|------------------------------------|-------------------------------------------|-------------------------------------|-------------------|
| HIR-C19D-1090/L708-P01/TR  | 3.5x3.5x2.36   | 850              | 1.7                                | 110                                       | 270                                 | 90                |
| IR-C19-N/L482-P01/TR       | 3.5x3.5x2.36   | 940              | 1.6                                | 75                                        | 235                                 | 105               |
| HIR-C19D-1N90/L649-P03/TR  | 3.5x3.5x2.36   | 850              | 3                                  | 200                                       | 500                                 | 90                |
| IR-C19D-N90/L562-P03/TR    | 3.5x3.5x2.36   | 940              | 3.1                                | 170                                       | 370                                 | 90                |
| HIR-C19D-1N150/L649-P03/TR | 3.5x3.5x1.52   | 850              | 3                                  | 100                                       | 400                                 | 150               |

Infrared LED and Silicon Detector | Emitter | Lamp 3mm

Infrared LED and Silicon Detector



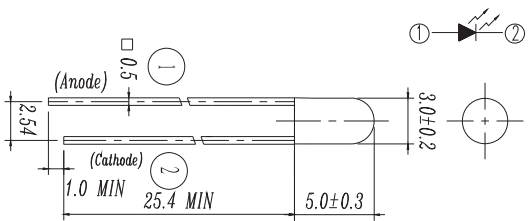
UNIT : mm



| Product        | Size (mm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|----------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR204         | 3         | 850              | 1.45          | 1.65          | 7.8                  | 17.6                 | 25                |
| HIR204/H0      | 3         | 850              | 1.45          | 1.65          | 4                    | 8.9                  | 40                |
| HIR204C        | 3         | 850              | 1.45          | 1.65          | 7.8                  | 17.6                 | 25                |
| HIR204C/H0     | 3         | 850              | 1.45          | 1.65          | 11                   | 20                   | 40                |
| IR204-A        | 3         | 940              | 1.2           | 1.5           | 4                    | 5.6                  | 35                |
| IR204/H16/L10  | 3         | 940              | 1.2           | 1.5           | 4                    | 8                    | 50                |
| IR204/H60      | 3         | 940              | 1.2           | 1.5           | 4                    | 7                    | 50                |
| IR204C-A       | 3         | 940              | 1.2           | 1.5           | 4                    | 7.8                  | 40                |
| IR204C/H16/L10 | 3         | 940              | 1.2           | 1.5           | 2.8                  | 5                    | 50                |
| SIR204-A       | 3         | 875              | 1.3           | 1.6           | 4                    | 6.4                  | 30                |
| SIR204C        | 3         | 875              | 1.3           | 1.6           | 4                    | 6.4                  | 30                |



UNIT : mm



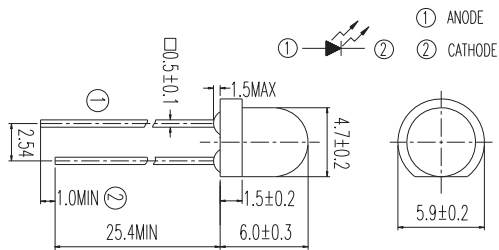
| Product | Size (mm) | $\lambda_p$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| SIR234  | 3         | 875              | 1.3           | 1.6           | 5.6                  | 9.3                  | 30                |
| HIR234C | 3         | 850              | 1.45          | 1.65          | 7.8                  | 15                   | 30                |



Infrared LED and Silicon Detector | Emitter | Lamp 5mm



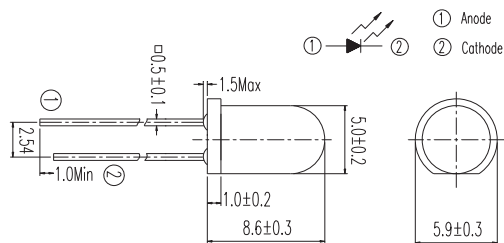
UNIT : mm



| Product    | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR323C    | 5         | 850              | 1.45          | 1.65          | 15                   | 30                   | 15                |
| HIR323C/H0 | 5         | 850              | 1.45          | 1.65          | 7.8                  | 11                   | 30                |
| IR323      | 5         | 940              | 1.2           | 1.5           | 5.6                  | 7.8                  | 30                |
| IR323/H0-A | 5         | 940              | 1.2           | 1.5           | 2                    | 3.5                  | 60                |



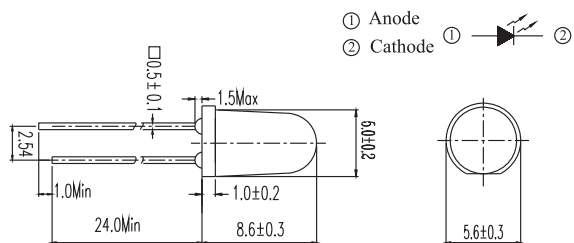
UNIT : mm



| Product          | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|------------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR333/H0        | 5         | 850              | 1.45          | 1.65          | 7.8                  | 15                   | 30                |
| HIR333C/H0       | 5         | 850              | 1.45          | 1.65          | 7.8                  | 15                   | 30                |
| IR333-A          | 5         | 940              | 1.2           | 1.5           | 7.8                  | 20                   | 20                |
| IR333/H0         | 5         | 940              | 1.2           | 1.5           | 5.6                  | 7.8                  | 40                |
| IR333/H0/L10     | 5         | 940              | 1.2           | 1.5           | 11                   | 20                   | 40                |
| IR333C           | 5         | 940              | 1.2           | 1.5           | 7.8                  | 15                   | 20                |
| IR333C/H0/L10    | 5         | 940              | 1.2           | 1.5           | 7.8                  | 10                   | 40                |
| IR333C/H2        | 5         | 940              | 1.2           | 1.5           | 7.8                  | 15                   | 30                |
| SIR333-A         | 5         | 875              | 1.3           | 1.65          | 7.8                  | 20                   | 20                |
| HIR7353-14B/L762 | 5         | 850              | 1.40          | -             | -                    | 75.00                | 15                |

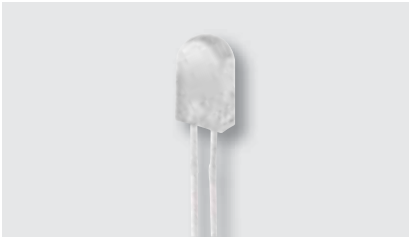


UNIT : mm

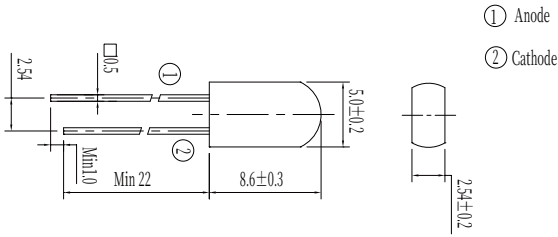


| Product      | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|--------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR383        | 5         | 940              | 1.2           | 1.5           | 15                   | 20                   | 20                |
| SIR383C      | 5         | 875              | 1.3           | 1.6           | 11                   | 20                   | 20                |
| HIR383C/L289 | 5         | 850              | 1.45          | 1.65          | --                   | 140                  | 18                |

Infrared LED and Silicon Detector | Emitter | Lamp 5mm



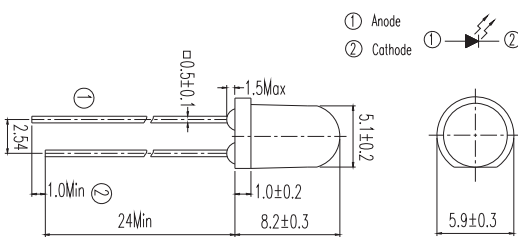
UNIT : mm



| Product | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR533C  | 5         | 940              | 1.2           | 1.5           | 4                    | 7.8                  | 25                |



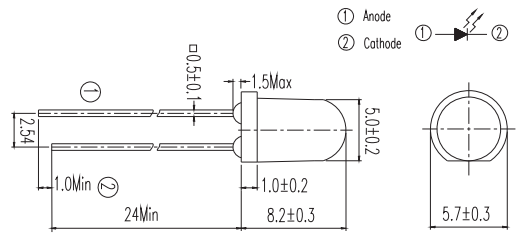
UNIT : mm



| Product       | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR7373B/L289 | 5         | 850              | 1.45          | 1.6           | 21                   | 40                   | 25                |
| HIR7373C      | 5         | 850              | 1.45          | 1.65          | 7.8                  | 15                   | 40                |
| IR7373C       | 5         | 940              | 1.2           | 1.5           | 5.6                  | 12                   | 45                |



UNIT : mm

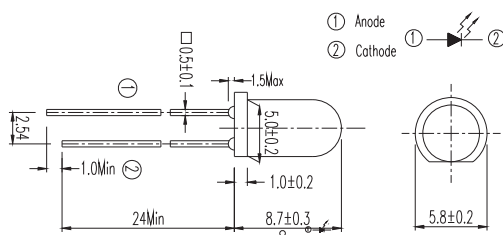


| Product       | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{e\_Min}$ (mW/sr) | $I_{e\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR7393B/L289 | 5         | 850              | 1.45          | 1.6           | 7.8                  | 20                   | 50                |
| HIR7393C      | 5         | 850              | 1.45          | 1.65          | 7.8                  | 15                   | 45                |
| IR7393C       | 5         | 940              | 1.2           | 1.5           | 4                    | 6.5                  | 55                |

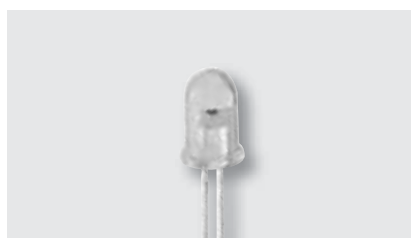
Infrared LED and Silicon Detector | Emitter | Lamp 5mm



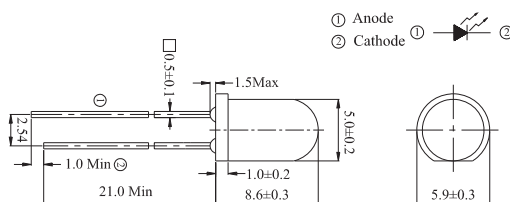
UNIT : mm



| Product     | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|-------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR8323/C16 | 5         | 850              | 1.45          | 1.65          | 20                   | 30                   | 30                |



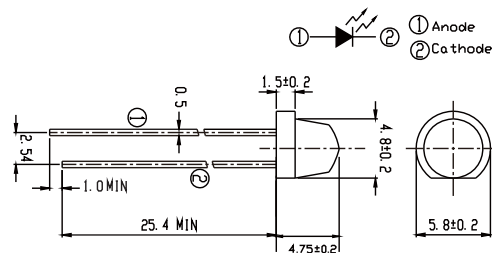
UNIT : mm



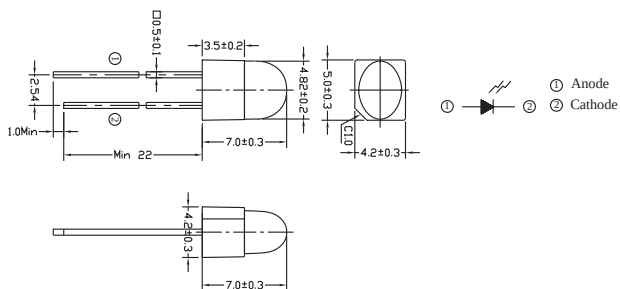
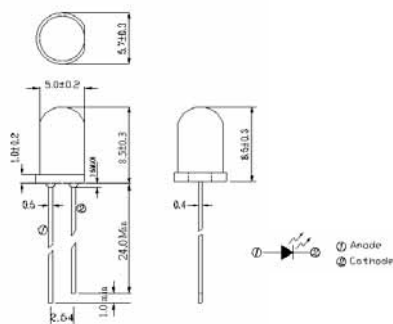
| Product    | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| IR8353-14C | 5         | 940              | 1.2           | 1.5           | 7.8                  | 11                   | 27~43             |



UNIT : mm



| Product       | Size (mm) | $\lambda_P$ (nm) | $V_F$ Typ (V) | $V_F$ Max (V) | $I_{E\_Min}$ (mW/sr) | $I_{E\_Typ}$ (mW/sr) | Viewing Angle (°) |
|---------------|-----------|------------------|---------------|---------------|----------------------|----------------------|-------------------|
| HIR7323C/L599 | 5         | 850              | 1.4@50mA      | 1.7@50mA      | 10@50mA              | 13@50mA              | 75                |

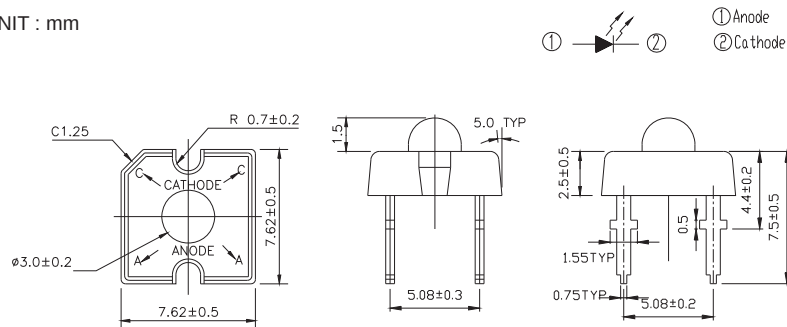


| Product         | Size (mm) | $\lambda_P$ (nm) | V <sub>F</sub> Typ (V) | V <sub>F</sub> Max (V) | I <sub>e_Min</sub> (mW/sr) | I <sub>e_Typ</sub> (mW/sr) | Viewing Angle (°) |
|-----------------|-----------|------------------|------------------------|------------------------|----------------------------|----------------------------|-------------------|
| IR5443-14C/L527 | 5         | 940              | 1.2                    | 1.5                    | 4                          | 9                          | 60(X)30(Y)        |

## Infrared LED and Silicon Detector ■ Emitter ■ Piranha



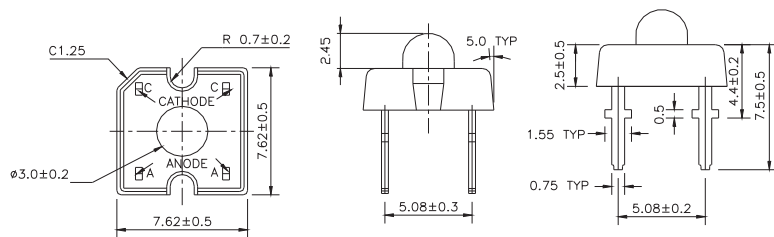
UNIT : mm



| Product       | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | $V_F$ Typ<br>(V) | $V_F$ Max<br>(V) | $I_{e\_Min}$<br>(mW/sr) | $I_{e\_Typ}$<br>(mW/sr) | Viewing Angle (°) |
|---------------|-------------------|---------------------|------------------|------------------|-------------------------|-------------------------|-------------------|
| HIR30-01C/S16 | 7.62x7.62x4       | 850                 | 1.45             | 1.65             | 5.6                     | 10                      | 35                |



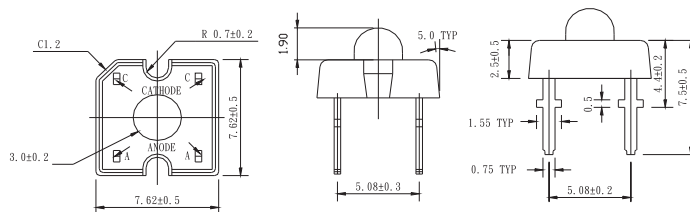
UNIT : mm



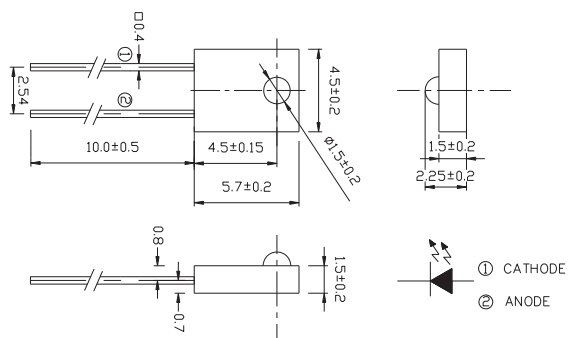
| Product       | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|---------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| HIR36-01C/S32 | 7.62x7.62x5       | 850                 | 1.45                      | 1.65                      | 15                             | 29                             | 20                |



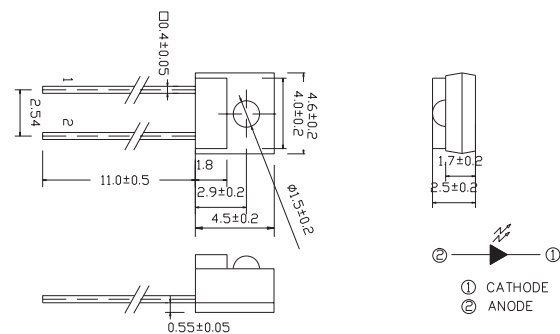
UNIT : mm



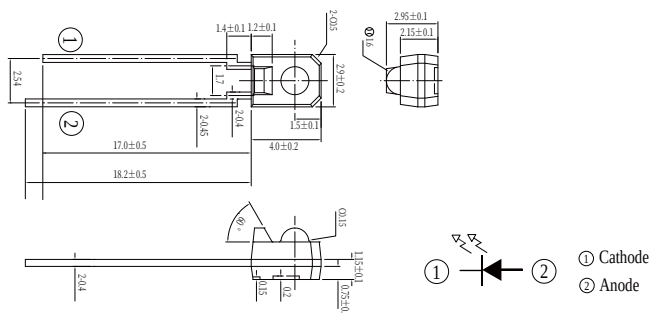
| Product   | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|-----------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| HIR38-01C | 7.62x7.62x4.4     | 850                 | 1.45                      | 1.65                      | 7.8                            | 17                             | 30                |



| Product    | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| IR908-7C-F | 4.5x2.25x5.7      | 940                 | 1.2                       | 1.5                       | --                             | --                             | 40                |



| Product    | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e</sub> _Min<br>(mW/sr) | I <sub>e</sub> _Typ<br>(mW/sr) | Viewing Angle (°) |
|------------|-------------------|---------------------|---------------------------|---------------------------|--------------------------------|--------------------------------|-------------------|
| IR928-6C-F | 4.6x2.5x4.5       | 940                 | 1.2                       | 1.5                       | --                             | --                             | 20                |

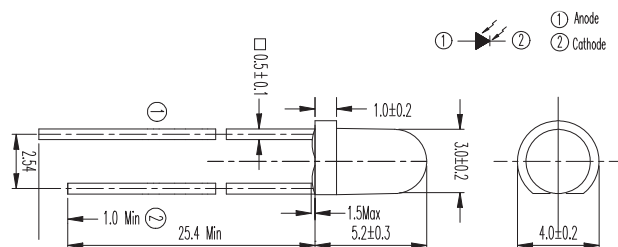


| Product  | Size<br>(LxWxHmm) | $\lambda_P$<br>(nm) | V <sub>F</sub> Typ<br>(V) | V <sub>F</sub> Max<br>(V) | I <sub>e_Min</sub><br>(mW/sr) | I <sub>e_Typ</sub><br>(mW/sr) | Viewing Angle (°) |
|----------|-------------------|---------------------|---------------------------|---------------------------|-------------------------------|-------------------------------|-------------------|
| IR968-8C | 2.9x2.9x4         | 940                 | 1.2                       | 1.5                       | --                            | --                            | 25                |

Infrared LED and Silicon Detector | Photo Diode | DIP



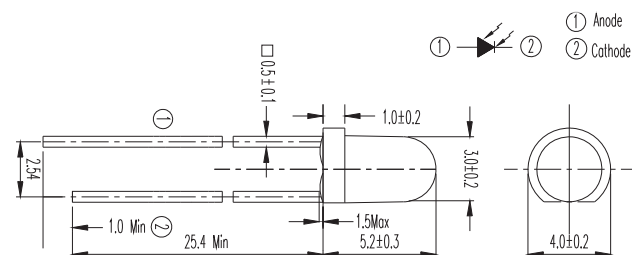
UNIT : mm



| Product     | Size (mm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min (V) | ID_Max (nA) |
|-------------|-----------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD204-6C/L3 | 3         | 940              | --                    | 10                    | 32          | 10          |



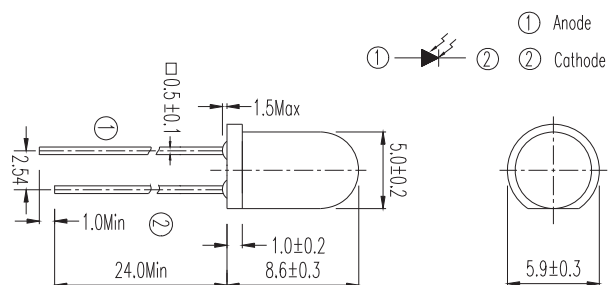
UNIT : mm



| Product  | Size (mm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min (V) | ID_Max (nA) |
|----------|-----------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD204-6B | 3         | 940              | 1                     | 3                     | 32          | 10          |



UNIT : mm

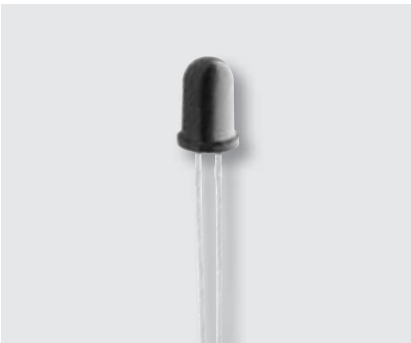


| Product        | Size (mm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min (V) | ID_Max (nA) |
|----------------|-----------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD333-3C/H0/L2 | 5         | 940              | 36                    | 40                    | 32          | 30          |
| PD333-3C/L793  | 5         | 940              | 20.00                 | 35.00                 | 30.00       | 10          |

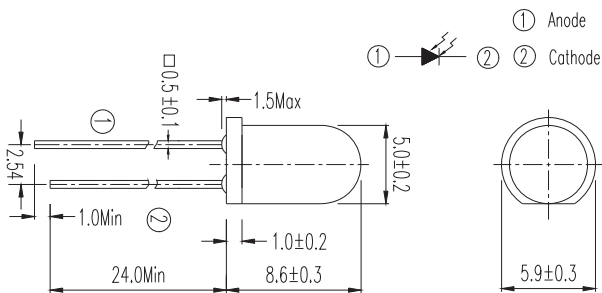


Infrared LED and Silicon Detector | Photo Diode | DIP

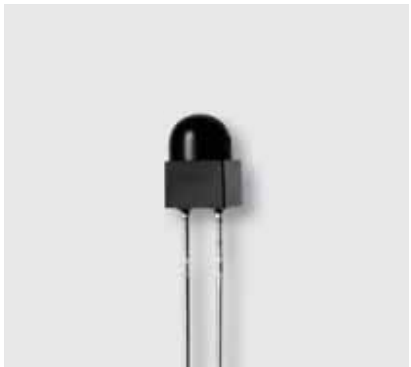
Infrared LED and Silicon Detector



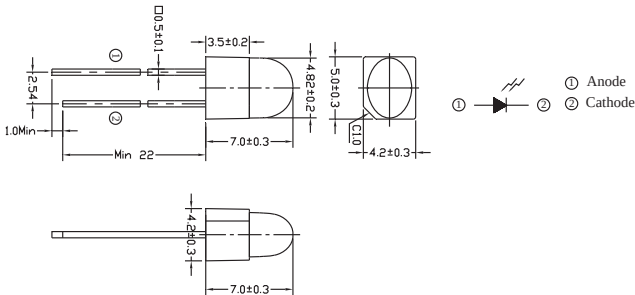
UNIT : mm



| Product        | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ _Min ( $\mu A$ ) | $I_L$ _Typ ( $\mu A$ ) | BVR_Min (V) | ID_Max (nA) |
|----------------|----------------|------------------|------------------------|------------------------|-------------|-------------|
| PD333-3B/H0/L2 | 5              | 940              | 25                     | 35                     | 32          | 30          |



UNIT : mm

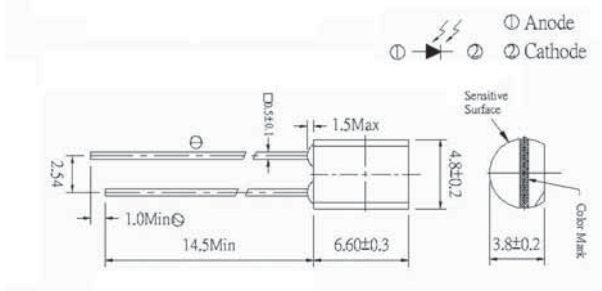


| Product      | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ _Min ( $\mu A$ ) | $I_L$ _Typ ( $\mu A$ ) | BVR_Min (V) | ID_Max (nA) |
|--------------|----------------|------------------|------------------------|------------------------|-------------|-------------|
| PD5443-3B/L2 | 5              | 940              | 25                     | 39                     | 32          | 30          |

Infrared LED and Silicon Detector | Photo Diode | Side Look



UNIT : mm

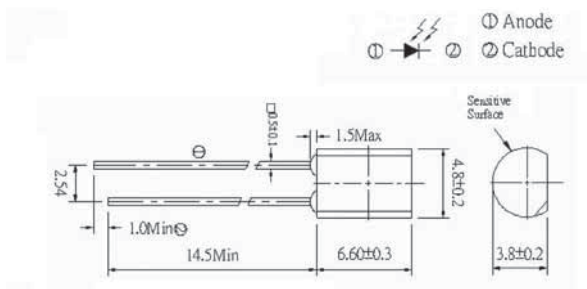


| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | Rise / Fall Time (ns) | BVR_Min.(V) | ID_Max (nA) |
|------------|----------------|------------------|-----------------------|-----------------------|-----------------------|-------------|-------------|
| PD438C     | 4.8x3.8x6.6    | 940              | 10.2                  | 18                    | 50 / 50               | 32          | 30          |
| PD438C/S46 | 4.8x3.8x6.6    | 940              | 10.2                  | 18                    | 50 / 50               | 32          | 30          |

## Infrared LED and Silicon Detector ■ Photo Diode ■ Side Look



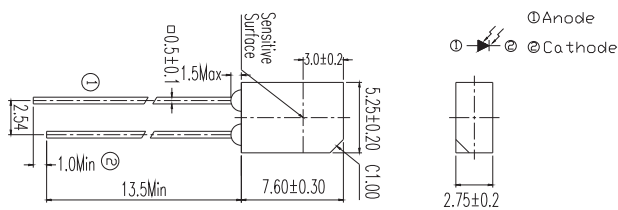
UNIT : mm



| Product    | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | I <sub>L</sub> Min (μA) | I <sub>L</sub> Typ (μA) | Rise / Fall<br>Time (ns) | BVR_Min.(V) | ID_Max (nA) |
|------------|-------------------|------------------|-------------------------|-------------------------|--------------------------|-------------|-------------|
| PD438B     | 4.8x3.8x6.6       | 940              | 10.2                    | 18                      | 50 / 50                  | 32          | 30          |
| PD438B/L1  | 4.8x3.8x6.6       | 940              | 2.6                     | 4                       | 10 / 10                  | 32          | 10          |
| PD438B/S46 | 4.8x3.8x6.6       | 940              | 10.2                    | 18                      | 50 / 50                  | 32          | 30          |



UNIT : mm

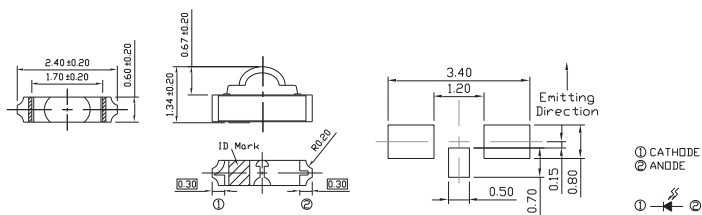


| Product | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | I <sub>L</sub> Min (μA) | I <sub>L</sub> Typ (μA) | Rise / Fall<br>Time (ns) | BVR_Min.(V) | ID_Max (nA) |
|---------|-------------------|------------------|-------------------------|-------------------------|--------------------------|-------------|-------------|
| PD638B  | 5.2x2.75x7.6      | 940              | 10.2                    | 18                      | 50 / 50                  | 32          | 30          |

## Infrared LED and Silicon Detector ■ Photo Diode ■ SMD



UNIT : mm

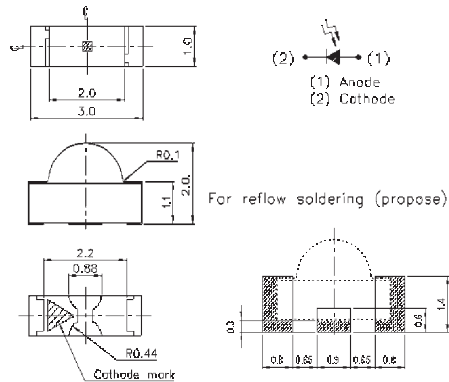


| Product            | Size<br>(LxWxHmm) | $\lambda_P$ (nm) | I <sub>L</sub> Min (μA) | I <sub>L</sub> Typ (μA) | BVR_Min.(V) | ID_Max (nA) |
|--------------------|-------------------|------------------|-------------------------|-------------------------|-------------|-------------|
| PD12-206B/L512/TR8 | 2.4x0.6x1.34      | 875              | --                      | 0.7                     | 33          | 10          |

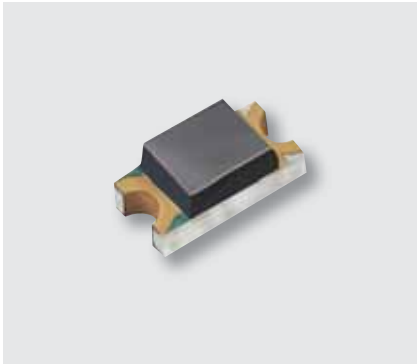
Infrared LED and Silicon Detector | Photo Diode | SMD



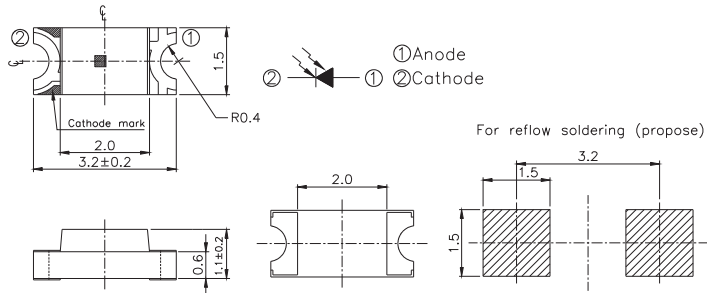
UNIT : mm



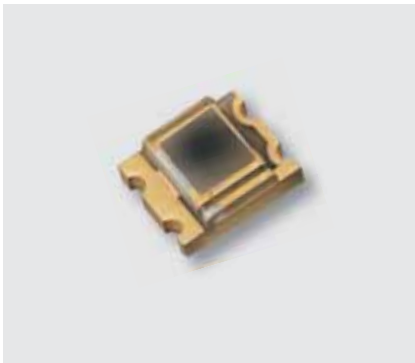
| Product           | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|-------------------|-------------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD12-21B/L458/TR8 | 3x1x2             | 940              | 1.3                   | 1.5                   | 33          | 10          |



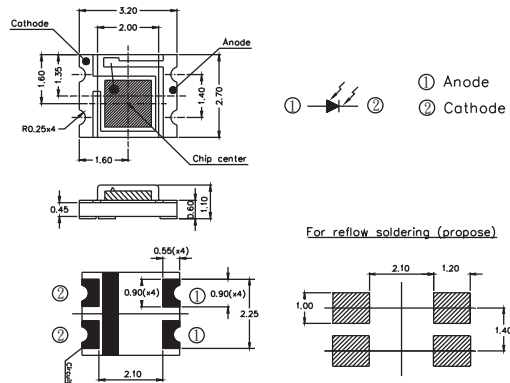
UNIT : mm



| Product      | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|--------------|-------------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD15-21B/TR8 | 3.2x1.5x1.1       | 940              | 0.2                   | 0.8                   | 32          | 10          |



UNIT : mm

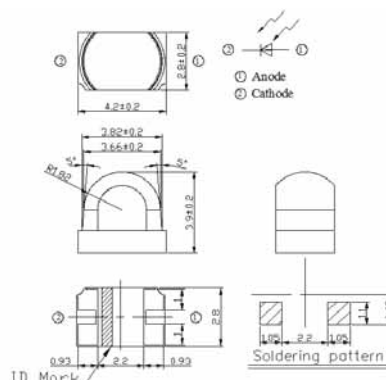


| Product      | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|--------------|-------------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD15-22C/TR8 | 3.2x2.7x1.1       | 940              | 4.2                   | 6.5                   | 32          | 10          |

Infrared LED and Silicon Detector | Photo Diode | SMD



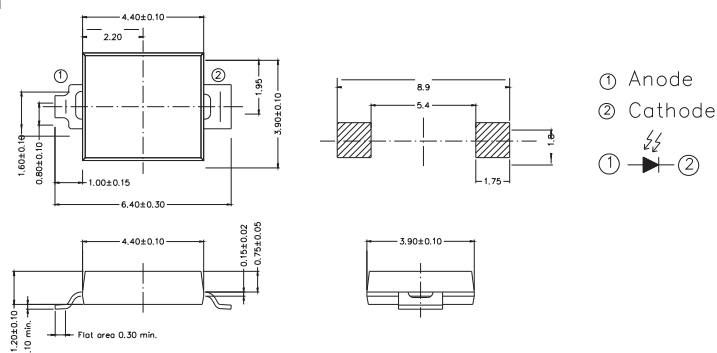
UNIT : mm



| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|------------------|----------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD28-01B/L609/2R | 4.2x2.8x3.9    | 940              | 20                    | 25                    | 32          | 30          |
| PD28-01B/L598/2R | 4.2x2.8x3.9    | 940              | 5                     | 10                    | 32          | 30          |



UNIT : mm



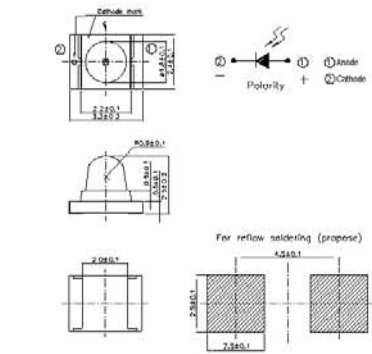
| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA)            |
|-------------------|----------------|------------------|-----------------------|-----------------------|-------------|------------------------|
| PD70-01B/TR7      | 4.4x3.9x1.2    | 940              | 17                    | 25                    | 32          | 30                     |
| PD70-01C/TR7      | 4.4x3.9x1.2    | 940              | 17                    | 25                    | 32          | 30                     |
| PD70-01C/L469/TR7 | 4.4x3.9x1.2    | 950              | 18@470nm              | 25@470nm              | 30          | 20@V <sub>R</sub> =30V |

Infrared LED and Silicon Detector | Photo Diode | SMD

Infrared LED and Silicon Detector



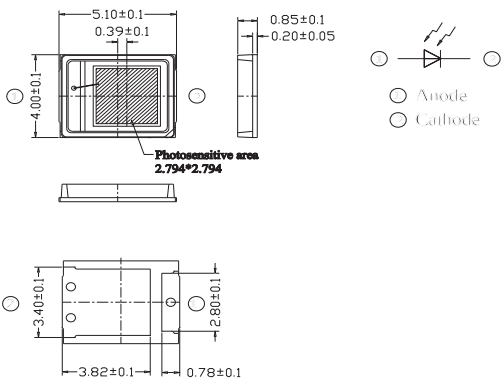
UNIT : mm



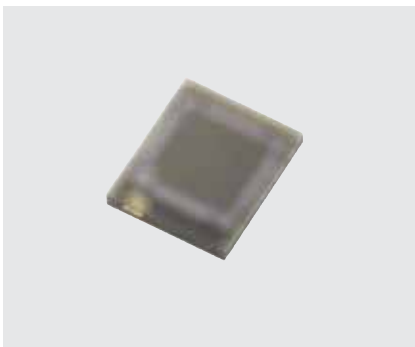
| Product      | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|--------------|----------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD42-21B/TR8 | 3.2x2.4x2.6    | 940              | 2                     | 4                     | 32          | 10          |
| PD42-21C/TR8 | 3.2x2.4x2.6    | 940              | 2                     | 5                     | 32          | 10          |



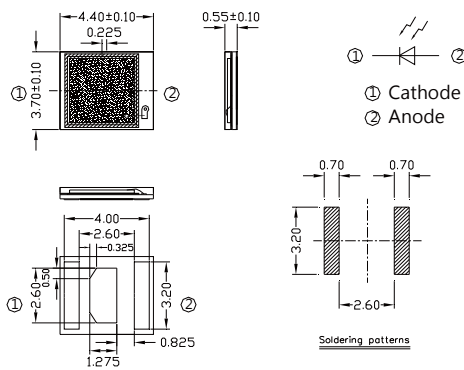
UNIT : mm



| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|-------------------|----------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD51-40C/TR8      | 5.1*4.0*0.85   | 940              | 20                    | 30                    | 32          | 10          |
| PD51-40C/L665/TR8 | 5.1*4.0*0.85   | 620              | 19@525nm              | 23@525nm              | 32          | 10          |



UNIT : mm

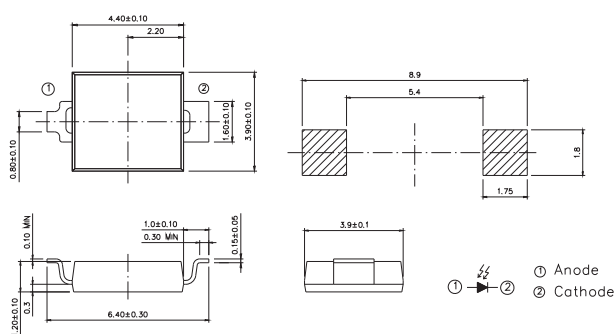


| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|-------------------|----------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD44-37C/L753/TR8 | 4.4x3.7x0.55   | 880              | 38.00                 | 42.00                 | 32.00       | 10          |

Infrared LED and Silicon Detector | Photo Diode | SMD



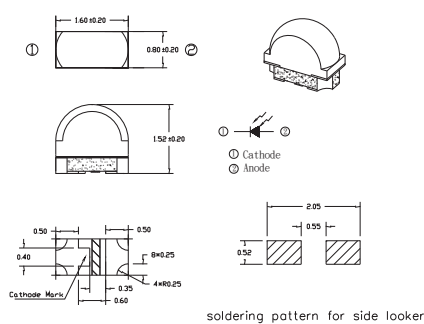
UNIT : mm



| Product       | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|---------------|----------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD70-01B/TR10 | 4.4x3.9x1.2    | 940              | 17                    | 25                    | 32          | 30          |
| PD70-01C/TR10 | 4.4x3.9x1.2    | 940              | 17                    | 25                    | 32          | 30          |



UNIT : mm

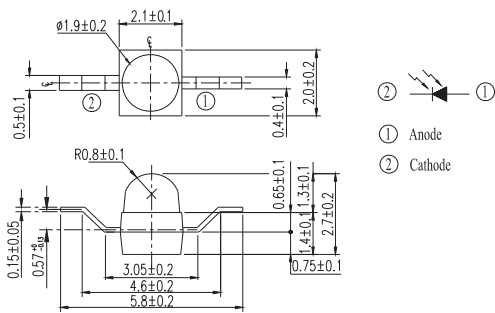


| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|-------------------|----------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD83-01B/L458/TR8 | 1.6x0.8x1.52   | 940              | 1.14                  | 2.4                   | 32          | 10          |

Infrared LED and Silicon Detector | Photo Diode | SMD



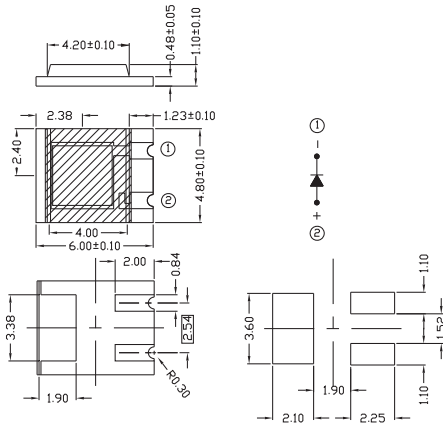
UNIT : mm



| Product       | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min.(V) | ID_Max (nA) |
|---------------|-------------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD95-21B/TR10 | 2.1x2x2.7         | 940              | 1                     | 4                     | 32          | 10          |



UNIT : mm



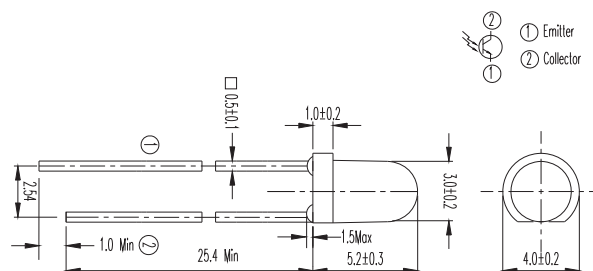
| Product      | Size<br>(LxWxHmm) | $\lambda_p$ (nm) | $I_L$ Min ( $\mu A$ ) | $I_L$ Typ ( $\mu A$ ) | BVR_Min (V) | ID_Max (nA) |
|--------------|-------------------|------------------|-----------------------|-----------------------|-------------|-------------|
| PD60-48C/TR8 | 6x4.8x1.1         | 940              | 17                    | 33.5                  | 33          | 20          |



Infrared LED and Silicon Detector | Photo Transistor | DIP



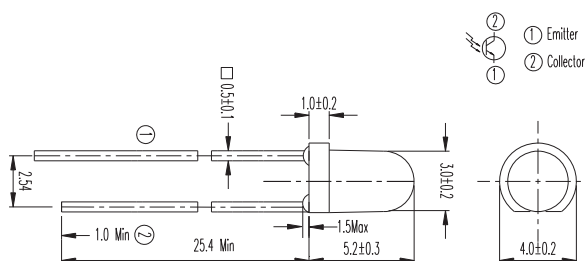
UNIT : mm



| Product  | Size (mm) | $\lambda_P$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|----------|-----------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT204-6C | 3         | 940              | 0.4                     | 0.7                    | 2                      | --                     |



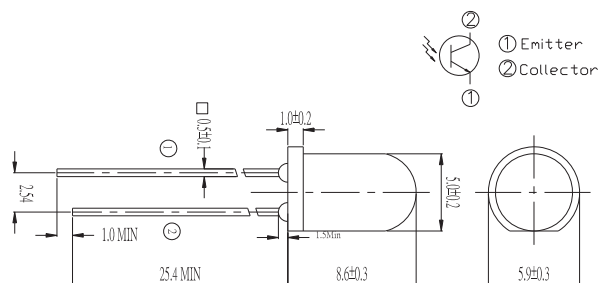
UNIT : mm



| Product  | Size (mm) | $\lambda_P$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|----------|-----------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT204-6B | 3         | 940              | 0.4                     | 0.7                    | --                     | 5.07                   |

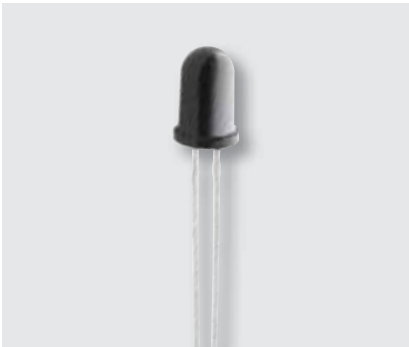


UNIT : mm

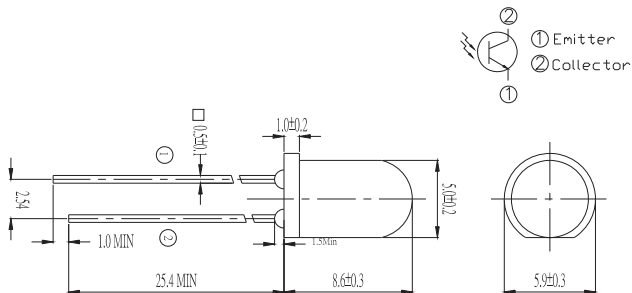


| Product  | Size (mm) | $\lambda_P$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|----------|-----------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT333-3C | 5         | 940              | 0.4                     | 0.7                    | 4                      | --                     |

Infrared LED and Silicon Detector | Photo Transistor | DIP



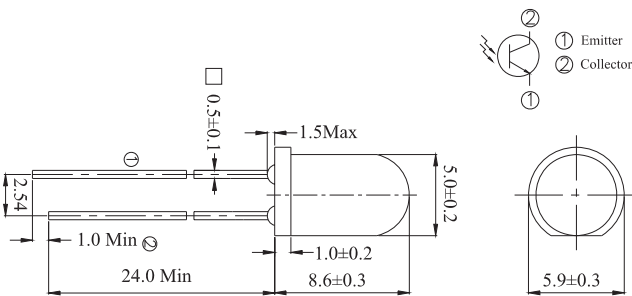
UNIT : mm



| Product  | Size (mm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|----------|-----------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT333-3B | 5         | 940              | 0.4                    | 0.7                   | 3                     | --                    |



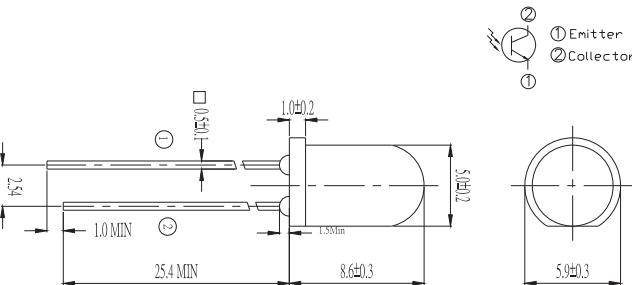
UNIT : mm



| Product  | Size (mm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|----------|-----------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT334-6C | 5         | 940              | 0.4                    | 1.77                  | 3.5                   | --                    |

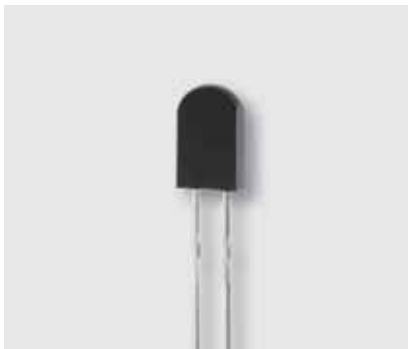


UNIT : mm

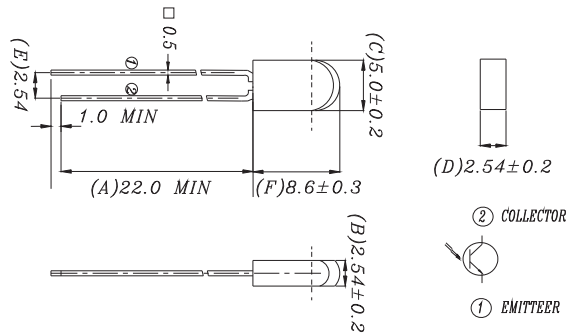


| Product  | Size (mm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|----------|-----------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT334-6B | 5         | 940              | 0.4                    | 0.7                   | 2                     | --                    |

Infrared LED and Silicon Detector | Photo Transistor | DIP



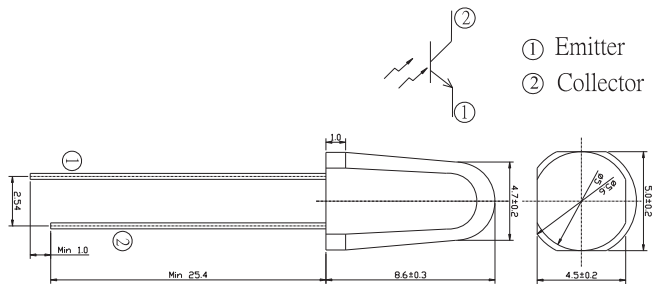
UNIT : mm



| Product  | Size (mm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|----------|-----------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT534-6B | 5         | 940              | 0.4                     | 0.7                    | 1.2                    | --                     |



UNIT : mm

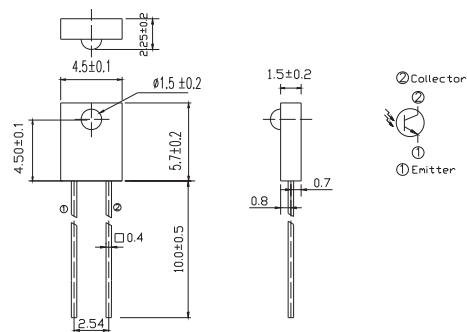


| Product   | Size (mm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|-----------|-----------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT1504-6B | 5         | 940              | 0.4                     | 1.77                   | 4                      | --                     |

Infrared LED and Silicon Detector | Photo Transistor | Side Look



UNIT : mm

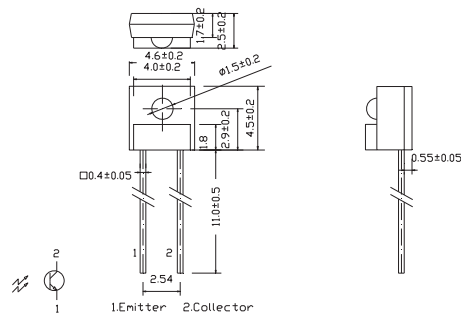


| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Rise / Fall Time (μs) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|------------|----------------|------------------|-----------------------|-------------------------|------------------------|------------------------|------------------------|
| PT908-7B-F | 4.5x2.25x5.7   | 940              | 15 / 15               | 0.4                     | 0.8                    | --                     | 5                      |
| PT908-7C-F | 4.5x2.25x5.7   | 940              | 15 / 15               | 0.4                     | 0.8                    | --                     | 5                      |

## Infrared LED and Silicon Detector | Photo Transistor | Side Look



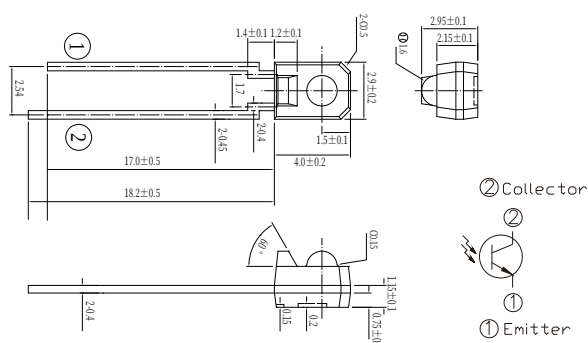
UNIT : mm



| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Rise / Fall Time ( $\mu s$ ) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|------------|----------------|------------------|------------------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT928-6B-F | 4.6x2.5x4.5    | 940              | 15 / 15                      | 0.4                    | 0.53                  | --                    | 3.41                  |
| PT928-6C-F | 4.6x2.5x4.5    | 940              | 15 / 15                      | 0.4                    | 0.53                  | --                    | 3.41                  |



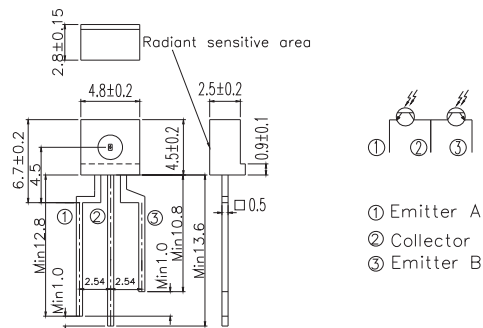
UNIT : mm



| Product  | Size (LxWxHmm) | $\lambda_p$ (nm) | Rise / Fall Time ( $\mu s$ ) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|----------|----------------|------------------|------------------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT968-8C | 2.9x2.9x4      | 940              | 15 / 15                      | 0.4                    | 1.59                  | --                    | 3.41                  |



UNIT : mm

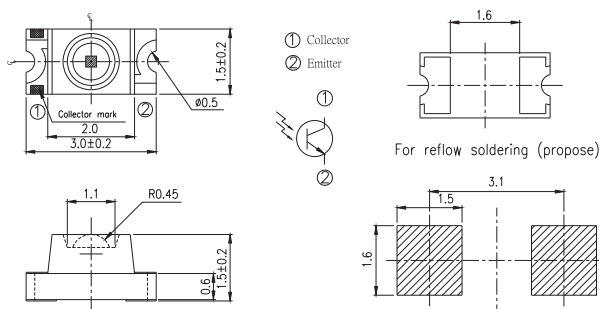


| Product         | Size (LxWxHmm) | $\lambda_p$ (nm) | Rise / Fall Time ( $\mu s$ ) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|-----------------|----------------|------------------|------------------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT2559B/L2-F    | 4.8x2.8x4.5    | 940              | 15 / 15                      | 0.4                    | 0.129                 | --                    | 1.085                 |
| PT2559B/L2/H2-F | 4.8x2.8x4.5    | 940              | 15 / 15                      | 0.4                    | 0.129                 | --                    | 1.085                 |
| PT5529B/L2-F    | 4.8x2.8x4.5    | 940              | 15 / 15                      | 0.4                    | 0.129                 | --                    | 1.085                 |
| PT5529B/L2/H2-F | 4.8x2.8x4.5    | 940              | 15 / 15                      | 0.4                    | 0.129                 | --                    | 1.085                 |

Infrared LED and Silicon Detector | Photo Transistor | SMD



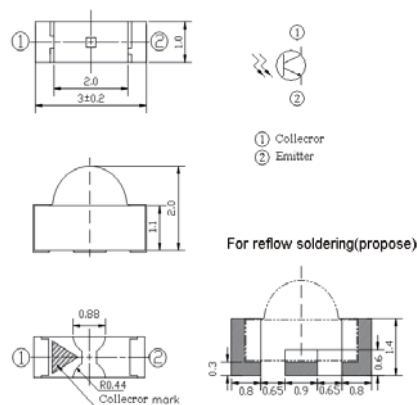
UNIT : mm



| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|------------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT11-21C/L41/TR8 | 3x1.5x1.5      | 940              | 0.4                     | 0.3                    | 0.8                    | --                     |



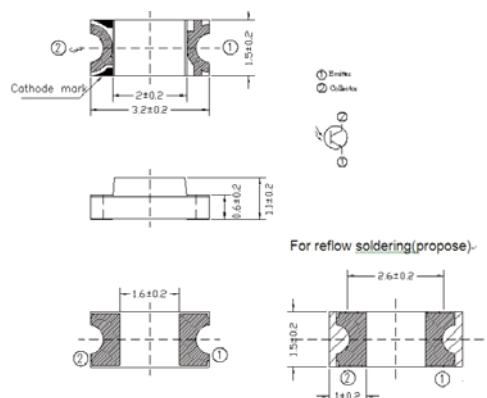
UNIT : mm



| Product           | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|-------------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT12-21B/TR8      | 3x1x2          | 940              | 0.4                     | 0.3                    | --                     | --                     |
| PT12-21C/TR8      | 3x1x2          | 940              | 0.4                     | 0.3                    | 1.14                   | --                     |
| PT12-206B/L505/4G | 2.4x0.6x1.34   | 880              | 0.40                    | 0.30                   | 0.60                   | --                     |

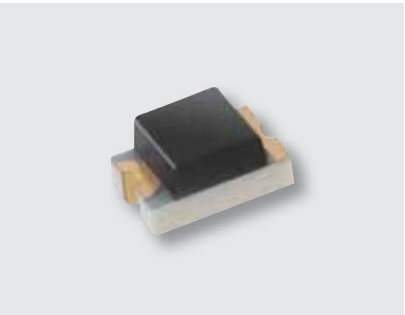


UNIT : mm

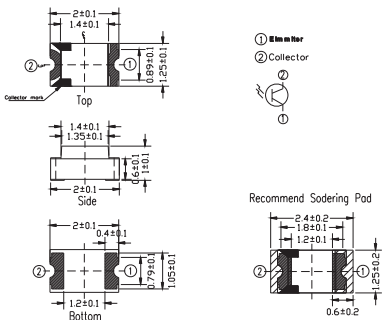


| Product      | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|--------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT15-21B/TR8 | 3.2x1.5x1.1    | 940              | 0.4                     | 0.1                    | 0.3                    | --                     |
| PT15-21C/TR8 | 3.2x1.5x1.1    | 940              | 0.4                     | 0.1                    | 0.3                    | --                     |

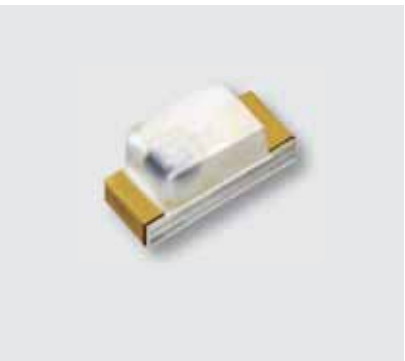
Infrared LED and Silicon Detector | Photo Transistor | SMD



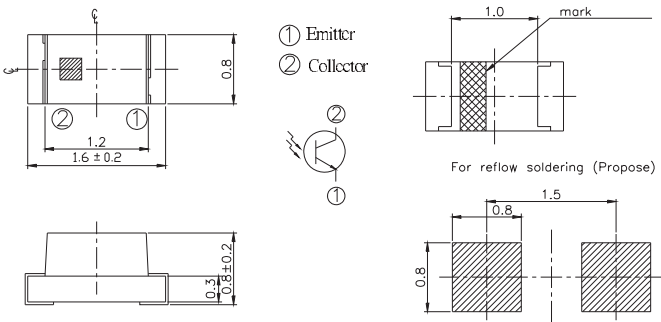
UNIT : mm



| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|------------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT17-21B/L41/TR8 | 2x1.25x1.0     | 940              | 0.4                    | 0.1                   | 0.65                  | --                    |
| PT17-21C/L41/TR8 | 2x1.25x1.0     | 940              | 0.4                    | 0.3                   | 1                     | --                    |



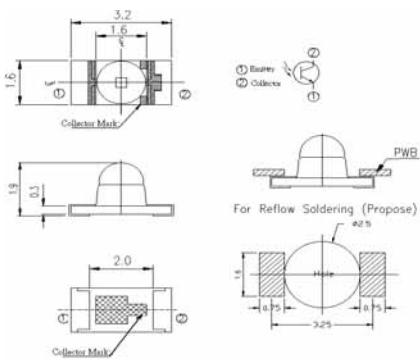
UNIT : mm



| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|------------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT19-21B/L41/TR8 | 1.6x0.8x0.8    | 940              | 0.4                    | 0.3                   | 0.6                   | --                    |
| PT19-21C/L41/TR8 | 1.6x0.8x0.8    | 940              | 0.4                    | 0.3                   | 0.6                   | --                    |



UNIT : mm

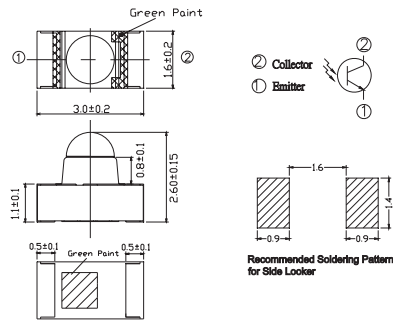


| Product      | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|--------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT26-21B/TR8 | 3.2x1.6x1.9    | 940              | 0.4                    | --                    | 2.6                   | --                    |
| PT26-21C/TR8 | 3.2x1.6x1.9    | 940              | 0.4                    | 0.3                   | 2.6                   | --                    |

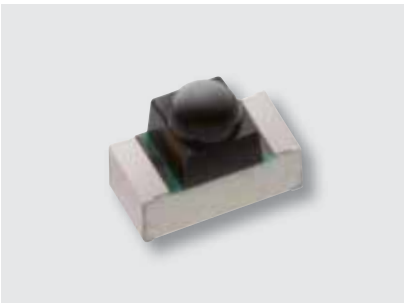
Infrared LED and Silicon Detector | Photo Transistor | SMD



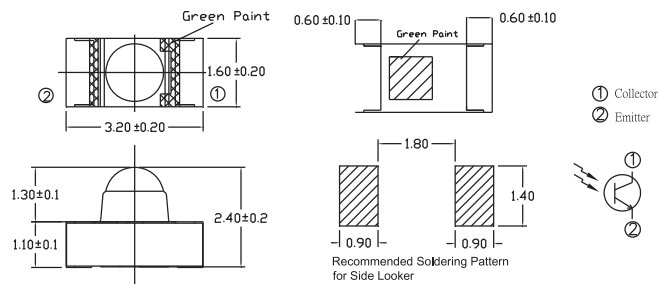
UNIT : mm



| Product      | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|--------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT26-51B/TR8 | 3.0x1.6x2.6    | 940              | 0.4                    | --                    | 1                     | --                    |



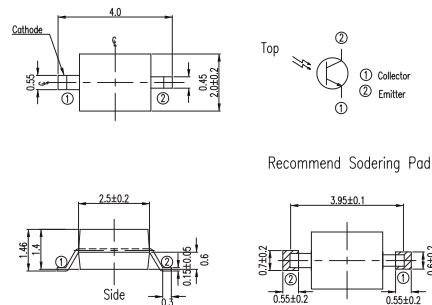
UNIT : mm



| Product      | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|--------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT26-71B/TR8 | 3.2x1.6x2.4    | 920              | 0.4                    | 1.14                  | 3                     | --                    |



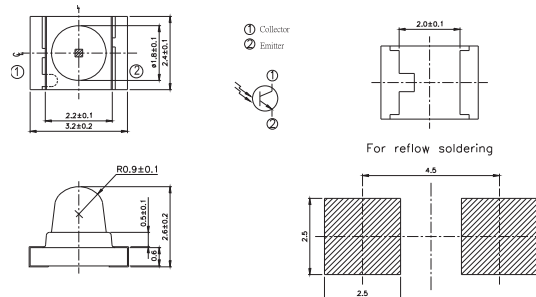
UNIT : mm



| Product      | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|--------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT28-21B/TR8 | 2.5x2.0x1.4    | 940              | 0.4                    | 0.1                   | 0.3                   | -                     |



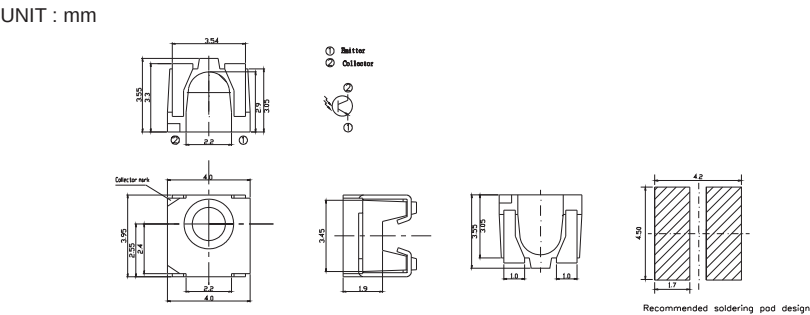
UNIT : mm



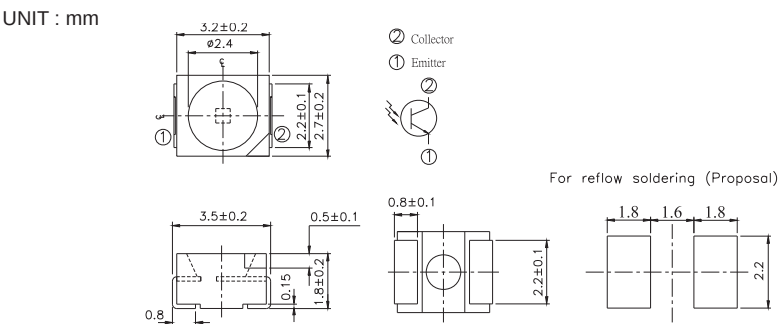
| Product      | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_{CE(SAT\_Max)}$ (V) | $I_{C(ON\_Min)}$ (mA) | $I_{C(ON\_Typ)}$ (mA) | $I_{C(ON\_Max)}$ (mA) |
|--------------|----------------|------------------|------------------------|-----------------------|-----------------------|-----------------------|
| PT42-21B/TR8 | 3.2x2.4x2.6    | 940              | 0.4                    | 1.77                  | 3                     | --                    |



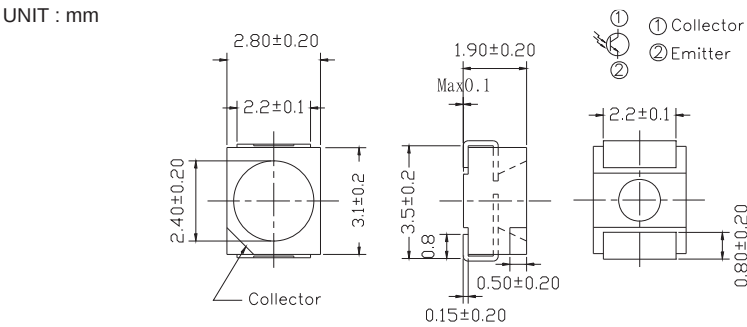
Infrared LED and Silicon Detector | Photo Transistor | SMD



| Product      | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|--------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT57-21B/TR8 | 4x3.95x3.55    | 940              | 0.4                     | 0.4                    | 0.8                    | 5.0                    |



| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|------------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT67-21B/C14/TR8 | 3.5x2.7x1.8    | 940              | 0.4                     | 0.016                  | --                     | 0.08                   |

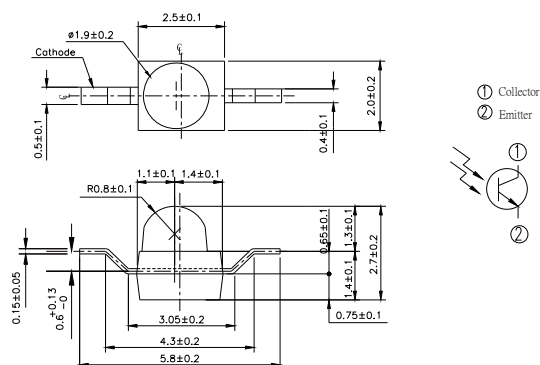


| Product          | Size (LxWxHmm) | $\lambda_p$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|------------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT67-21C/L41/TR8 | 3.5x2.8x1.9    | 940              | 0.4                     | 0.3                    | 1                      | --                     |

Infrared LED and Silicon Detector | Photo Transistor | SMD



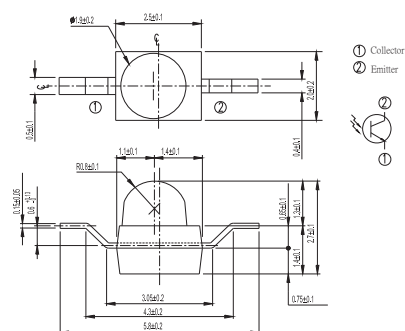
UNIT : mm



| Product       | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|---------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT91-21B      | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 3                      | --                     |
| PT91-21B/TR10 | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 3                      | --                     |
| PT91-21B/TR7  | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 3                      | --                     |
| PT91-21B/TR9  | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 3                      | --                     |



UNIT : mm

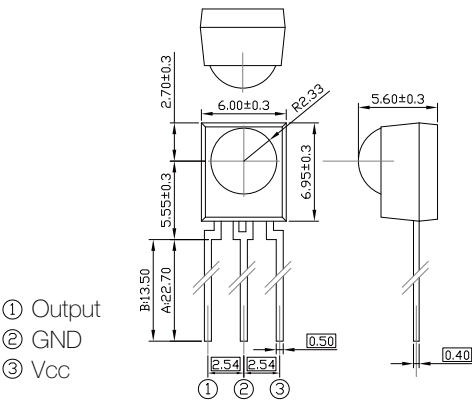


| Product       | Size (LxWxHmm) | $\lambda_P$ (nm) | $V_{CE(SAT)}_{Max}$ (V) | $I_{C(ON)}_{Min}$ (mA) | $I_{C(ON)}_{Typ}$ (mA) | $I_{C(ON)}_{Max}$ (mA) |
|---------------|----------------|------------------|-------------------------|------------------------|------------------------|------------------------|
| PT91-21C      | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 1.5                    | --                     |
| PT91-21C/TR10 | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 1.5                    | --                     |
| PT91-21C/TR7  | 2.5x2x2.7      | 940              | 0.4                     | 1                      | 1.5                    | --                     |

Infrared Receiver Module | DIP | Vout-GND-Vcc



UNIT : mm



IRM-36xx

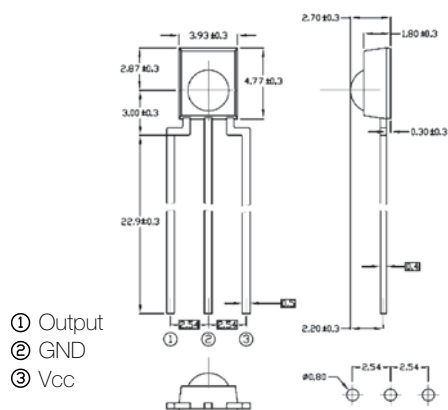
| Product      | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | Carrier Freq.<br>(KHz) | Supply Voltage<br>(V) | I <sub>CC</sub> Typ<br>(mA) | L <sub>Center</sub><br>(m) | L <sub>45</sub><br>(m) |
|--------------|-------------------|---------------------|------------------------|-----------------------|-----------------------------|----------------------------|------------------------|
| IRM-36xxT    | 8.25x6.0x5.6      | 940                 | 36 / 38                | 2.7~5.5               | 0.45                        | 14                         | 6                      |
| IRM-36xxM    | 8.25x6.0x5.6      | 940                 | 36 / 38                | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxM2   | 8.25x6.0x5.6      | 940                 | 36 / 38 / 40           | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxM3   | 8.25x6.0x5.6      | 940                 | 36 / 38 / 56           | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxM6   | 8.25x6.0x5.6      | 940                 | 36 / 38                | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxJ2   | 8.25x6.0x5.6      | 940                 | 36 / 38 / 40           | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxT-X  | 8.25x6.0x5.6      | 940                 | 36 / 38                | 2.7~5.5               | 0.45                        | 14                         | 6                      |
| IRM-36xxM-X  | 8.25x6.0x5.6      | 940                 | 36 / 38                | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxM2-X | 8.25x6.0x5.6      | 940                 | 36 / 38 / 40           | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxM3-X | 8.25x6.0x5.6      | 940                 | 36 / 38 / 56           | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxJ7   | 8.25x6.0x5.6      | 940                 | 36 / 38                | 2.7~5.5               | 0.5                         | 14                         | 6                      |
| IRM-36xxZ3   | 8.25x6.0x5.6      | 940                 | 36 / 38 / 40           | 3~5                   | 0.4                         | 14                         | 6                      |
| IRM-36xxJ8   | 8.25x6.0x5.6      | 940                 | 32 / 36 / 38 / 40      | 2.7~5.5               | 0.4                         | 14                         | 6                      |
| IRM-36xxJ9   | 8.25x6.0x5.6      | 940                 | 32 / 36 / 38 / 40      | 4.5~5.5               | 0.6                         | 14                         | 6                      |



## Infrared Receiver Module | DIP | Vout-GND-Vcc



UNIT : mm



### IRM-66xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-66xxT  | 5.87x3.93x2.7  | 940              | 36 / 38             | 2.7~5.5            | 1                 | 14               | 6            |
| IRM-66xxM  | 5.87x3.93x2.7  | 940              | 36 / 38             | 2.7~5.5            | 0.4               | 14               | 6            |
| IRM-66xxM2 | 5.87x3.93x2.7  | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4               | 14               | 6            |
| IRM-66xxM3 | 5.87x3.93x2.7  | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 14               | 6            |
| IRM-66xxJ  | 5.87x3.93x2.7  | 940              | 38                  | 2.7~5.5            | 0.4               | 14               | 6            |
| IRM-66XXJ2 | 5.87x3.93x2.7  | 940              | 36,38,40            | 2.7~5.5            | 0.4               | 8                | 5            |

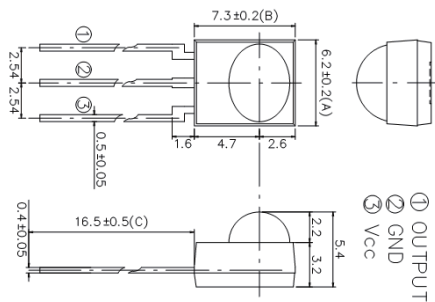


| IRM-S45 | IRM-66XXXS45 |
|---------|--------------|
|         |              |

Infrared Receiver Module | DIP | Vout-GND-Vcc



UNIT : mm



IRM-86xx

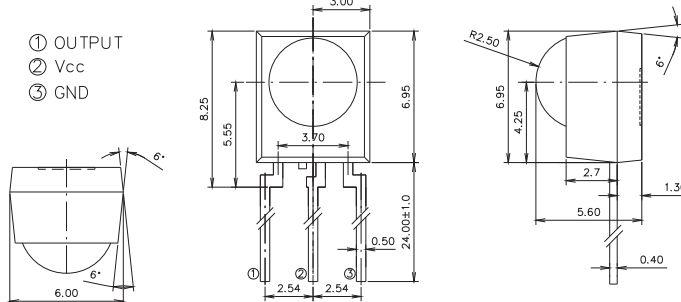
| Product    | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | Carrier Freq.<br>(KHz) | Supply Voltage<br>(V) | $I_{CC}$ Typ<br>(mA) | $L_{Center}$<br>(m) | $L_{45}$<br>(m) |
|------------|-------------------|---------------------|------------------------|-----------------------|----------------------|---------------------|-----------------|
| IRM-86xxM2 | 8.9x6.2x5.4       | 940                 | 36 / 38 / 40           | 2.7~5.5               | 0.4                  | 8                   | 5               |



# Infrared Receiver Module | DIP | Vout-GND-Vcc



UNIT : mm

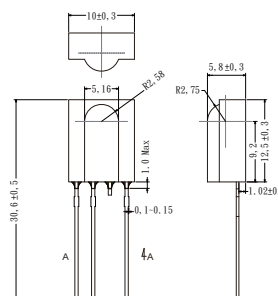


## IRM-37xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | I <sub>CC</sub> Typ (mA) | L <sub>Center</sub> (m) | L <sub>45</sub> (m) |
|------------|----------------|------------------|---------------------|--------------------|--------------------------|-------------------------|---------------------|
| IRM-37xxT  | 8.25x6.0x5.6   | 940              | 36 / 38             | 2.7~5.5            | 0.45                     | 14                      | 6                   |
| IRM-37xxM  | 8.25x6.0x5.6   | 940              | 36 / 38             | 2.7~5.5            | 0.4                      | 14                      | 6                   |
| IRM-37xxM2 | 8.25x6.0x5.6   | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4                      | 14                      | 6                   |
| IRM-37xxM3 | 8.25x6.0x5.6   | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4                      | 14                      | 6                   |



UNIT : mm



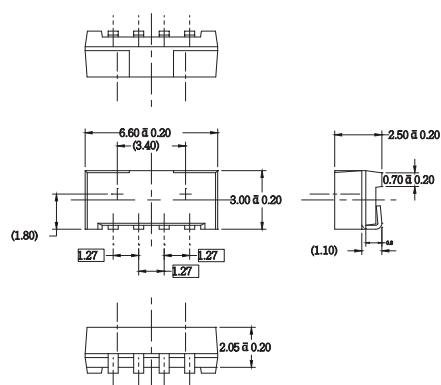
## IRM-88xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | I <sub>CC</sub> Typ (mA) | L <sub>Center</sub> (m) | L <sub>45</sub> (m) |
|------------|----------------|------------------|---------------------|--------------------|--------------------------|-------------------------|---------------------|
| IRM-88xxM3 | 30.6x10x5.8    | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4                      | 14                      | 6                   |

## Infrared Receiver Module ■ SMD ■ Side -View



UNIT : mm

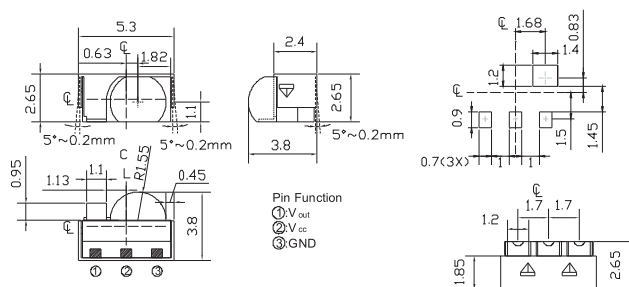


IRM-V3xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-V3xxM3 | 6.6x3x2.5      | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 8                | 5            |



UNIT : mm



IRM-V5xx

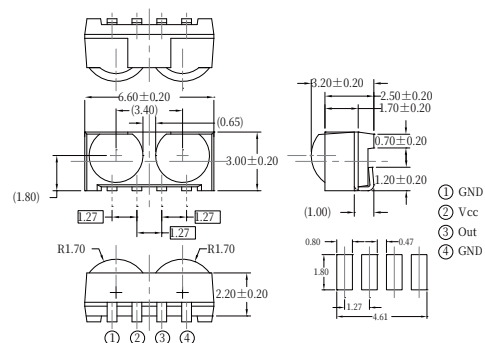
| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-V5xxT  | 5.3x3.8x2.65   | 940              | 36 / 38             | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V5xxM  | 5.3x3.8x2.65   | 940              | 36 / 38             | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V5xxM2 | 5.3x3.8x2.65   | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V5xxM3 | 5.3x3.8x2.65   | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V5xxJ2 | 5.3x3.8x2.65   | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.53              | 8                | 5            |



# Infrared Receiver Module | SMD | Side -View



UNIT : mm

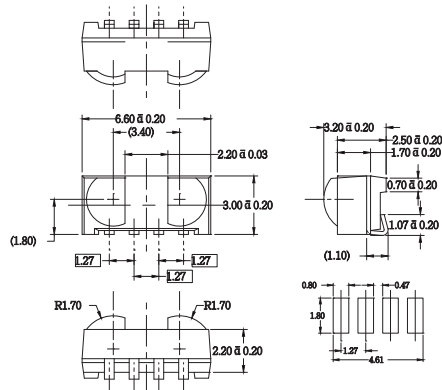


## IRM-V8xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-V8xxT  | 6.6x3x3.2      | 940              | 36 / 38             | 2.7~5.5            | 0.45              | 8                | 5            |
| IRM-V8xxM  | 6.6x3x3.2      | 940              | 36 / 38             | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V8xxM2 | 6.6x3x3.2      | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V8xxM3 | 6.6x3x3.2      | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V8xxJ  | 6.6x3x3.2      | 940              | 36 / 38             | 2.7~5.5            | 1                 | 8                | 5            |
| IRM-V8xxJ2 | 6.6x3x3.2      | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.9               | 8                | 5            |
| IRM-V8XXJ8 | 6.6x3x2.5      | 940              | 32 / 36 / 38 / 40   | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V8XXJ9 | 6.6x3x2.5      | 940              | 32 / 36 / 38 / 40   | 2.7~5.5            | 0.6               | 8                | 5            |
| IRM-V8XXZ3 | 6.6x3x2.5      | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.21              | 8                | 5            |



UNIT : mm



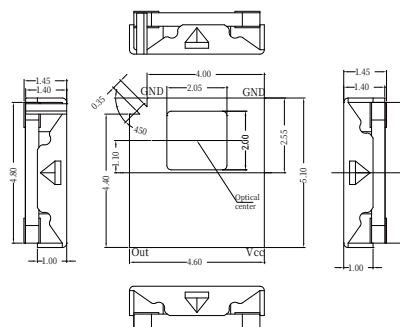
## IRM-V8xx-C

| Product      | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|--------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-V8xxM3-C | 6.6x3x3.2      | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-V8xxJ2-C | 6.6x3x3.2      | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4               | 8                | 5            |

## Infrared Receiver Module ■ SMD ■ Top -View



UNIT : mm

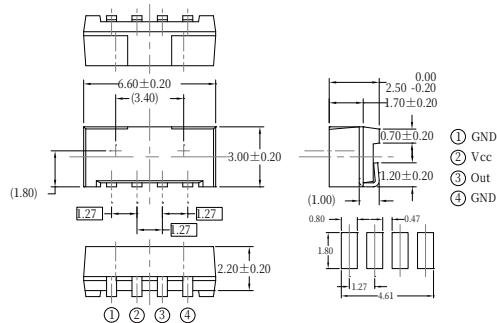


### IRM-H2xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-H2xxT  | 5.1x4.6x1.45   | 940              | 36 / 38             | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-H2xxM2 | 5.1x4.6x1.45   | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-H2xxM3 | 5.1x4.6x1.45   | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-H2XXJ2 | 5.1x4.6x1.45   | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4               | 8                | 5            |



UNIT : mm



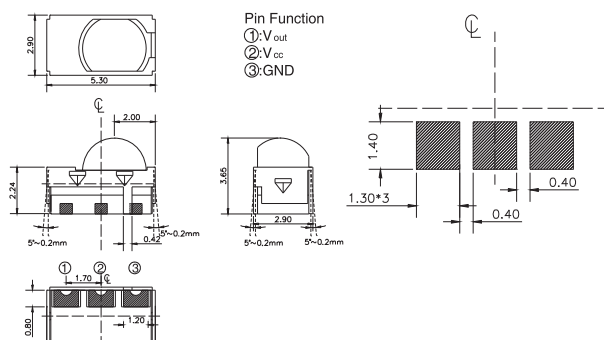
### IRM-H3xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | $I_{CC}$ Typ (mA) | $L_{Center}$ (m) | $L_{45}$ (m) |
|------------|----------------|------------------|---------------------|--------------------|-------------------|------------------|--------------|
| IRM-H3xxM3 | 6.6x3x2.5      | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4               | 8                | 5            |
| IRM-H3xxJ  | 6.6x3x2.5      | 940              | 38                  | 2.7~5.5            | 1                 | 8                | 5            |
| IRM-H3XXJ8 | 6.6x3x2.5      | 940              | 32 / 36 / 38 / 40   | 2.7~5.5            | 0.4               | 8                | 5            |

# Infrared Receiver Module ■ SMD ■ Top -View



UNIT : mm

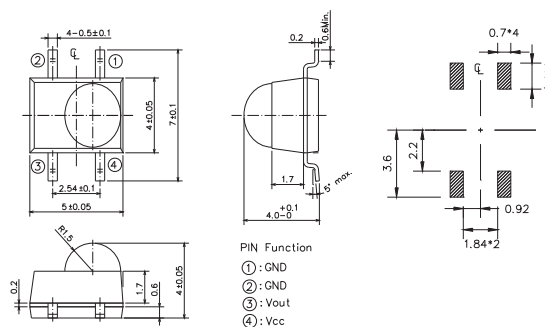


IRM-H5xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | I <sub>CC</sub> Typ (mA) | L <sub>Center</sub> (m) | L <sub>45</sub> (m) |
|------------|----------------|------------------|---------------------|--------------------|--------------------------|-------------------------|---------------------|
| IRM-H5xxT  | 5.3x2.9x3.65   | 940              | 36 / 38             | 2.7~5.5            | 0.4                      | 8                       | 5                   |
| IRM-H5xxM  | 5.3x2.9x3.65   | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4                      | 8                       | 5                   |
| IRM-H5xxM3 | 5.3x2.9x3.65   | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4                      | 8                       | 5                   |



UNIT : mm



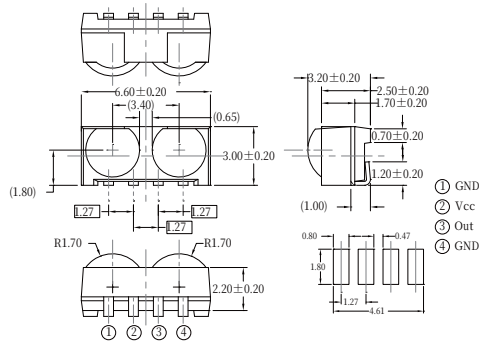
IRM-H6xx

| Product    | Size (LxWxHmm) | $\lambda_p$ (nm) | Carrier Freq. (KHz) | Supply Voltage (V) | I <sub>CC</sub> Typ (mA) | L <sub>Center</sub> (m) | L <sub>45</sub> (m) |
|------------|----------------|------------------|---------------------|--------------------|--------------------------|-------------------------|---------------------|
| IRM-H6xxT  | 5x4x4          | 940              | 36 / 38             | 2.7~5.5            | 1                        | 8                       | 5                   |
| IRM-H6xxM  | 5x4x4          | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.4                      | 8                       | 5                   |
| IRM-H6xxM3 | 5x4x4          | 940              | 36 / 38 / 56        | 2.7~5.5            | 0.4                      | 8                       | 5                   |
| IRM-H6xxJ7 | 5x4x4          | 940              | 36 / 38 / 40        | 2.7~5.5            | 0.5                      | 8                       | 5                   |

Infrared Receiver Module | SMD | Top -View



UNIT : mm

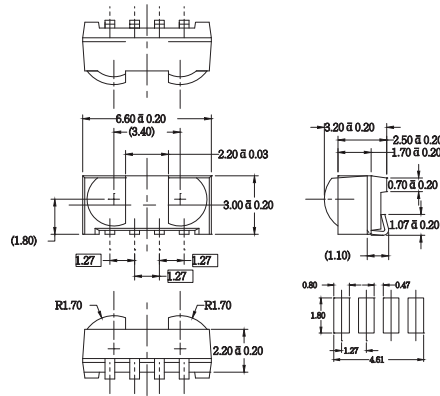


IRM-H8xx

| Product    | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | Carrier Freq.<br>(KHz) | Supply Voltage<br>(V) | $I_{CC}$ Typ<br>(mA) | $L_{Center}$<br>(m) | $L_{45}$<br>(m) |
|------------|-------------------|---------------------|------------------------|-----------------------|----------------------|---------------------|-----------------|
| IRM-H8xxM  | 6.6x3x3.2         | 940                 | 36 / 38                | 2.7~5.5               | 0.4                  | 8                   | 5               |
| IRM-H8xxM3 | 6.6x3x3.2         | 940                 | 36 / 38 / 56           | 2.7~5.5               | 0.4                  | 8                   | 5               |
| IRM-H8xxJ  | 6.6x3x3.2         | 940                 | 36 / 38                | 2.7~5.5               | 1                    | 8                   | 5               |
| IRM-H8XXJ8 | 6.6x3x3.2         | 940                 | 32 / 36 / 38 / 40      | 2.7~5.5               | 0.4                  | 8                   | 5               |
| IRM-H8XXJ9 | 6.6x3x3.2         | 940                 | 32 / 36 / 38 / 40      | 2.7~5.5               | 0.6                  | 8                   | 5               |



UNIT : mm



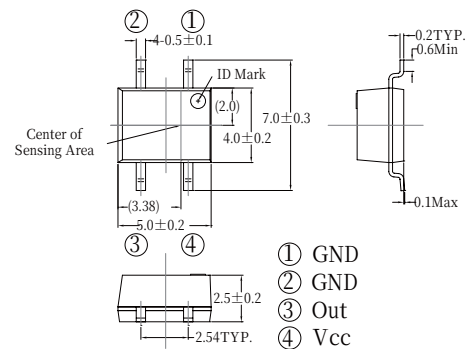
IRM-H8xx-C

| Product      | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | Carrier Freq.<br>(KHz) | Supply Voltage<br>(V) | $I_{CC}$ Typ<br>(mA) | $L_{Center}$<br>(m) | $L_{45}$<br>(m) |
|--------------|-------------------|---------------------|------------------------|-----------------------|----------------------|---------------------|-----------------|
| IRM-H8xxM3-C | 6.6x3x3.2         | 940                 | 36 / 38 / 56           | 2.7~5.5               | 0.4                  | 8                   | 5               |
| IRM-H8xxJ2-C | 6.6x3x3.2         | 940                 | 36 / 38 / 40           | 2.7~5.5               | 0.4                  | 8                   | 5               |

# Infrared Receiver Module | Standard Burst | SMD



UNIT : mm



IRM-H9xx

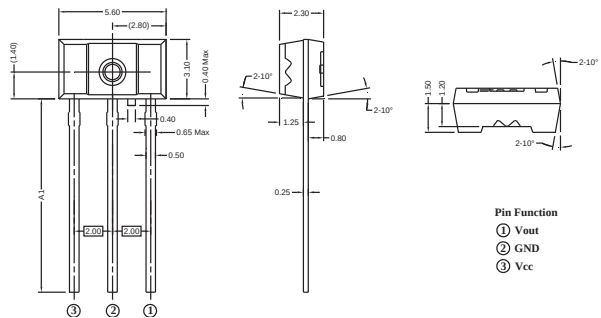
| Product    | Size<br>(LxWxHmm) | $\lambda_p$<br>(nm) | Carrier Freq.<br>(KHz) | Supply Voltage<br>(V) | $I_{CC}$ Typ<br>(mA) | $L_{Center}$<br>(m) | $L_{45}$<br>(m) |
|------------|-------------------|---------------------|------------------------|-----------------------|----------------------|---------------------|-----------------|
| IRM-H9xxT  | 5x4x2.5           | 940                 | 36 / 38                | 2.7~5.5               | 0.4                  | 8                   | 5               |
| IRM-H9xxM3 | 5x4x2.5           | 940                 | 36 / 38 / 56           | 2.7~5.5               | 0.4                  | 8                   | 5               |



Optic-Fiber Device (Photo Link) | Receiver (PLR) Component



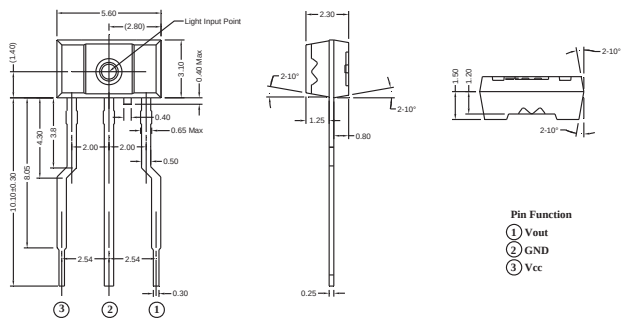
UNIT : mm



| Product | Size (LxWxHmm) | Fiber Coupling Receiver Power_ Max (dBm) | Fiber Coupling Receiver Power_ Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|---------|----------------|------------------------------------------|------------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLR162  | 5.6x3.1x2.3    | -14                                      | -27                                      | 2.4~5.5               | None           | 16                           | 0.25              |
| PLR262  | 5.6x3.1x2.3    | -14                                      | -27                                      | 2.4~5.5               | None           | 25                           | 0.25              |



UNIT : mm



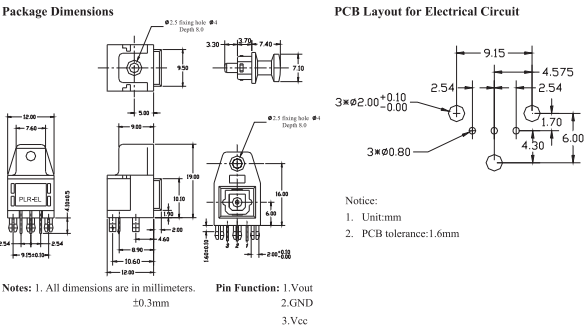
| Product | Size (LxWxHmm) | Fiber Coupling Receiver Power_ Max (dBm) | Fiber Coupling Receiver Power_ Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|---------|----------------|------------------------------------------|------------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLR162M | 5.6x3.1x2.3    | -14                                      | -27                                      | 2.4~5.5               | None           | 16                           | 0.25              |



Optic-Fiber Device (Photo Link) | Receiver (PLR) Module



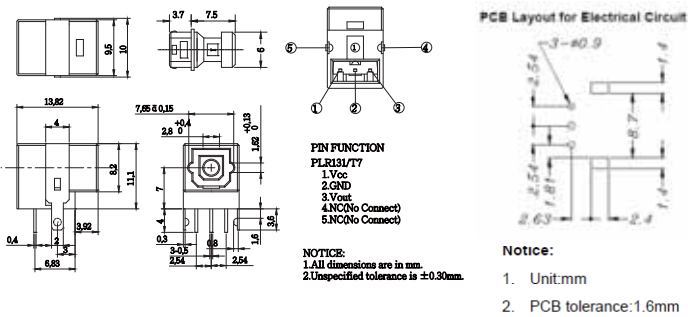
UNIT : mm



| Product   | Size (LxWxHmm) | Fiber Coupling Receiver Power_ Max (dBm) | Fiber Coupling Receiver Power_ Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-----------|----------------|------------------------------------------|------------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLR135/T2 | 12.0x14.0x19.0 | -14                                      | -27                                      | 2.4~5.5               | Yes            | 16                           | 0.4               |



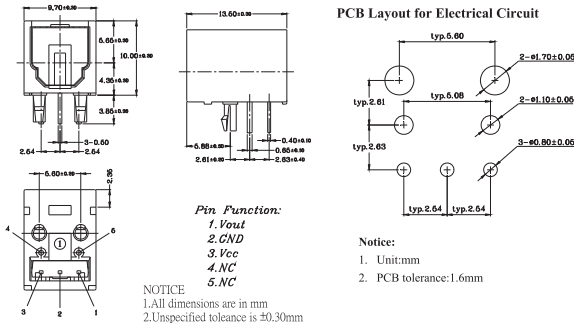
UNIT : mm



| Product   | Size (LxWxHmm)  | Fiber Coupling Receiver Power_ Max (dBm) | Fiber Coupling Receiver Power_ Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-----------|-----------------|------------------------------------------|------------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLR135/T7 | 10.0x13.82x11.1 | -14                                      | -27                                      | 2.4~5.5               | Yes            | 16                           | 0.4               |



UNIT : mm



| Product   | Size (LxWxHmm) | Fiber Coupling Receiver Power_ Max (dBm) | Fiber Coupling Receiver Power_ Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-----------|----------------|------------------------------------------|------------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLR135/T8 | 9.7x13.5x10    | -14                                      | -27                                      | 2.4~5.5               | Yes            | 16                           | 0.4               |

[illegible]

**Notice:**

1. Unit:mm
2. PCB tolerance:1.6mm

| Product   | Size<br>(LxWxHmm) | Fiber Coupling<br>Receiver Power_<br>Max (dBm) | Fiber Coupling<br>Receiver Power_<br>Min (dBm) | Operation<br>Voltage<br>(V) | Plastic<br>Holder | Trans -<br>mission<br>Speed (Mb/s) | L/F<br>Thicknes<br>(mm) |
|-----------|-------------------|------------------------------------------------|------------------------------------------------|-----------------------------|-------------------|------------------------------------|-------------------------|
| PLR135/T9 | 11.5x14x20        | -14                                            | -27                                            | 2.4~5.5                     | Yes               | 16                                 | 0.4                     |



**Pin Function:**

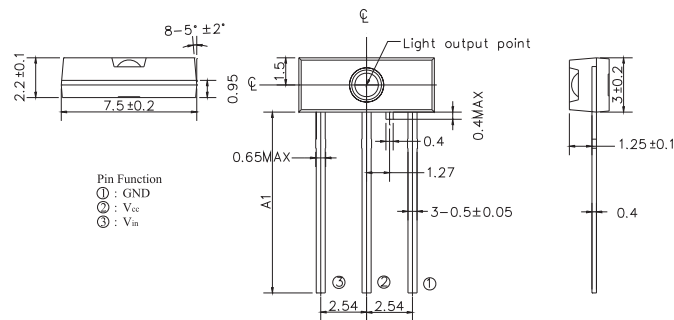
|        |
|--------|
| 1.VCC  |
| 2.GND  |
| 3.VOUT |
| 4.NC   |
| 5.NC   |

| Product    | Size<br>(LxWxHmm) | Fiber Coupling<br>Receiver Power_<br>Max (dBm) | Fiber Coupling<br>Receiver Power_<br>Min (dBm) | Operation<br>Voltage<br>(V) | Plastic<br>Holder | Trans -<br>mission<br>Speed (Mb/s) | L/F<br>Thicknes<br>(mm) |
|------------|-------------------|------------------------------------------------|------------------------------------------------|-----------------------------|-------------------|------------------------------------|-------------------------|
| PLR135/T10 | 9.7x13.5x10.0     | -14                                            | -27                                            | 2.4~5.5                     | Yes               | 16                                 | 0.4                     |

Optic-Fiber Device (Photo Link) | Transmitter (PLT) Component



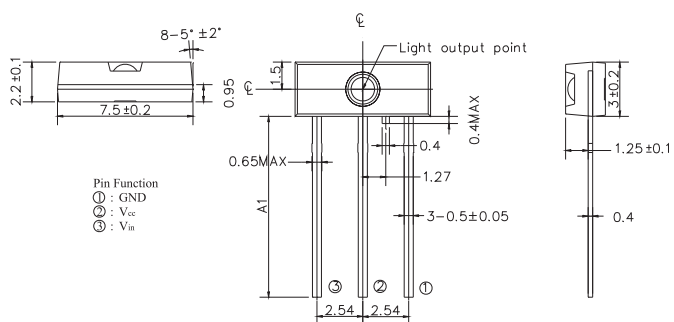
UNIT : mm



| Product   | Size<br>(LxWxHmm) | Fiber Coupling<br>Output Power_Max<br>(dBm) | Fiber Coupling<br>Output Power_Min<br>(dBm) | Operation<br>Voltage<br>(V) | Plastic<br>Holder | Trans -<br>mission<br>Speed (Mb/s) | L/F<br>Thicknes<br>(mm) |
|-----------|-------------------|---------------------------------------------|---------------------------------------------|-----------------------------|-------------------|------------------------------------|-------------------------|
| PLT132    | 7.5x3x2.2         | -15                                         | -21                                         | 3~5                         | None              | 16                                 | 0.4                     |
| PLT232/L5 | 7.5x3x2.2         | -15                                         | -21                                         | 3~5                         | None              | 25                                 | 0.4                     |



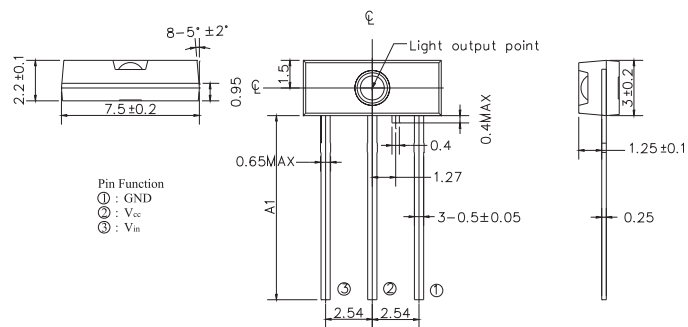
UNIT : mm



| Product | Size<br>(LxWxHmm) | Fiber Coupling<br>Output Power_Max<br>(dBm) | Fiber Coupling<br>Output Power_Min<br>(dBm) | Operation<br>Voltage<br>(V) | Plastic<br>Holder | Trans -<br>mission<br>Speed (Mb/s) | L/F<br>Thicknes<br>(mm) |
|---------|-------------------|---------------------------------------------|---------------------------------------------|-----------------------------|-------------------|------------------------------------|-------------------------|
| PLT133  | 7.5x3x2.2         | -15                                         | -21                                         | 3~5                         | None              | 16                                 | 0.4                     |



UNIT : mm

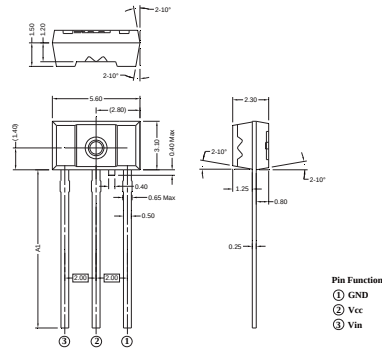


| Product | Size<br>(LxWxHmm) | Fiber Coupling<br>Output Power_Max<br>(dBm) | Fiber Coupling<br>Output Power_Min<br>(dBm) | Operation<br>Voltage<br>(V) | Plastic<br>Holder | Trans -<br>mission<br>Speed (Mb/s) | L/F<br>Thicknes<br>(mm) |
|---------|-------------------|---------------------------------------------|---------------------------------------------|-----------------------------|-------------------|------------------------------------|-------------------------|
| PLT137  | 7.5x3x2.2         | -15                                         | -21                                         | 3~5                         | None              | 16                                 | 0.25                    |
| PLT237  | 7.5x3x2.2         | -15                                         | -21                                         | 3~5                         | None              | 25                                 | 0.25                    |

Optic-Fiber Device (Photo Link) | Transmitter (PLT) Component



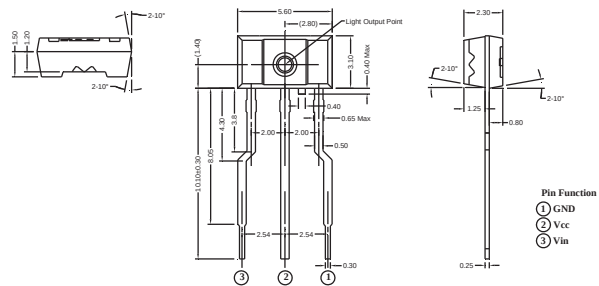
UNIT : mm



| Product | Size (LxWxHmm) | Fiber Coupling Output Power_Max (dBm) | Fiber Coupling Output Power_Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|---------|----------------|---------------------------------------|---------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLT262  | 5.6x3.1x2.3    | -15                                   | -21                                   | 3~5                   | None           | 25                           | 0.25              |



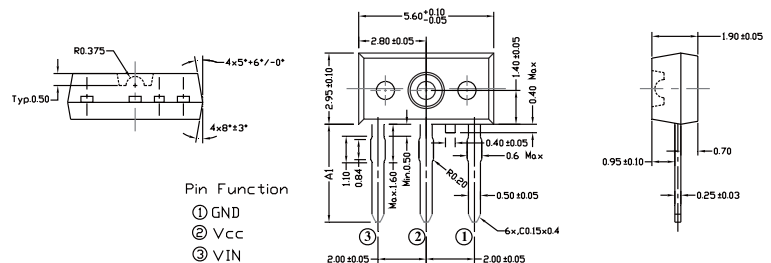
UNIT : mm



| Product | Size (LxWxHmm) | Fiber Coupling Output Power_Max (dBm) | Fiber Coupling Output Power_Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|---------|----------------|---------------------------------------|---------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLT262M | 5.6x3.1x2.3    | -15                                   | -21                                   | 3~5                   | None           | 25                           | 0.25              |



UNIT : mm

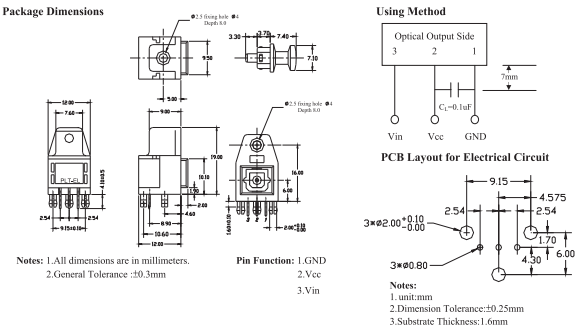


| Product   | Size (LxWxHmm) | Fiber Coupling Output Power_Max (dBm) | Fiber Coupling Output Power_Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-----------|----------------|---------------------------------------|---------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLT272/L5 | 5.6x2.95x1.9   | -15                                   | -21                                   | 3~5                   | None           | 25                           | 0.25              |

Optic-Fiber Device (Photo Link) | Transmitter (PLT) Module



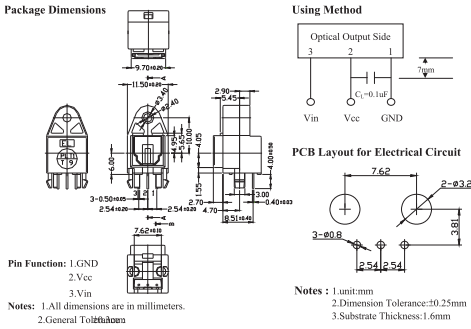
UNIT : mm



| Product   | Size (LxWxHmm) | Fiber Coupling Output Power_Max (dBm) | Fiber Coupling Output Power_Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-----------|----------------|---------------------------------------|---------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLT133/T2 | 12.0x14.0x19.0 | -15                                   | -21                                   | 3~5                   | Yes            | 16                           | 0.4               |



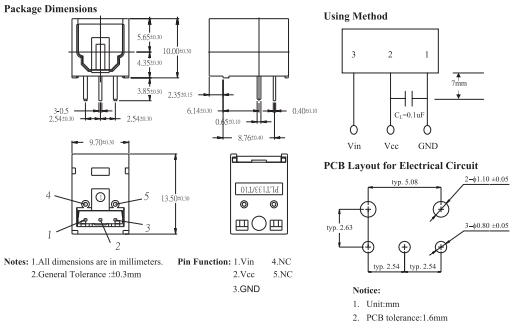
UNIT : mm



| Product   | Size (LxWxHmm) | Fiber Coupling Output Power_Max (dBm) | Fiber Coupling Output Power_Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-----------|----------------|---------------------------------------|---------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLT133/T9 | 11.5x13.5x20   | -15                                   | -21                                   | 3~5                   | Yes            | 16                           | 0.4               |



UNIT : mm

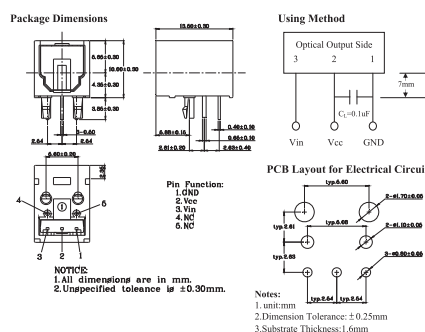


| Product     | Size (LxWxHmm) | Fiber Coupling Output Power_Max (dBm) | Fiber Coupling Output Power_Min (dBm) | Operation Voltage (V) | Plastic Holder | Trans - mission Speed (Mb/s) | L/F Thicknes (mm) |
|-------------|----------------|---------------------------------------|---------------------------------------|-----------------------|----------------|------------------------------|-------------------|
| PLT133/T10B | 9.7x13.5x10.0  | -15                                   | -21                                   | 3~5                   | Yes            | 16                           | 0.4               |
| PLT133/T10W | 9.7x13.5x10.0  | -15                                   | -21                                   | 3~5                   | Yes            | 16                           | 0.4               |

## Optic-Fiber Device (Photo Link) ■ Transmitter (PLT) Module



UNIT : mm

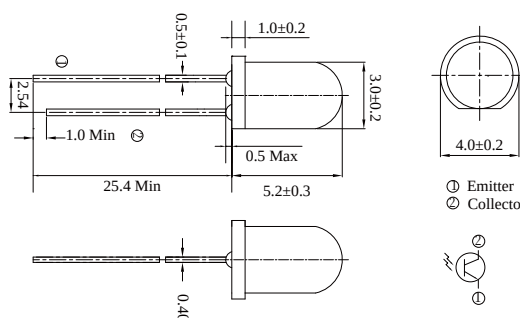


| Product    | Size<br>(LxWxHmm) | Fiber Coupling<br>Output Power_Max<br>(dBm) | Fiber Coupling<br>Output Power_Min<br>(dBm) | Operation<br>Voltage<br>(V) | Plastic<br>Holder | Trans -<br>mission<br>Speed (Mb/s) | L/F<br>Thicknes<br>(mm) |
|------------|-------------------|---------------------------------------------|---------------------------------------------|-----------------------------|-------------------|------------------------------------|-------------------------|
| PLT133/T8B | 9.7x13.5x10       | -15                                         | -21                                         | 3~5                         | Yes               | 16                                 | 0.4                     |

## Optical Sensors | Ambient Light Sensor | Analog



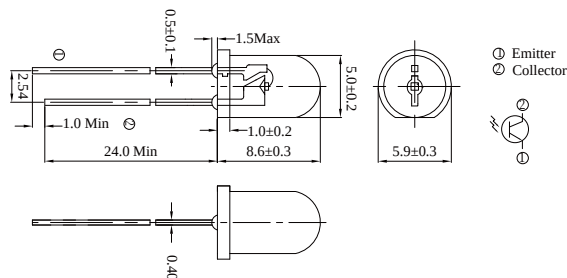
UNIT : mm



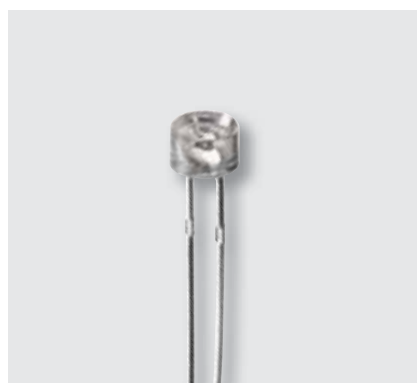
| Product           | Size (mm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | I <sub>D_Max</sub> (μA) | Rise / Fall Time (μs) |
|-------------------|-----------|--------------------|------------------------------|----------------------|------------------------------|-------------------------|-----------------------|
| ALS-PT204-6C/L177 | 3         | 2.5~5.5            | 630                          | 370~670              | 15~100                       | 0.1                     | 110 / 120             |



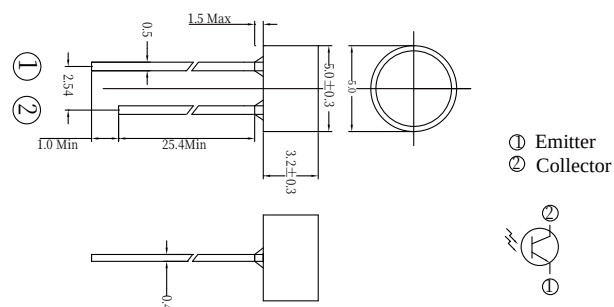
UNIT : mm



| Product           | Size (mm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | I <sub>D_Max</sub> (μA) | Rise / Fall Time (μs) |
|-------------------|-----------|--------------------|------------------------------|----------------------|------------------------------|-------------------------|-----------------------|
| ALS-PT333-3C/L177 | 5         | 2.5~5.5            | 560                          | 390~700              | 90~160                       | 0.1                     | 80 / 90               |



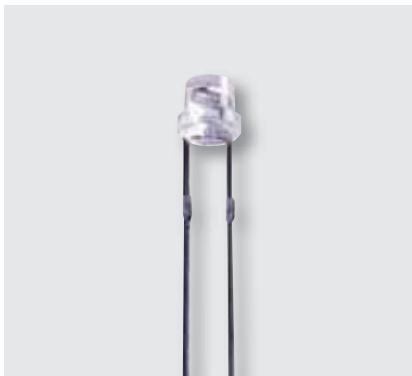
UNIT : mm



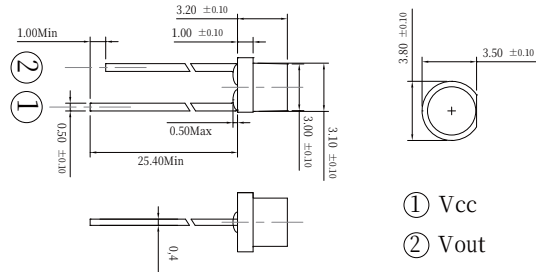
| Product           | Size (mm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | I <sub>D_Max</sub> (μA) | Rise / Fall Time (μs) |
|-------------------|-----------|--------------------|------------------------------|----------------------|------------------------------|-------------------------|-----------------------|
| ALS-PT243-3C/L177 | 5         | 2.5~5.5            | 630                          | 390~700              | min. 7uA                     | 0.1                     | 110 / 220             |



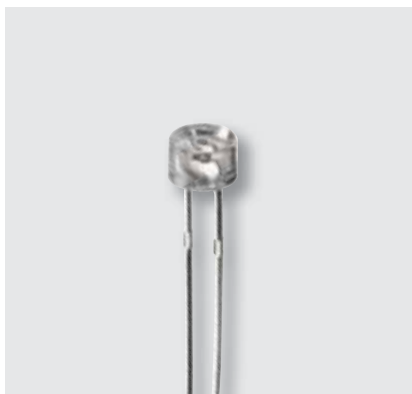
Optical Sensors | Ambient Light Sensor | Analog



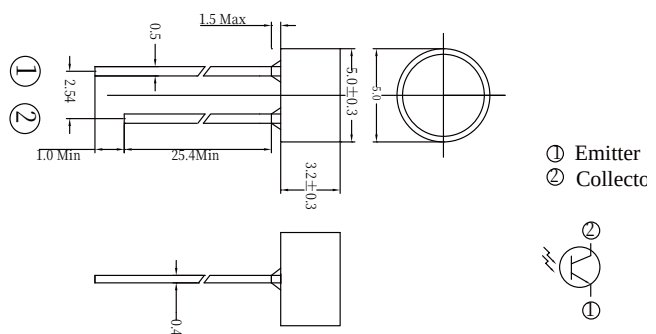
UNIT : mm



| Product             | Size (mm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | I <sub>D_Max</sub> (μA) | Rise / Fall Time (μs) |
|---------------------|-----------|--------------------|------------------------------|----------------------|------------------------------|-------------------------|-----------------------|
| ALS-PDIC144-6C/L378 | 3         | 1.8~5.5            | 550                          | 390~700              | 22~44                        | 0.1                     | 360 / 1130            |



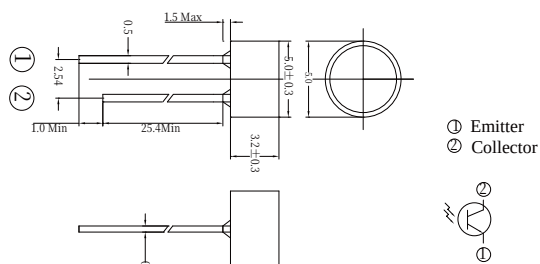
UNIT : mm



| Product        | Size (mm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | I <sub>D_Max</sub> (μA) | Rise / Fall Time (μs) |
|----------------|-----------|--------------------|------------------------------|----------------------|------------------------------|-------------------------|-----------------------|
| ALS-PDIC243-3C | 5         | 1.8~5.5            | 560                          | 390~700              | 24~48                        | 0.1                     | 360 / 1130            |



UNIT : mm

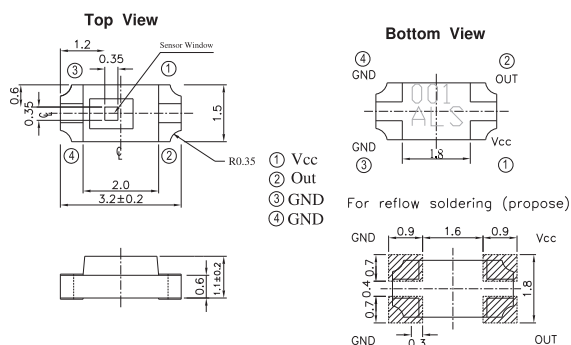


| Product             | Size (mm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | I <sub>D_Max</sub> (μA) | Rise / Fall Time (μs) |
|---------------------|-----------|--------------------|------------------------------|----------------------|------------------------------|-------------------------|-----------------------|
| ALS-PDIC243-3B      | 5         | 1.8~5.5            | 560                          | 390~700              | 10~35                        | 0.1                     | 360 / 1130            |
| ALS-PDIC243-3B/L525 | 5         | 1.8~5.5            | 560                          | 390~700              | 5~15                         | 0.1                     | 360 / 1130            |

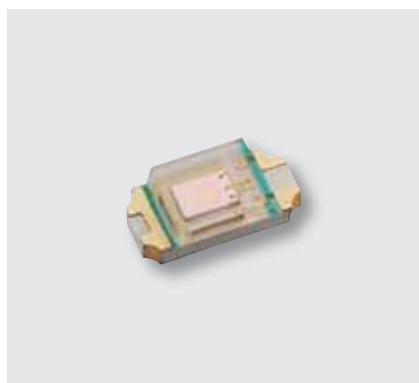
## Optical Sensors | Ambient Light Sensor | Analog



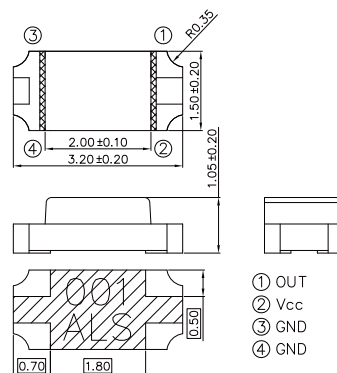
UNIT : mm



| Product            | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=100\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|--------------------|----------------|--------------------|------------------------------|----------------------|-----------------------------------------------|--------------------------|------------------------------|
| ALS-PDIC15-21B/TR8 | 3.2x1.5x1.1    | 1.8~5.5            | 550                          | 390~700              | 5~10                                          | 0.1                      | 360 / 1130                   |



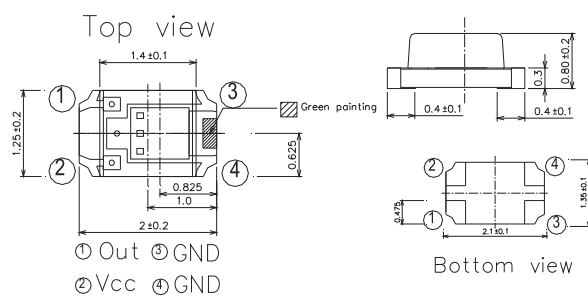
UNIT : mm



| Product                 | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=100\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|-------------------------|----------------|--------------------|------------------------------|----------------------|-----------------------------------------------|--------------------------|------------------------------|
| ALS-PDIC15-21C/L230/TR8 | 3.2x1.5x1.1    | 2.5~5.5            | 590                          | 390~700              | 36~95                                         | 0.1                      | 360 / 1130                   |

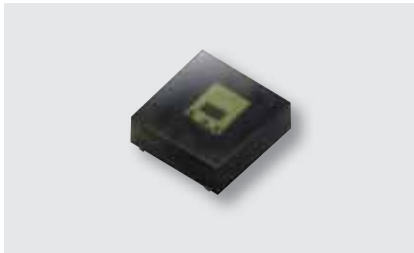


UNIT : mm

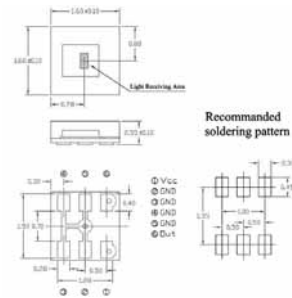


| Product            | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=100\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|--------------------|----------------|--------------------|------------------------------|----------------------|-----------------------------------------------|--------------------------|------------------------------|
| ALS-PDIC17-55C/TR8 | 2x1.25x0.8     | 1.8~5.5            | 590                          | 390~700              | 27~54                                         | 0.1                      | 360 / 1130                   |

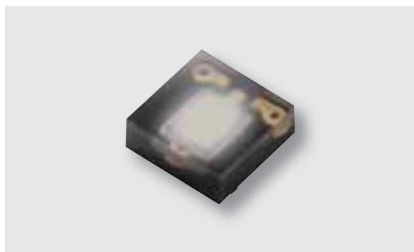
Optical Sensors | Ambient Light Sensor | Analog



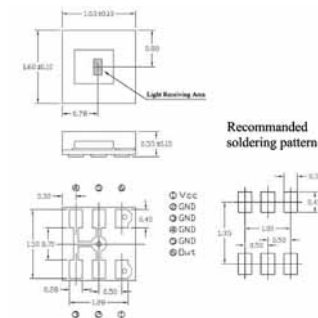
UNIT : mm



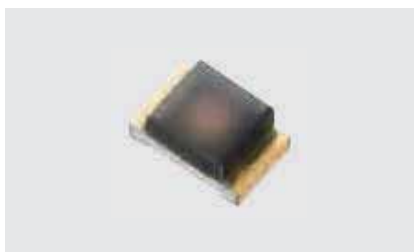
| Product            | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | $I_{D\_Max}$ (uA) | Rise / Fall Time (μs) |
|--------------------|----------------|--------------------|------------------------------|----------------------|------------------------------|-------------------|-----------------------|
| ALS-PDIC17-77B/TR8 | 1.6x1.6x0.55   | 1.8~5.5            | 550                          | 390~700              | 40~80                        | 0.1               | 75 / 200              |



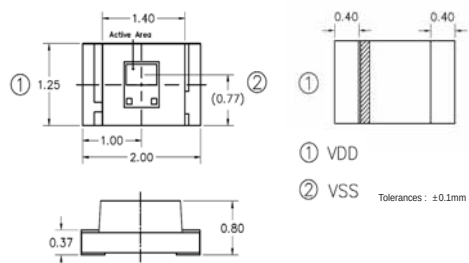
UNIT : mm



| Product            | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | $I_{D\_Max}$ (uA) | Rise / Fall Time (μs) |
|--------------------|----------------|--------------------|------------------------------|----------------------|------------------------------|-------------------|-----------------------|
| ALS-PDIC17-77C/TR8 | 1.6x1.6x0.55   | 1.8~5.5            | 550                          | 390~700              | 27~54                        | 0.1               | 360 / 1130            |



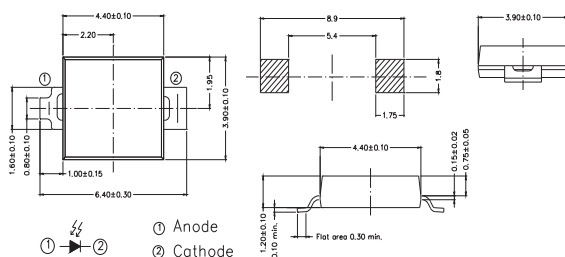
UNIT : mm



| Product                 | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | $I_{D\_Max}$ (uA) | Rise / Fall Time (μs) |
|-------------------------|----------------|--------------------|------------------------------|----------------------|------------------------------|-------------------|-----------------------|
| ALS-PDIC17-51B/L758/TR8 | 2.0x1.25x0.8   | 2 ~ 5.5            | 570                          | 480~630              | 43                           | 0.01              | 9.7 / 12              |

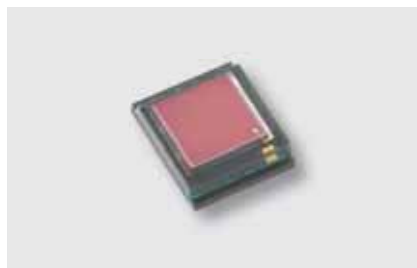


UNIT : mm

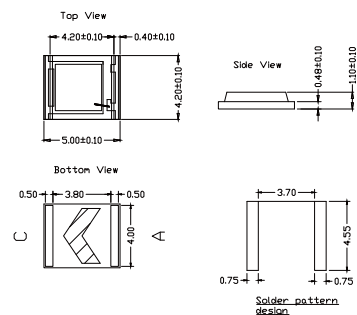


| Product               | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current (uA) Ev=100lux | $I_{D\_Max}$ (uA) | Rise / Fall Time (μs) |
|-----------------------|----------------|--------------------|------------------------------|----------------------|------------------------------|-------------------|-----------------------|
| ALS-PD70-01C/TR7      | 4.4x3.9x1.2    | 2.5~5.5            | 630                          | 390~700              | 1.1                          | 0.01              | -- / --               |
| ALS-PD70-01C/L664/TR7 | 4.4x3.9x1.2    | 2.5~5.5            | 540                          | 400~640              | 0.25                         | 0.01              | -- / --               |

## Optical Sensors | Ambient Light Sensor | Analog



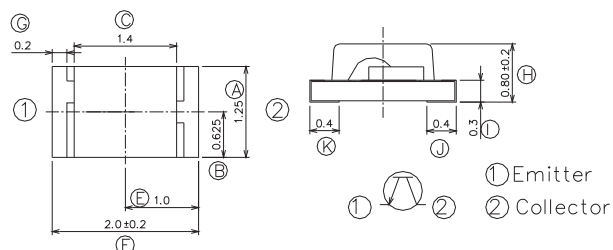
UNIT : mm



| Product          | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=100\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|------------------|----------------|--------------------|------------------------------|----------------------|-----------------------------------------------|--------------------------|------------------------------|
| ALS-PD50-42C/TR8 | 5.0x4.2x1.1    | 2.5~5.5            | 550                          | 400~650              | 0.8                                           | 0.03                     | -- / --                      |



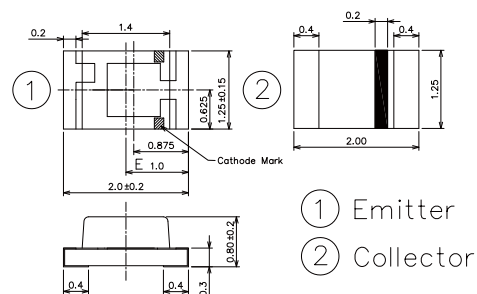
UNIT : mm



| Product               | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=100\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|-----------------------|----------------|--------------------|------------------------------|----------------------|-----------------------------------------------|--------------------------|------------------------------|
| ALS-PT17-51C/L177/TR8 | 2.00x1.25x0.80 | 2.5~5.5            | 630                          | 390~700              | 4~11                                          | 0.1                      | 110 / 220                    |



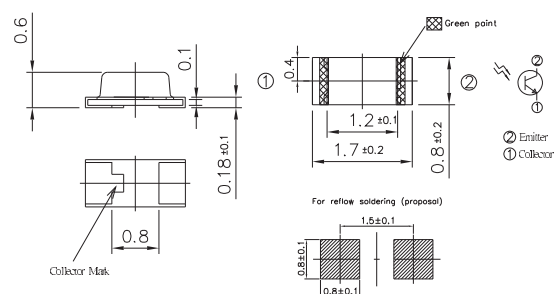
UNIT : mm



| Product                | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=50\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|------------------------|----------------|--------------------|------------------------------|----------------------|----------------------------------------------|--------------------------|------------------------------|
| ALS-PT17-51NB/L369/TR8 | 2.00x1.25x0.80 | 1.8~5.5            | 580                          | 400~700              | 3.5~7                                        | 0.1                      | 130 / 150                    |

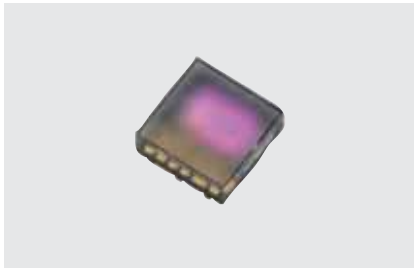


UNIT : mm

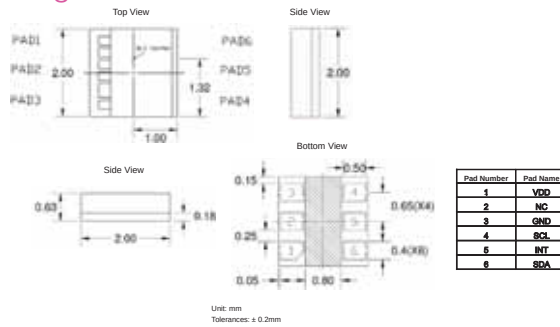


| Product                | Size (LxWxHmm) | Supply Voltage (V) | Sensitivity $\lambda_p$ (nm) | Range $\lambda$ (nm) | Light current ( $\mu A$ ) $E_v=100\text{lux}$ | $I_{D\_Max}$ ( $\mu A$ ) | Rise / Fall Time ( $\mu s$ ) |
|------------------------|----------------|--------------------|------------------------------|----------------------|-----------------------------------------------|--------------------------|------------------------------|
| ALS-PT19-315C/L177/TR8 | 1.7x0.8x0.8    | 2.5~5.5            | 630                          | 390~700              | min. 5 $\mu A$                                | 0.1                      | 110 / 220                    |

Optical Sensors | Ambient Light Sensor | Digital



UNIT : mm

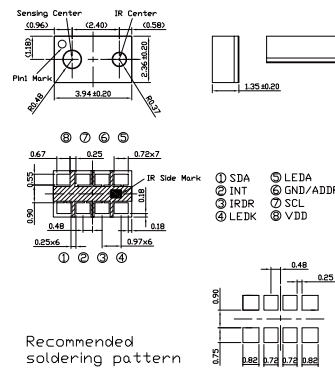


| Product                  | Size (LxWxHmm)     | Supply Voltage (V) | Maximum Detection (lux) | Range λ (nm) | Lux Resolution (lux) | ADC Resolution |
|--------------------------|--------------------|--------------------|-------------------------|--------------|----------------------|----------------|
| ALS-DPDIC17-78C/L749/TR8 | 2.00 x 2.00 x 0.63 | 2.4 ~ 3.6          | 83,000                  | 550          | 0.0033               | 10~16 bit      |

Optical Sensors | Proximity Sensor | Digital



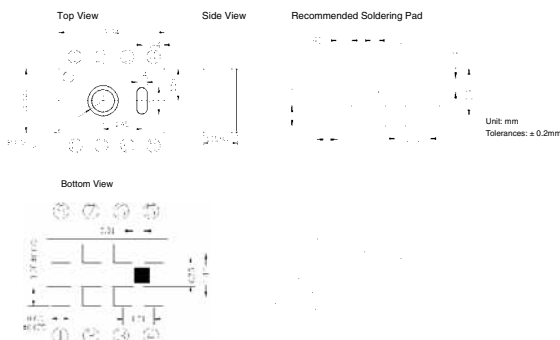
UNIT : mm



| Product              | Size (LxWxHmm)                 | Supply Voltage (V) | Supply Current (uA)                                       | Features                                                          |                     |                              |                          |
|----------------------|--------------------------------|--------------------|-----------------------------------------------------------|-------------------------------------------------------------------|---------------------|------------------------------|--------------------------|
|                      |                                |                    |                                                           | Function                                                          | ADC resolution      | Detection range              | Emitting wavelength (nm) |
| PM-8D23-20-DF8/TR8   | 3.94x2.36x1.35<br>Pitch: 2.4mm | 2.3~3.6V           | DD_PS = 85 without I_LED<br>DD_OFF = 0.01                 | Proximity Sensing<br>IR emitter embedded                          | 8 bit               | up to 10 cm                  | 850nm                    |
| APM-12D23-20-DF8/TR8 | 3.94x2.36x1.35<br>Pitch: 2.4mm | 2.3~3.6V           | DD_ALS = 80<br>DD_PS = 90 without I_LED<br>DD_OFF = 0.1   | Ambient light sensing<br>Proximity Sensing<br>IR emitter embedded | 12 bit<br>8 bit     | 0.012~800 lux<br>up to 10 cm | 850nm                    |
| APM-16D18-00-DF8/TR8 | 3.94x2.36x1.35<br>Pitch: 2.4mm | 1.7~3.5V           | DD_ALS = 130<br>DD_PS = 175 without I_LED<br>DD_OFF = 0.1 | Ambient light sensing<br>Proximity Sensing<br>IR emitter embedded | 10~16 bit<br>16 bit | 0.08m~42K lux<br>up to 10 cm | 850nm                    |

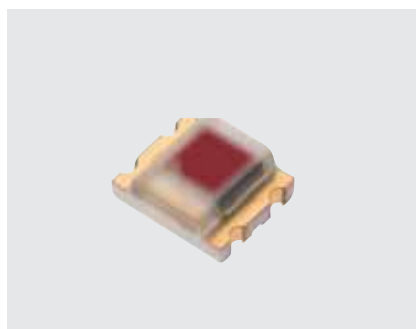


UNIT : mm

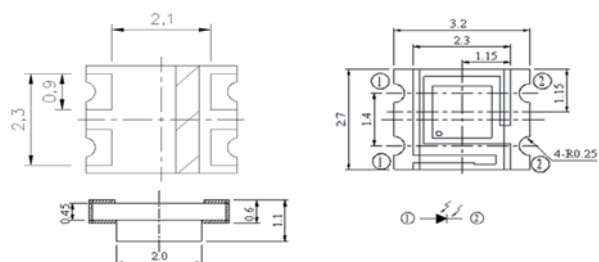


| Product               | Size (LxWxHmm)                  | Supply Voltage (V) | Supply Current (uA)         | Features                                                          |                           |                             |                          |
|-----------------------|---------------------------------|--------------------|-----------------------------|-------------------------------------------------------------------|---------------------------|-----------------------------|--------------------------|
|                       |                                 |                    |                             | Function                                                          | ADC resolution            | Detection range             | Emitting wavelength (nm) |
| APM-16D24-310-DF8/TR8 | 3.94x2.36x1.35<br>Pitch: 1.45mm | 2.4~3.6            | DD_ON = 260<br>DD_OFF = 2.5 | Ambient light sensing<br>Proximity sensing<br>IR emitter embedded | 10 ~ 16 bit<br>8 ~ 12 bit | 2.3m~57K lux<br>up to 10 cm | 850nm                    |

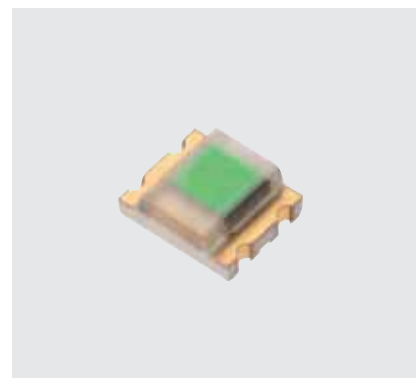
## Optical Sensors ■ RGB Color Sensor ■ Single Color Sensor ■ Analog



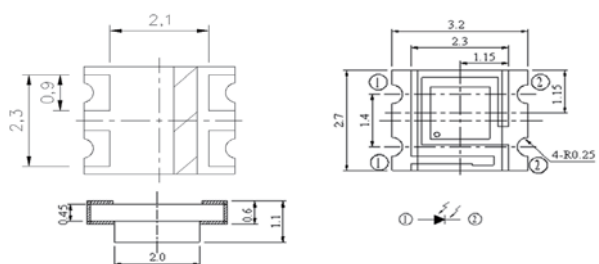
UNIT : mm



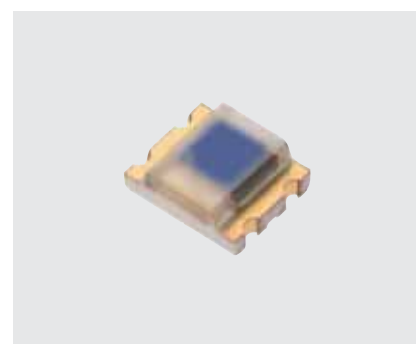
| Product             | Size (LxWxHmm) | Sensitivity $\lambda_p$ (nm) | $V_F$ (V) | Revers light current (Ee=100lux) / $IL^{(1)}$ ( $\mu A$ ) | Revers light current (Ee=1000lux) $IL^{(2)}$ ( $\mu A$ ) |
|---------------------|----------------|------------------------------|-----------|-----------------------------------------------------------|----------------------------------------------------------|
| CLS15-22C/L213R/TR8 | 3.2x2.7x1.1    | 620                          | 0.5~1.3   | 0.091                                                     | 0.83                                                     |



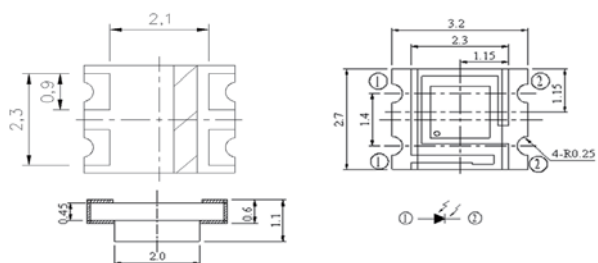
UNIT : mm



| Product             | Size (LxWxHmm) | Sensitivity $\lambda_p$ (nm) | $V_F$ (V) | Revers light current (Ee=100lux) / $IL^{(1)}$ ( $\mu A$ ) | Revers light current (Ee=1000lux) $IL^{(2)}$ ( $\mu A$ ) |
|---------------------|----------------|------------------------------|-----------|-----------------------------------------------------------|----------------------------------------------------------|
| CLS15-22C/L213G/TR8 | 3.2x2.7x1.1    | 550                          | 0.5~1.3   | 0.082                                                     | 0.72                                                     |



UNIT : mm



| Product             | Size (LxWxHmm) | Sensitivity $\lambda_p$ (nm) | $V_F$ (V) | Revers light current (Ee=100lux) / $IL^{(1)}$ ( $\mu A$ ) | Revers light current (Ee=1000lux) $IL^{(2)}$ ( $\mu A$ ) |
|---------------------|----------------|------------------------------|-----------|-----------------------------------------------------------|----------------------------------------------------------|
| CLS15-22C/L213B/TR8 | 3.2x2.7x1.1    | 470                          | 0.5~1.3   | 0.046                                                     | 0.39                                                     |

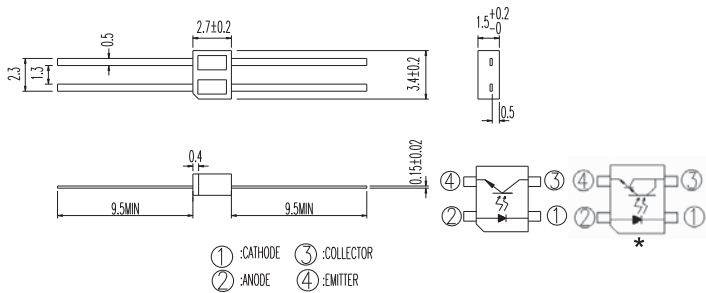




Optical Sensors | Reflective Sensor



UNIT : mm

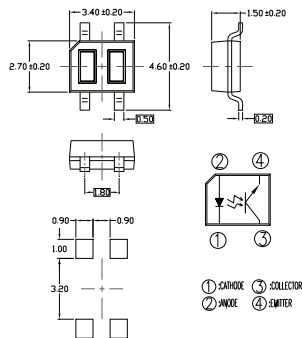


| Product      | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|--------------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR8307      | 3.4x2.7x1.5    | 1.2                    | 1.6                    | 0.4                          | 0.1                         | 100                        |
| *ITR8307/L24 | 3.4x2.7x1.5    | 1.2                    | 1.4                    | --                           | 0.5                         | 1000                       |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark.



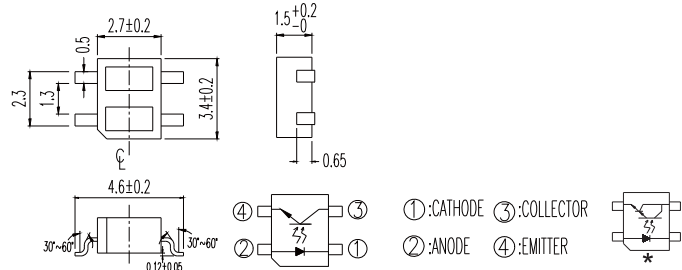
UNIT : mm



| Product          | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|------------------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR1201SR10AR/TR | 3.4x2.7x1.5    | 1.2                    | 1.4                    | --                           | 0.1                         | 100                        |



UNIT : mm



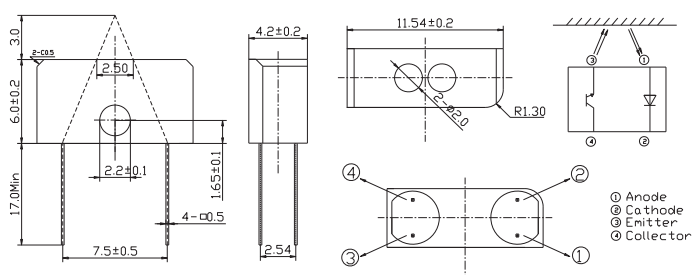
| Product          | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|------------------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| *ITR8307/L24/TR8 | 3.4x2.7x1.5    | 1.2                    | 1.4                    | --                           | 0.5                         | 1000                       |
| ITR8307/TR8      | 3.4x2.7x1.5    | 1.2                    | 1.6                    | 0.4                          | 0.1                         | 100                        |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark.

Optical Sensors | Reflective Sensor



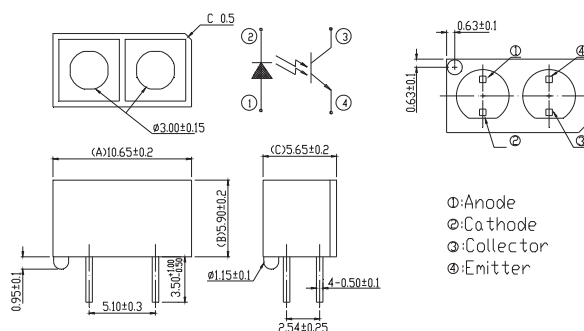
UNIT : mm



| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR9904 | 11.54x4.2x6    | 1.2                    | 1.5                    | 0.4                          | 0.1                         | 100                        |



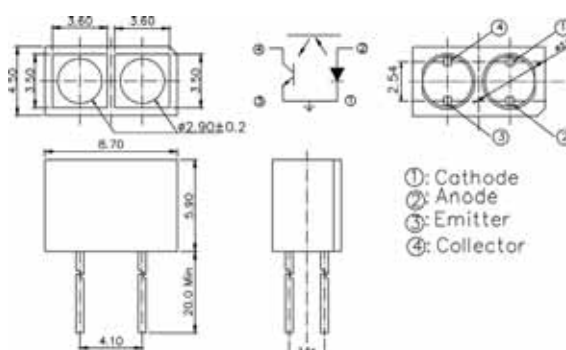
UNIT : mm



| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR9908 | 10.65x5.65x5.9 | 1.2                    | 1.5                    | 0.4                          | 0.5                         | 100                        |



UNIT : mm

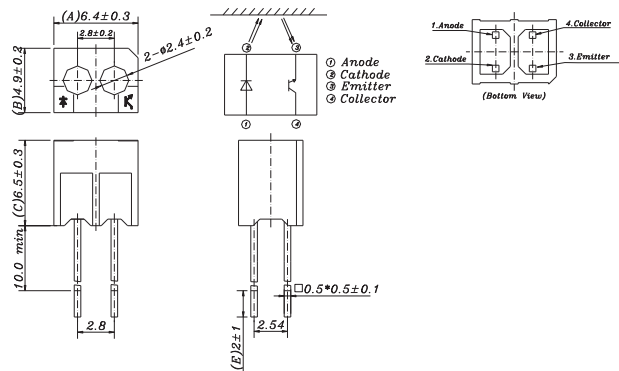


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR9909 | 8.7x4.5x5.9    | 1.2                    | 1.5                    | 0.4                          | 0.2                         | 100                        |

Optical Sensors | Reflective Sensor



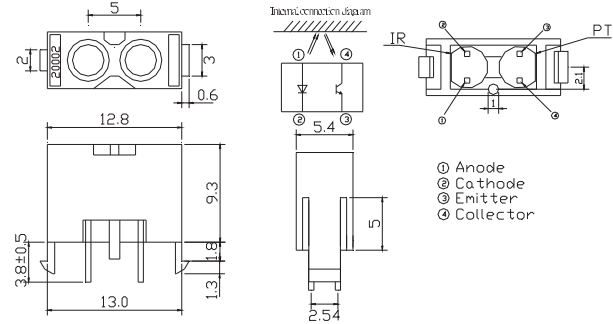
UNIT : mm



| Product    | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|------------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR20001/T | 6.4x4.9x6.5    | 1.2                    | 1.5                    | 0.4                          | 0.2                         | 100                        |



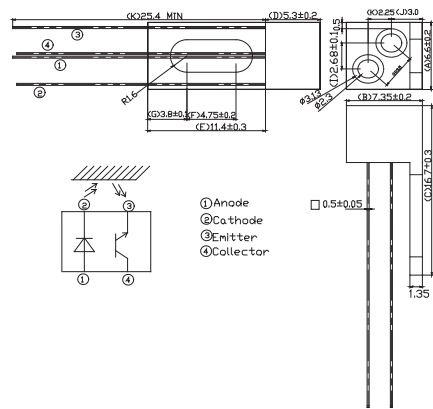
UNIT : mm



| Product  | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|----------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR20002 | 12.8x5.4x9.3   | 1.2                    | 1.5                    | 0.4                          | 0.04                        | 100                        |



UNIT : mm



| Product  | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) |
|----------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|
| ITR20501 | 7.35x6.6x5.3   | 1.2                    | 1.5                    | 0.4                          | 0.02                        | 100                        |



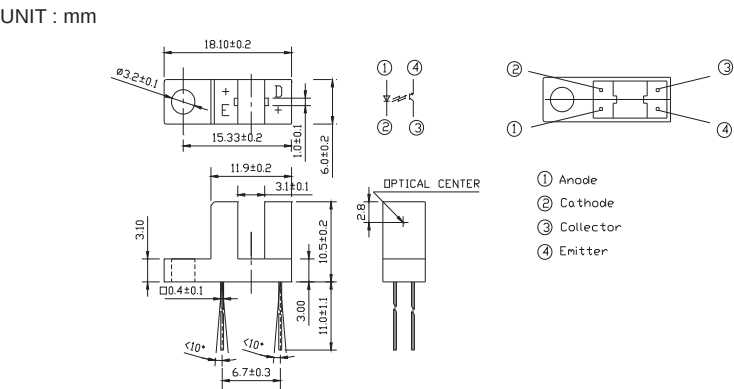
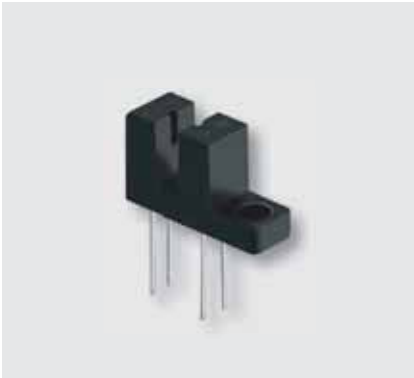
Technical drawing of the 6000 series vacuum tube pinout. The drawing includes a top view, a side view, and a detail view of the base. Dimensions are given in millimeters. The top view shows a 7.5mm wide base with a 5mm central area. The side view shows a 6.3mm height and a 3.4±0.3mm base width. The detail view shows a 0.7mm wide base with a 0.2±0.1mm central area. The legend indicates: 1: Anode, 2: Cathode, 3: Collector, 4: Emitter.

① Cathode  
② Anode  
③ Collector  
④ Emitter

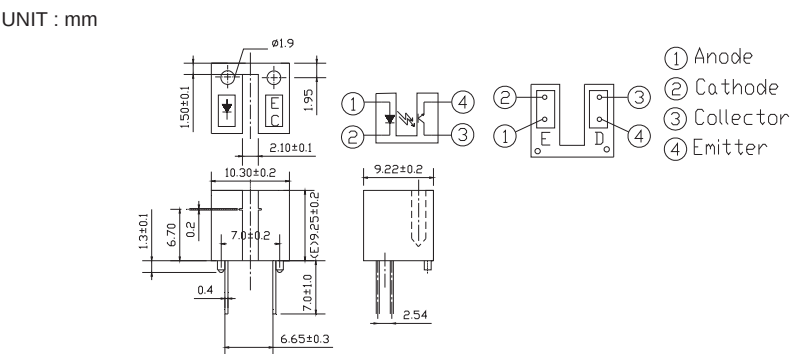
Typ.0.30  
Typ.0.75  
Typ.0.80  
3.10 ± 0.10  
2.00 ± 0.10  
H.10 ± 0.10  
2.70 ± 0.10  
0.10Max  
ID Mark  
0.15  
0.80  
0.30  
Typ.1.30

243

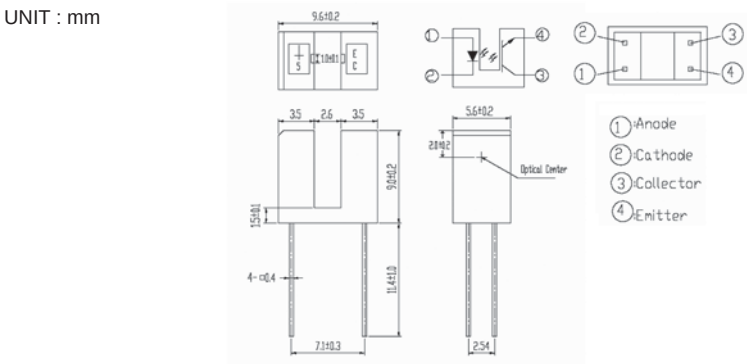
Optical Sensors | Transmissive Sensor



| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) | Gap Distance (mm) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| ITR8104 | 18.1x6x10.5    | 1.2                    | 1.5                    | 0.4                          | 0.9                         | 100                        | 3.1               |

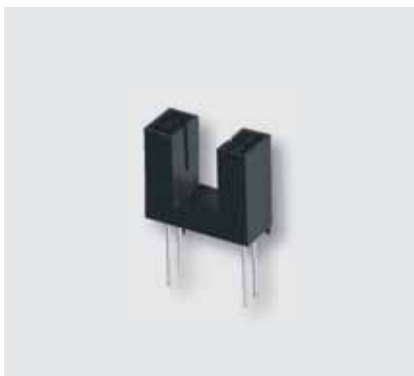


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) | Gap Distance (mm) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| ITR8010 | 10.3x9.22x9.25 | 1.2                    | 1.6                    | 0.4                          | 0.5                         | 100                        | 2.1               |

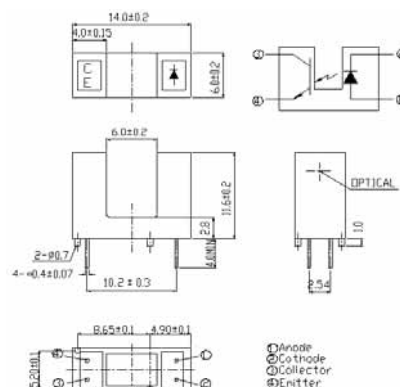


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) | Gap Distance (mm) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| ITR8105 | 9.6x5.6x9      | 1.2                    | 1.6                    | 0.4                          | 0.9                         | 100                        | 2.6               |

## Optical Sensors | Transmissive Sensor



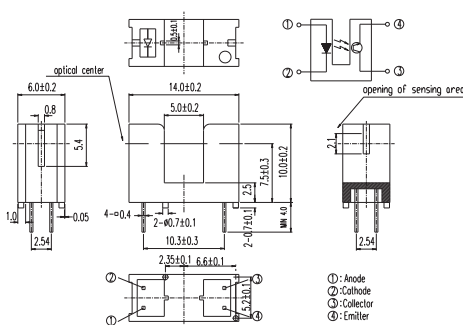
UNIT : mm



| Product     | Size<br>(LxWxHmm) | V <sub>F</sub> _Typ<br>(V) | V <sub>F</sub> _Max<br>(V) | V <sub>CE(SAT)</sub> _Max<br>(V) | I <sub>C(ON)</sub> _Min<br>(mA) | I <sub>CEO</sub> _Max.<br>(nA) | Gap<br>Distance<br>(mm) |
|-------------|-------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|--------------------------------|-------------------------|
| ITR8402-F-A | 14.0x6x11.6       | 1.2                        | 1.5                        | 0.4                              | 0.5                             | 100                            | 6                       |



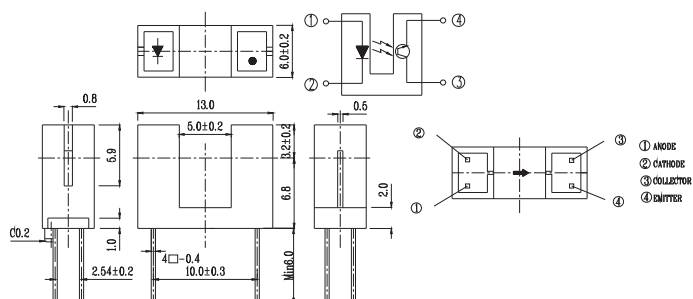
UNIT : mm



| Product   | Size<br>(LxWxHmm) | V <sub>F</sub> _Typ<br>(V) | V <sub>F</sub> _Max<br>(V) | V <sub>CE(SAT)</sub> _Max<br>(V) | I <sub>C(ON)</sub> _Min<br>(mA) | I <sub>CEO</sub> _Max.<br>(nA) | Gap<br>Distance<br>(mm) |
|-----------|-------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|--------------------------------|-------------------------|
| ITR9606-F | 14x6x10           | 1.2                        | 1.5                        | 0.4                              | 0.5                             | 100                            | 5                       |



UNIT : mm

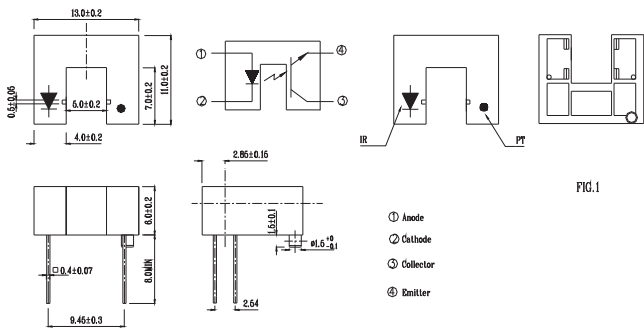


| Product   | Size<br>(LxWxHmm) | V <sub>F</sub> _Typ<br>(V) | V <sub>F</sub> _Max<br>(V) | V <sub>CE(SAT)</sub> _Max<br>(V) | I <sub>C(ON)</sub> _Min<br>(mA) | I <sub>CEO</sub> _Max.<br>(nA) | Gap<br>Distance<br>(mm) |
|-----------|-------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|--------------------------------|-------------------------|
| ITR9608-F | 13x6x10           | 1.2                        | 1.5                        | 0.4                              | 0.5                             | 100                            | 5                       |

Optical Sensors | Transmissive Sensor



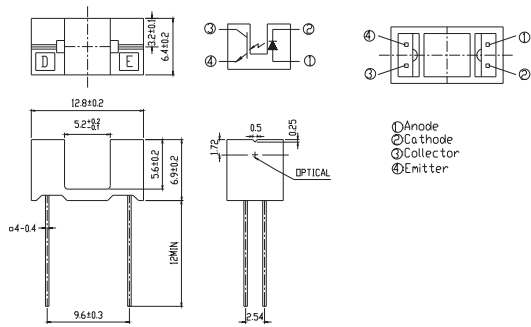
UNIT : mm



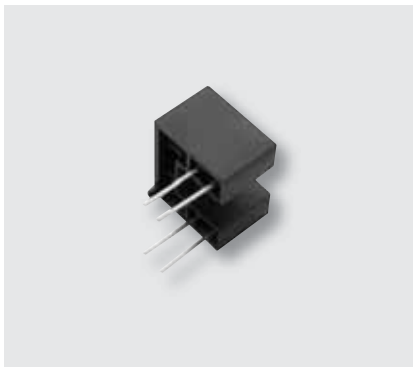
| Product   | Size<br>(LxWxHmm) | V <sub>F_Typ</sub><br>(V) | V <sub>F_Max</sub><br>(V) | V <sub>CE(SAT)_Max</sub><br>(V) | I <sub>C(ON)_Min</sub><br>(mA) | I <sub>CEO_Max.</sub><br>(nA) | Gap<br>Distance<br>(mm) |
|-----------|-------------------|---------------------------|---------------------------|---------------------------------|--------------------------------|-------------------------------|-------------------------|
| ITR9702-F | 13x11x6           | 1.2                       | 1.5                       | 0.4                             | 0.5                            | 100                           | 5                       |



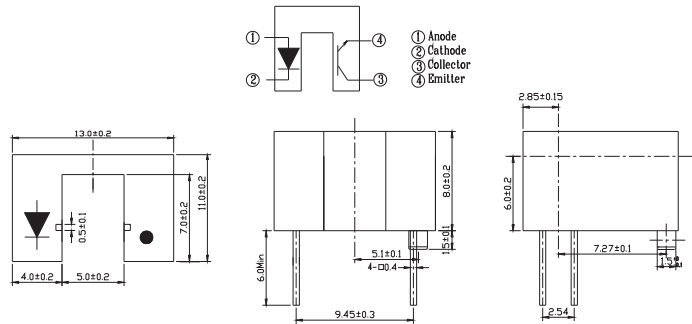
UNIT : mm



| Product | Size<br>(LxWxHmm) | V <sub>F_Typ</sub><br>(V) | V <sub>F_Max</sub><br>(V) | V <sub>CE(SAT)_Max</sub><br>(V) | I <sub>C(ON)_Min</sub><br>(mA) | I <sub>CEO_Max.</sub><br>(nA) | Gap<br>Distance<br>(mm) |
|---------|-------------------|---------------------------|---------------------------|---------------------------------|--------------------------------|-------------------------------|-------------------------|
| ITR9707 | 12.8x6.4x6.9      | 1.2                       | 1.5                       | 0.4                             | 0.5                            | 100                           | 5.2                     |



UNIT : mm



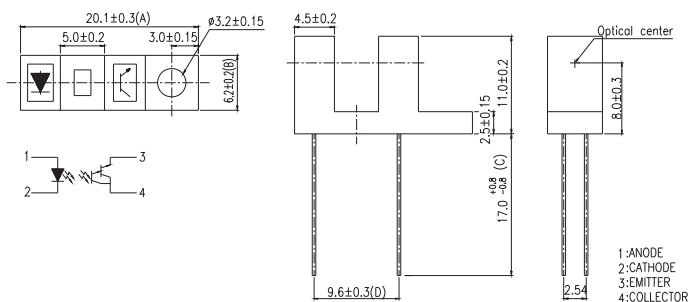
| Product     | Size<br>(LxWxHmm) | V <sub>F_Typ</sub><br>(V) | V <sub>F_Max</sub><br>(V) | V <sub>CE(SAT)_Max</sub><br>(V) | I <sub>C(ON)_Min</sub><br>(mA) | I <sub>CEO_Max.</sub><br>(nA) | Gap<br>Distance<br>(mm) |
|-------------|-------------------|---------------------------|---------------------------|---------------------------------|--------------------------------|-------------------------------|-------------------------|
| ITR9809-F/T | 13x11x8           | 1.2                       | 1.5                       | 0.4                             | 1                              | 100                           | 5                       |



Optical Sensors | Transmissive Sensor



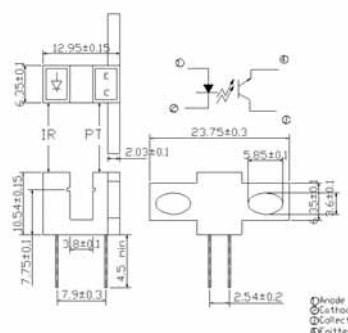
UNIT : mm



| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) | Gap Distance (mm) |
|---------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| ITR9813 | 20.1x6.2x11    | 1.2                    | 1.5                    | 0.4                          | 0.5                         | 100                        | 5                 |



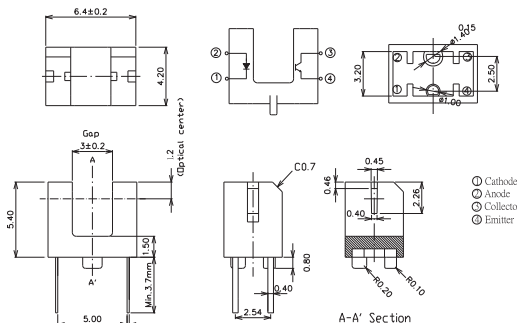
UNIT : mm



| Product    | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) | Gap Distance (mm) |
|------------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| ITR20005-F | 23.7x13x10.5   | 1.2                    | 1.5                    | 0.4                          | 0.6                         | 100                        | 3.8               |

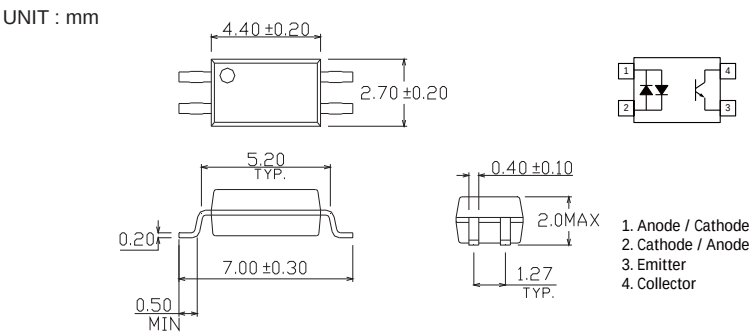


UNIT : mm



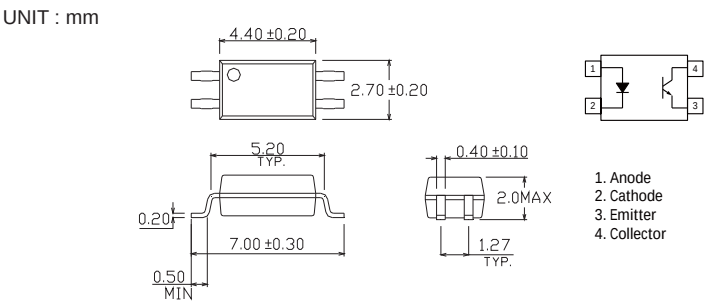
| Product  | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | V <sub>F_Max</sub> (V) | V <sub>CE(SAT)_Max</sub> (V) | I <sub>C(ON)_Min</sub> (mA) | I <sub>CEO_Max.</sub> (nA) | Gap Distance (mm) |
|----------|----------------|------------------------|------------------------|------------------------------|-----------------------------|----------------------------|-------------------|
| ITR20403 | 6.4x4.2x5.4    | 1.2                    | 1.6                    | 0.4                          | 0.2                         | 100                        | 3                 |

Photo Coupler | Transistor | 4Pin SSOP-AC



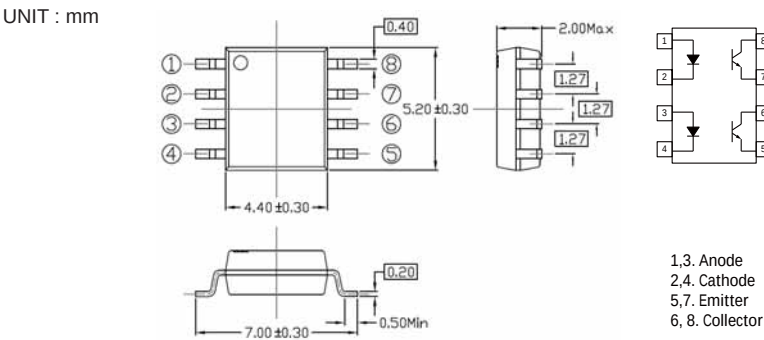
| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO_Min</sub> (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub> (V) |
|---------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL3H4-G | 4.4x2.7x2      | 1.2                    | 6 / 8                 | 80                        | 20~300  | 3750                     | 0.2                          |

Photo Coupler | Transistor | 4Pin SSOP-DC



| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO_Min</sub> (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub> (V) |
|---------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL3H7-G | 4.4x2.7x2      | 1.2                    | 5 / 3                 | 80                        | 50~600  | 3750                     | 0.2                          |

Photo Coupler | Transistor | 8Pin SSOP-DC

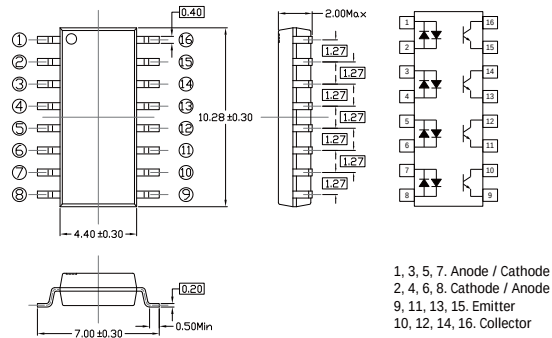


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO_Min</sub> (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub> (V) |
|---------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| ELD3H7  | 5.2×4.4×2      | 1.2                    | 5 / 3                 | 80                        | 50~600  | 3750                     | 0.2                          |

Photo Coupler I Transistor I 16Pin SSOP-AC



UNIT : mm

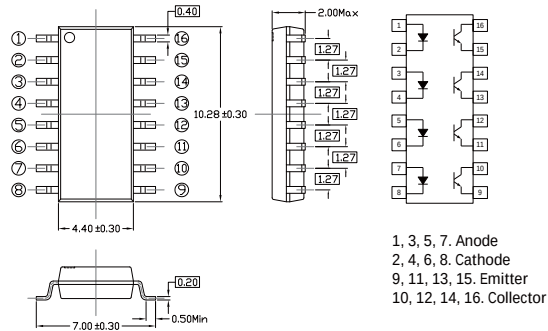


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO_Min</sub> (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub> (V) |
|---------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| ELQ3H4  | 10.28×4.4×2    | 1.2                    | 5 / 3                 | 80                        | 20~300  | 3750                     | 0.2                          |

Photo Coupler I Transistor I 16Pin SSOP-DC



UNIT : mm

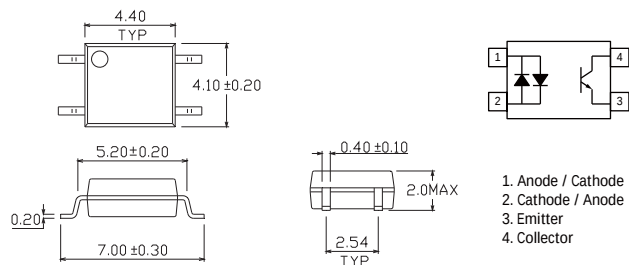


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO_Min</sub> (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub> (V) |
|---------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| ELQ3H7  | 10.28×4.4×2    | 1.2                    | 5 / 3                 | 80                        | 50~600  | 3750                     | 0.2                          |

Photo Coupler I Transistor I 4Pin SOP-AC



UNIT : mm

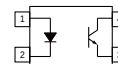
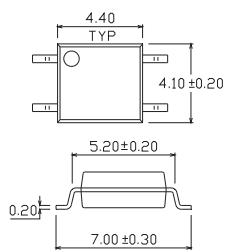


| Product  | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO_Min</sub> (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub> (V) |
|----------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL354N-G | 4.4x4.1x2      | 1.2                    | 6 / 8                 | 80                        | 20~300  | 3750                     | 0.2                          |

## Photo Coupler | Transistor | 4Pin SOP-DC



UNIT : mm

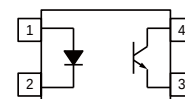
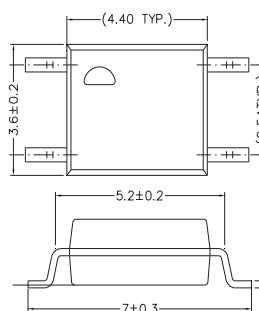


1. Anode
2. Cathode
3. Emitter
4. Collector

| Product  | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|----------|----------------|-------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL357N-G | 4.4x4.1x2      | 1.2                     | 3 / 4                 | 80                        | 50~600  | 3750                     | 0.2                          |



UNIT : mm



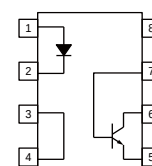
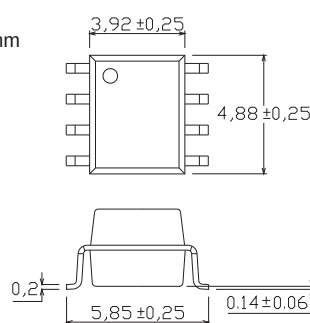
1. Anode
2. Cathode
3. Emitter
4. Collector

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|---------|----------------|-------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL121N  | 4.4x3.6x2      | 1.2                     | 3 / 4                 | 80                        | 50~600  | 3750                     | 0.2                          |

## Photo Coupler | Transistor | 8Pin SOP-DC



UNIT : mm



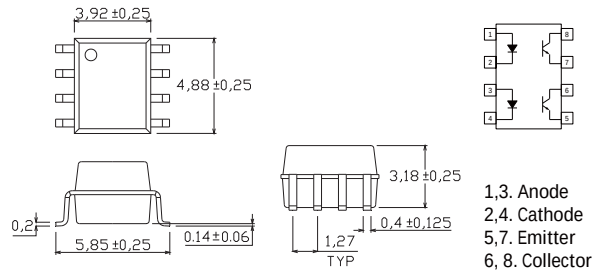
1. Anode
2. Cathode
3. No Connection
4. No Connection
5. Emitter
6. Collector
7. Base
8. No Connection

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%)  | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|---------|----------------|-------------------------|-----------------------|---------------------------|----------|--------------------------|------------------------------|
| EL205   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 40~80    | 3750                     | 0.4                          |
| EL206   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 63~125   | 3750                     | 0.4                          |
| EL207   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 100~200  | 3750                     | 0.4                          |
| EL208   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 160~320  | 3750                     | 0.4                          |
| EL211   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 20 min.  | 3750                     | 0.4                          |
| EL212   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 50 min.  | 3750                     | 0.4                          |
| EL213   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 100 min. | 3750                     | 0.4                          |
| EL215   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 10 min.  | 3750                     | 0.4                          |
| EL216   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 50 min.  | 3750                     | 0.4                          |
| EL217   | 4.88x3.92x3.18 | 1.3                     | 1.6 / 2.2             | 80                        | 100 min. | 3750                     | 0.4                          |

Photo Coupler I Transistor I 8Pin SOP-DC



UNIT : mm

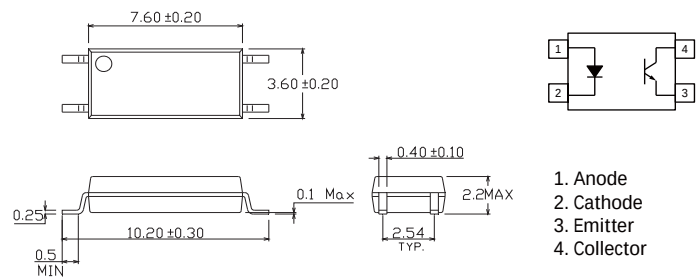


| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%)  | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|---------|----------------|-------------------------|-----------------------|---------------------------|----------|--------------------------|------------------------------|
| ELD205  | 4.88x3.92x3.18 | 1.2                     | 1.6 / 2.2             | 80                        | 40~80    | 3750                     | 0.4                          |
| ELD206  | 4.88x3.92x3.18 | 1.2                     | 1.6 / 2.2             | 80                        | 63~125   | 3750                     | 0.4                          |
| ELD207  | 4.88x3.92x3.18 | 1.2                     | 1.6 / 2.2             | 80                        | 100~200  | 3750                     | 0.4                          |
| ELD211  | 4.88x3.92x3.18 | 1.2                     | 1.6 / 2.2             | 80                        | 20 min.  | 3750                     | 0.4                          |
| ELD213  | 4.88x3.92x3.18 | 1.2                     | 1.6 / 2.2             | 80                        | 100 min. | 3750                     | 0.4                          |
| ELD217  | 4.88x3.92x3.18 | 1.2                     | 1.6 / 2.2             | 80                        | 100 min. | 3750                     | 0.4                          |

Photo Coupler I Transistor I 4Pin LSOP-DC



UNIT : mm

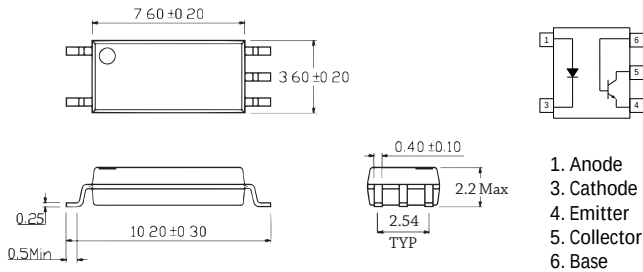


| Product  | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|----------|----------------|-------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL1010-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 50~600  | 5000                     | 0.3                          |
| EL1012-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 63~125  | 5000                     | 0.3                          |
| EL1013-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 100~200 | 5000                     | 0.3                          |
| EL1014-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 160~320 | 5000                     | 0.3                          |
| EL1017-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 80~160  | 5000                     | 0.3                          |
| EL1018-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 130~260 | 5000                     | 0.3                          |
| EL1019-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 200~400 | 5000                     | 0.3                          |

Photo Coupler | Transistor | 5Pin LSOP-DC



UNIT : mm

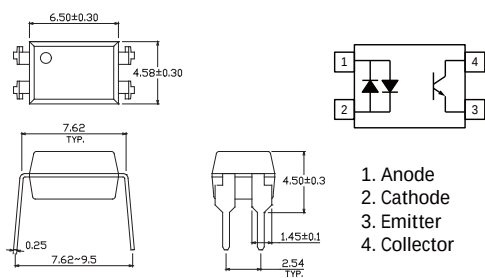


| Product  | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|----------|----------------|-------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL1110-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 50~600  | 5000                     | 0.4                          |
| EL1112-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 63~125  | 5000                     | 0.4                          |
| EL1113-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 100~200 | 5000                     | 0.4                          |
| EL1114-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 160~320 | 5000                     | 0.4                          |
| EL1116-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 100~300 | 5000                     | 0.4                          |
| EL1117-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 80~160  | 5000                     | 0.4                          |
| EL1118-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 130~260 | 5000                     | 0.4                          |
| EL1119-G | 7.6x3.6x2.2    | 1.45                    | 2 / 3                 | 80                        | 200~400 | 5000                     | 0.4                          |

Photo Coupler | Transistor | 4Pin DIP-AC



UNIT : mm

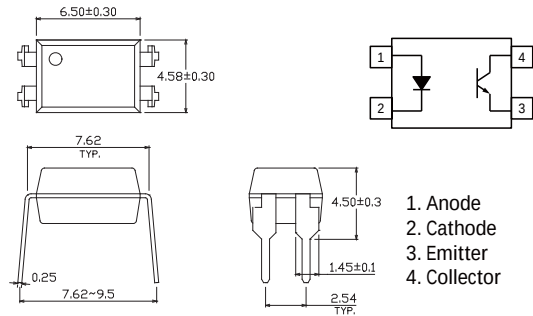


| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|---------|----------------|-------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL814   | 6.5x4.58x3.5   | 1.2                     | 7 / 11                | 80                        | 20~300  | 5000                     | 0.2                          |

Photo Coupler I Transistor I 4Pin DIP-DC



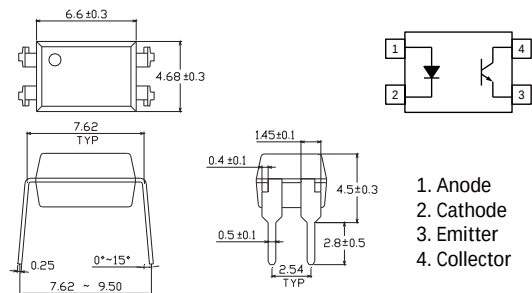
UNIT : mm



| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL816   | 6.5x4.58x3.5   | 1.2                     | 4 / 3                 | 80                         | 50~600  | 5000                     | 0.2                           |
| EL817   | 6.5x4.58x3.5   | 1.2                     | 4 / 3                 | 35                         | 50~600  | 5000                     | 0.2                           |
| EL817-G | 6.5x4.58x3.5   | 1.2                     | 6 / 8                 | 80                         | 50~600  | 5000                     | 0.2                           |
| EL851   | 6.5x4.58x3.5   | 1.2                     | 4 / 5                 | 350                        | 50~600  | 5000                     | 0.4                           |



UNIT : mm

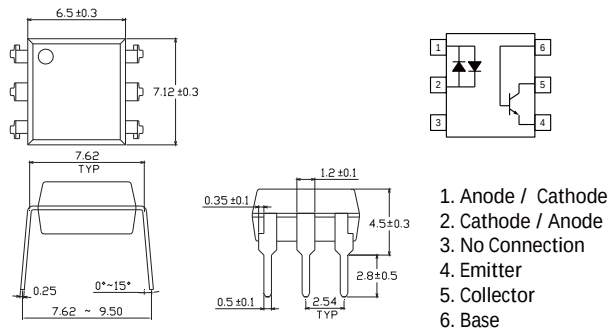


| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL617   | 6.6x4.68x3.5   | 1.2                     | 4 / 3                 | 80                         | 50~600  | 5000                     | 0.2                           |

Photo Coupler I Transistor I 6Pin DIP-AC



UNIT : mm



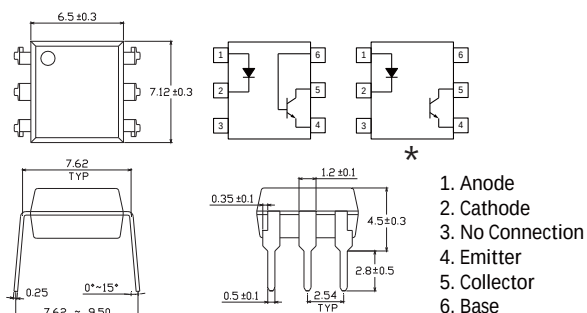
| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%)  | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|----------|--------------------------|-------------------------------|
| H11AA1  | 7.12x6.5x3.5   | 1.2                     | 10 / 10               | 80                         | 20 min.  | 5000                     | 0.4                           |
| H11AA2  | 7.12x6.5x3.5   | 1.2                     | 10 / 10               | 80                         | 10 min.  | 5000                     | 0.4                           |
| H11AA3  | 7.12x6.5x3.5   | 1.2                     | 10 / 10               | 80                         | 50 min.  | 5000                     | 0.4                           |
| H11AA4  | 7.12x6.5x3.5   | 1.2                     | 10 / 10               | 80                         | 100 min. | 5000                     | 0.4                           |



## Photo Coupler | Transistor | 6Pin DIP-DC



UNIT : mm



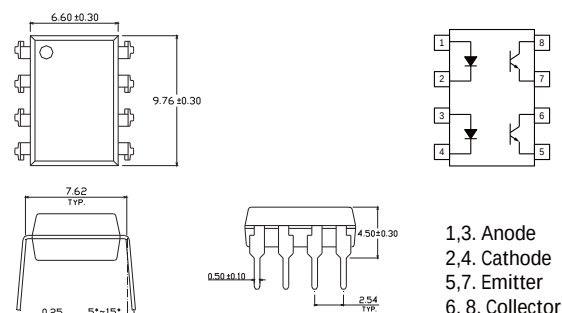
| Product   | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%)  | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|-----------|----------------|------------------------|-----------------------|---------------------------|----------|--------------------------|------------------------------|
| 4N25      | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 20 min.  | 5000                     | 0.5                          |
| 4N26      | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 20 min.  | 5000                     | 0.5                          |
| 4N27      | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 10 min.  | 5000                     | 0.5                          |
| 4N28      | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 10 min.  | 5000                     | 0.5                          |
| 4N35      | 7.12x6.5x3.5   | 1.2                    | 10 / 9                | 80                        | 100 min. | 5000                     | 0.3                          |
| 4N36      | 7.12x6.5x3.5   | 1.2                    | 10 / 9                | 80                        | 100 min. | 5000                     | 0.3                          |
| 4N37      | 7.12x6.5x3.5   | 1.2                    | 10 / 9                | 80                        | 100 min. | 5000                     | 0.3                          |
| 4N38      | 7.12x6.5x3.5   | 1.2                    | 10 / 9                | 80                        | 20 min.  | 5000                     | 1                            |
| CNY17-1   | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 40~80    | 5000                     | 0.3                          |
| CNY17-2   | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 63~125   | 5000                     | 0.3                          |
| CNY17-3   | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 100~200  | 5000                     | 0.3                          |
| CNY17-4   | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 160~320  | 5000                     | 0.3                          |
| *CNY17F-1 | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 40~80    | 5000                     | 0.3                          |
| *CNY17F-2 | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 63~125   | 5000                     | 0.3                          |
| *CNY17F-3 | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 100~200  | 5000                     | 0.3                          |
| *CNY17F-4 | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 160~320  | 5000                     | 0.3                          |
| H11A1     | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 50 min.  | 5000                     | 0.4                          |
| H11A2     | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 20 min.  | 5000                     | 0.4                          |
| H11A3     | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 20 min.  | 5000                     | 0.4                          |
| H11A4     | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 10 min.  | 5000                     | 0.4                          |
| H11A5     | 7.12x6.5x3.5   | 1.2                    | 3 / 3                 | 80                        | 30 min.  | 5000                     | 0.4                          |
| MCT2E     | 7.12x6.5x3.5   | 1.23                   | 3 / 3                 | 80                        | 20 min.  | 5000                     | 0.4                          |
| TIL111    | 7.12x6.5x3.5   | 1.22                   | 6 / 8                 | 80                        | --       | 5000                     | 0.4                          |
| TIL117    | 7.12x6.5x3.5   | --                     | 6 / 8                 | 80                        | 50 min.  | 5000                     | 0.4                          |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark

## Photo Coupler | Transistor | 8Pin DIP-DC



UNIT : mm

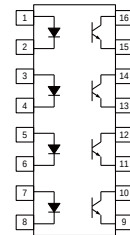
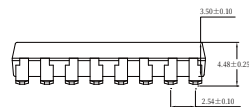
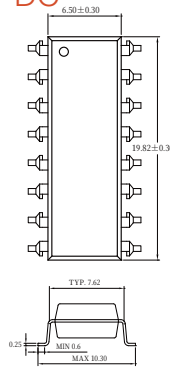


| Product | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|---------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL827   | 9.76x6.6 x3.5  | 1.2                    | 3 / 4                 | 80                        | 50~600  | 5000                     | 0.2                          |

Photo Coupler ■ Transistor ■ 16Pin DIP-DC



UNIT : mm



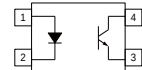
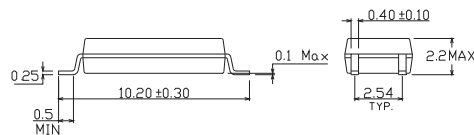
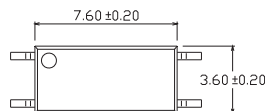
1, 3, 5, 7. Anode  
2, 4, 6, 8. Cathode  
9, 11, 13, 15. Emitter  
10, 12, 14, 16. Collector

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL847   | 19.82×6.5×3.5  | 1.2                     | 4 / 3                 | 80                         | 50~600  | 5000                     | 0.2                           |

Photo Coupler ■ Transistor Low Input Current ■ 4pin LSOP-DC



UNIT : mm



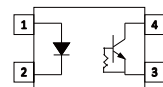
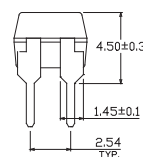
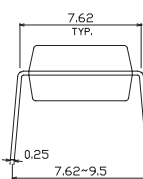
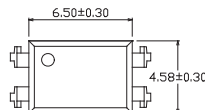
1. Anode  
2. Cathode  
3. Emitter  
4. Collector

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL357L  | 7.6×3.6×2.2    | 1.45                    | 7 / 8                 | 80                         | 63~300  | 5000                     | 0.4                           |

Photo Coupler ■ Transistor Low Input Current ■ 4pin DIP-DC



UNIT : mm



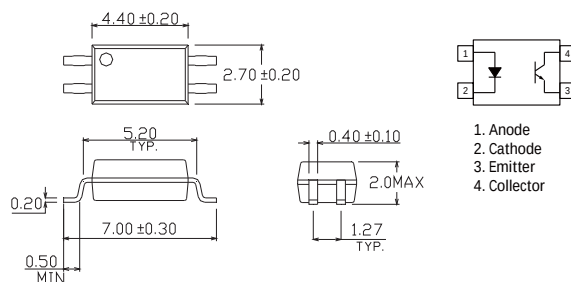
1. Anode  
2. Cathode  
3. Emitter  
4. Collector

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL8171  | 6.5×4.58×3.5   | 1.2                     | 6 / 8                 | 70                         | 100~350 | 5000                     | 0.2                           |

## Photo Coupler ■ Transistor Ultra Low Input Current ■ 4pin SSOP-DC



UNIT : mm

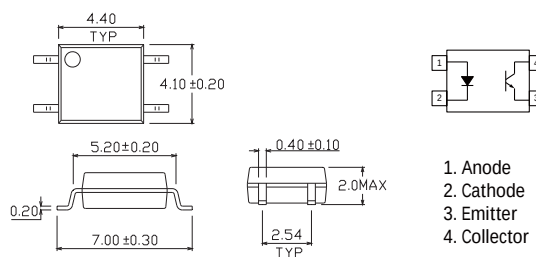


| Product  | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|----------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL3H7L-G | 4.4×2.7×2      | 1.3                     | 8/12                  | 80                         | 50~600  | 3750                     | 0.3                           |

## Photo Coupler ■ Transistor Ultra Low Input Current ■ 4pin SOP-DC



UNIT : mm

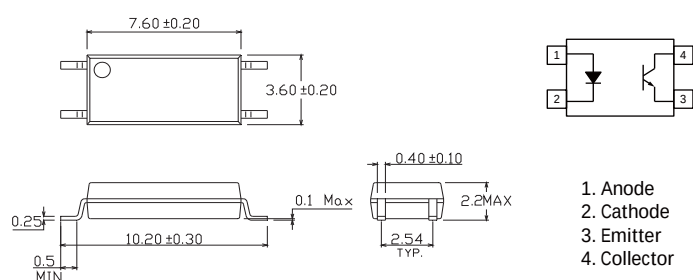


| Product   | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|-----------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL357NL-G | 4.4×4.1×2      | 1.3                     | 8/12                  | 80                         | 50~600  | 3750                     | 0.3                           |

## Photo Coupler ■ Transistor Ultra Low Input Current ■ 4pin LSOP-DC



UNIT : mm

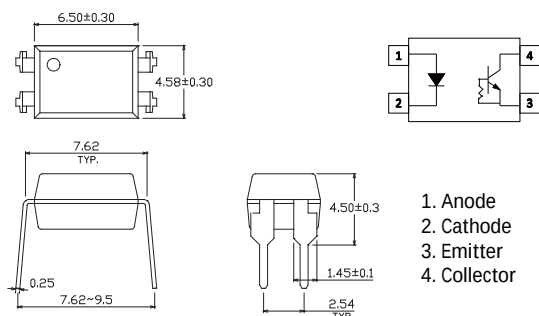


| Product  | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|----------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------|-------------------------------|
| EL101L-G | 7.6×3.6×2.2    | 1.3                     | 8/12                  | 80                         | 50~600  | 5000                     | 0.3                           |

Photo Coupler ■ Transistor Ultra Low Input Current ■ 4pin DIP-DC



UNIT : mm

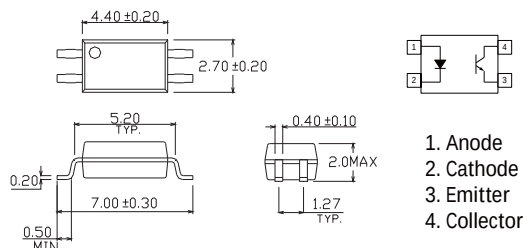


| Product  | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|----------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL817L-G | 6.5×4.58×3.5   | 1.3                    | 8/12                  | 80                        | 50~600  | 5000                     | 0.3                          |

Photo Coupler ■ Transistor High Operating Temperature ■ 4pin SSOP-DC



UNIT : mm

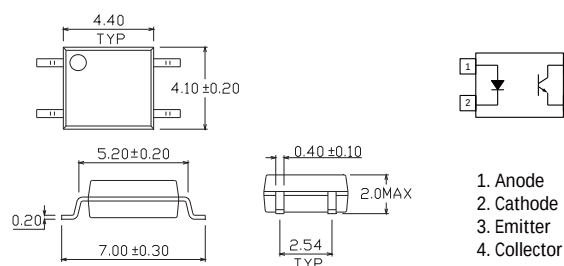


| Product  | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|----------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL3H7H-G | 4.4×2.7×2      | 1.2                    | 6/8                   | 80                        | 50~600  | 3750                     | 0.3                          |

Photo Coupler ■ Transistor High Operating Temperature ■ 4pin SOP-DC



UNIT : mm

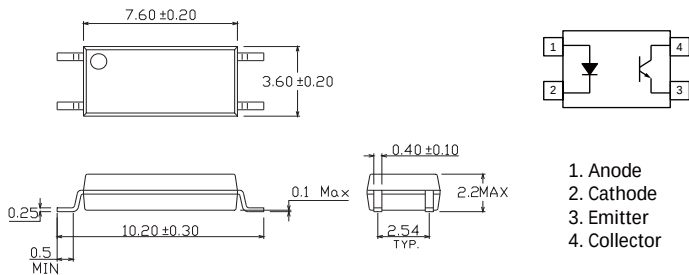


| Product   | Size (LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|-----------|----------------|------------------------|-----------------------|---------------------------|---------|--------------------------|------------------------------|
| EL357NH-G | 4.4×4.1×2      | 1.2                    | 6/8                   | 80                        | 50~600  | 3750                     | 0.3                          |

Photo Coupler | Transistor High Operating Temperature | 4pin LSOP-DC



UNIT : mm

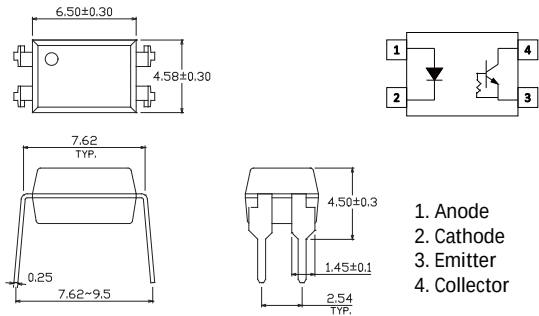


| Product   | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | V <sub>iso</sub> (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|-----------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------------------|-------------------------------|
| EL1010H-G | 7.6×3.6×2.2    | 1.2                     | 6/8                   | 80                         | 50~600  | 5000                                 | 0.3                           |

Photo Coupler | Transistor High Operating Temperature | 4pin DIP-DC



UNIT : mm

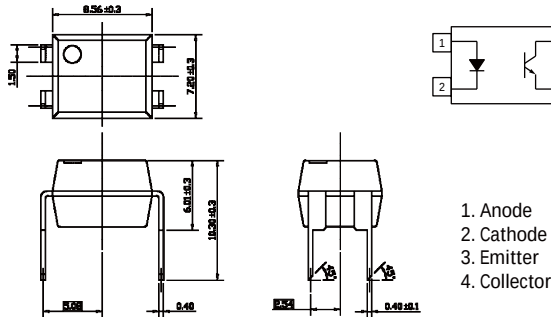


| Product  | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | V <sub>iso</sub> (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|----------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------------------|-------------------------------|
| EL817H-G | 6.5×4.58×3.5   | 1.2                     | 6/8                   | 80                         | 50~600  | 5000                                 | 0.3                           |

Photo Coupler | Transistor High Isolation | 4pin DIP-DC



UNIT : mm

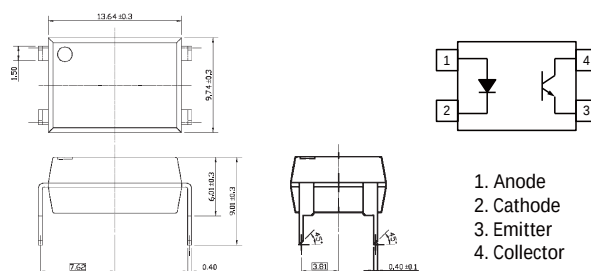


| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%) | V <sub>iso</sub> (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|---------|--------------------------------------|-------------------------------|
| CNY64   | 8.56×7.2×6.01  | 1.6                     | 3 / 5                 | 80                         | 50~300  | 8200                                 | 0.3                           |

## Photo Coupler ■ Transistor High Isolation ■ 4pin DIP-DC



UNIT : mm

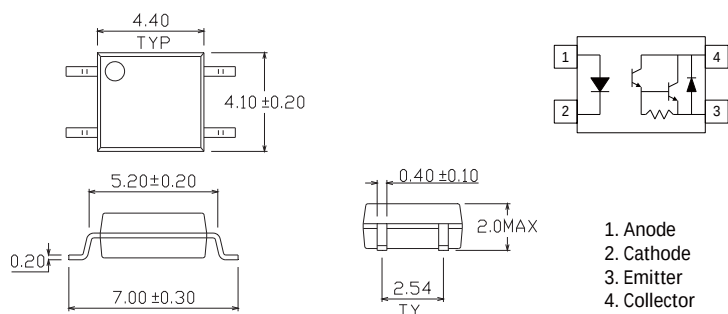


| Product | Size (LxWxHmm)  | $V_F$ _Typ (V) | Rise / Fall Time (μs) | $BV_{CEO\_Min}$ (V) | CTR (%) | Viso ( $V_{rms}$ ) | $V_{CE(SAT)\_Max}$ (V) |
|---------|-----------------|----------------|-----------------------|---------------------|---------|--------------------|------------------------|
| CNY65   | 13.64x9.74x6.01 | 1.6            | 3 / 5                 | 80                  | 50~300  | 8200               | 0.3                    |

## Photo Coupler ■ Darlington Transistor ■ 4Pin SOP-DC



UNIT : mm

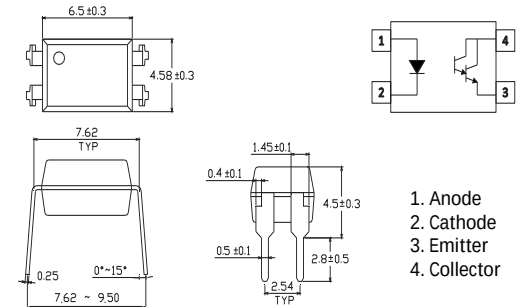


| Product | Size (LxWxHmm) | $V_F$ _Typ (V) | Rise / Fall Time (μs) | $BV_{CEO\_Min}$ (V) | CTR (%)   | Viso ( $V_{rms}$ ) | $V_{CE(SAT)\_Max}$ (V) |
|---------|----------------|----------------|-----------------------|---------------------|-----------|--------------------|------------------------|
| EL452-G | 4.4x4.1x2      | 1.2            | 80 / 10               | 350                 | 1000 min. | 3750               | 1.5                    |

Photo Coupler | Darlington Transistor | 4Pin DIP-DC



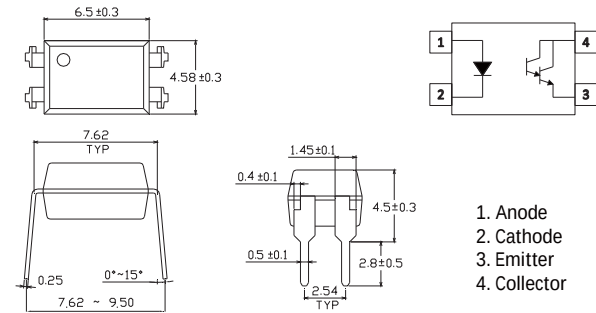
UNIT : mm



| Product | Size<br>(LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall<br>Time (μs) | BV <sub>CEO_Min</sub><br>(V) | CTR (%)  | V <sub>iso</sub> (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub><br>(V) |
|---------|-------------------|------------------------|--------------------------|------------------------------|----------|--------------------------------------|---------------------------------|
| EL815   | 6.5x4.58x3.5      | 1.2                    | 60 / 53                  | 35                           | 600~7500 | 5000                                 | 1                               |



UNIT : mm



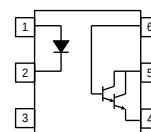
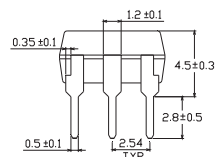
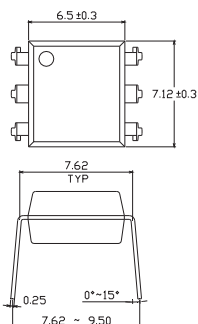
| Product | Size<br>(LxWxHmm) | V <sub>F_Typ</sub> (V) | Rise / Fall<br>Time (μs) | BV <sub>CEO_Min</sub><br>(V) | CTR (%)    | V <sub>iso</sub> (V <sub>rms</sub> ) | V <sub>CE(SAT)_Max</sub><br>(V) |
|---------|-------------------|------------------------|--------------------------|------------------------------|------------|--------------------------------------|---------------------------------|
| EL852   | 6.5x4.58x3.5      | 1.2                    | 300 / 100                | 350                          | 1000~15000 | 5000                                 | 1.2                             |



Photo Coupler I Darlington Transistor I 6Pin DIP-DC



UNIT : mm



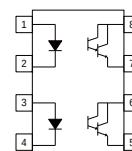
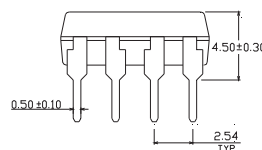
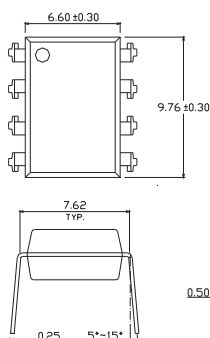
1. Anode
2. Cathode
3. No Connection
4. Emitter
5. Collector
6. Base

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%)  | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|----------|--------------------------|-------------------------------|
| 4N29    | 7.12x6.5x3.5   | 1.2                     | 5 / 40                | 55                         | 100 min. | 5000                     | 1                             |
| 4N30    | 7.12x6.5x3.5   | 1.2                     | 5 / 40                | 55                         | 100 min. | 5000                     | 1                             |
| 4N31    | 7.12x6.5x3.5   | 1.2                     | 5 / 40                | 55                         | 50 min.  | 5000                     | 1.2                           |
| 4N32    | 7.12x6.5x3.5   | 1.2                     | 5 / 100               | 55                         | 500 min. | 5000                     | 1                             |
| 4N33    | 7.12x6.5x3.5   | 1.2                     | 5 / 100               | 55                         | 500 min. | 5000                     | 1                             |
| H11B1   | 7.12x6.5x3.5   | 1.2                     | 25 / 18               | 55                         | 500 min. | 5000                     | 1                             |
| H11B2   | 7.12x6.5x3.5   | 1.2                     | 25 / 18               | 55                         | 200 min. | 5000                     | 1                             |
| H11B3   | 7.12x6.5x3.5   | 1.2                     | 25 / 18               | 55                         | 100 min. | 5000                     | 1                             |
| H11B255 | 7.12x6.5x3.5   | 1.2                     | 25 / 18               | 55                         | 100 min. | 5000                     | 1                             |
| TIL113  | 7.12x6.5x3.5   | 1.2                     | 5 / 100               | 55                         | 300 min. | 5000                     | 1.2                           |

Photo Coupler I Darlington Transistor I 8Pin DIP-DC



UNIT : mm



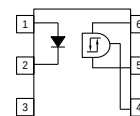
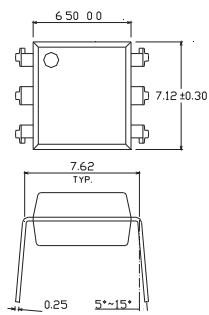
- 1, 3. Anode
- 2, 4. Cathode
- 5, 7. Emitter
- 6, 8. Collector

| Product | Size (LxWxHmm) | V <sub>F</sub> _Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> _Min (V) | CTR (%)  | Viso (V <sub>rms</sub> ) | V <sub>CE(SAT)</sub> _Max (V) |
|---------|----------------|-------------------------|-----------------------|----------------------------|----------|--------------------------|-------------------------------|
| EL825   | 9.76x6.6x3.5   | 1.2                     | 60 / 53               | 40                         | 600~7500 | 5000                     | 1                             |

## Photo Coupler | Schmitt Trigger | 6Pin DIP-DC



UNIT : mm



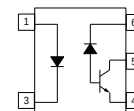
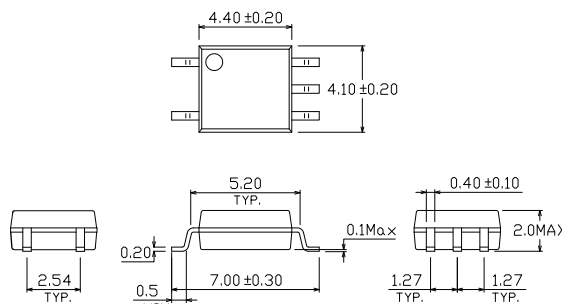
1. Anode
2. Cathode
3. No Connection
4.  $V_O$
5. GND
6.  $V_{CC}$

| Product | Size (LxWxHmm) | Rise / Fall Time ( $\mu$ s) | Supply Voltage (V) | Viso ( $V_{rms}$ ) | $I_{FT}$ (mA) | $I_{CC\_Max}$ (mA) | $I_O$ (mA) |
|---------|----------------|-----------------------------|--------------------|--------------------|---------------|--------------------|------------|
| H11L1   | 7.12x6.5x3.5   | 0.1 / 0.1                   | 3~15               | 5000               | 1.6           | 5                  | 50 max.    |
| H11L2   | 7.12x6.5x3.5   | 0.1 / 0.1                   | 3~15               | 5000               | 10            | 5                  | 50 max.    |
| H11L3   | 7.12x6.5x3.5   | 0.1 / 0.1                   | 3~15               | 5000               | 5             | 5                  | 50 max.    |

## Photo Coupler | High Speed | 5Pin SOP-DC



UNIT : mm

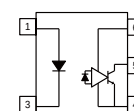
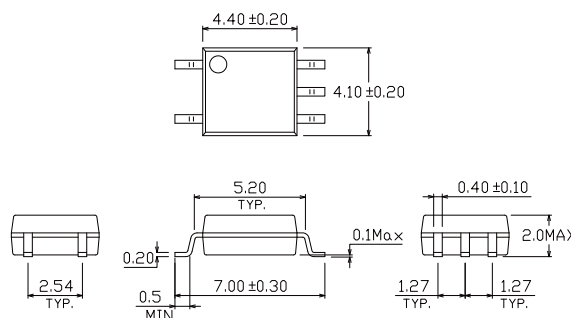


- 1: Anode
- 3: Cathode
- 4: GND
- 5:  $V_{out}$
- 6:  $V_{CC}$

| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | CTR (%) | Viso ( $V_{rms}$ ) | CMR (V/us) | $I_O$ (mA) |
|---------|----------------|------------------|--------------------|---------|--------------------|------------|------------|
| ELM452  | 4.4x4.1x2      | 800 / 800        | 30 max.            | 20~50   | 3750               | 5000       | 8          |
| ELM453  | 4.4x4.1x2      | 800 / 800        | 30 max.            | 20~50   | 3750               | 15000      | 8          |
| ELM453L | 4.4x4.1x2      | 800 / 800        | 30 max.            | 20~50   | 3750               | 15000      | 8          |



UNIT : mm



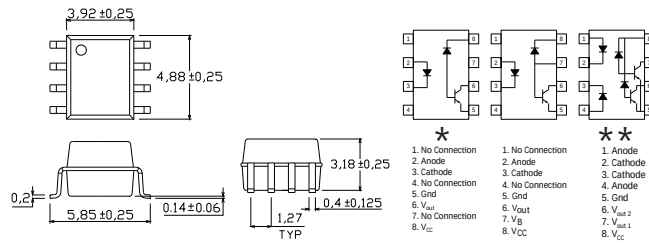
- 1: Anode
- 3: Cathode
- 4: GND
- 5:  $V_{out}$
- 6:  $V_{CC}$

| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | $I_{FT}$ (mA) | Viso ( $V_{rms}$ ) | CMR (V/us) | $I_O$ (mA) |
|---------|----------------|------------------|--------------------|---------------|--------------------|------------|------------|
| ELM600  | 4.4x4.1x2      | 100 / 100        | 7 max.             | 5             | 3750               | -          | 50 max.    |
| ELM601  | 4.4x4.1x2      | 100 / 100        | 7 max.             | 5             | 3750               | 5000       | 50 max.    |
| ELM611  | 4.4x4.1x2      | 100 / 100        | 7 max.             | 5             | 3750               | 20000      | 50 max.    |

Photo Coupler ■ High Speed ■ 8Pin SOP-DC



UNIT : mm

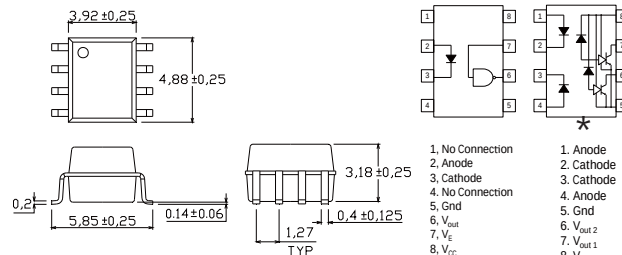


| Product  | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | CTR (%) | Viso (V <sub>rms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|----------|----------------|------------------|--------------------|---------|--------------------------|------------|---------------------|
| *EL0452  | 4.88x3.92x3.18 | 1000 / 1000      | 30 max.            | 19~50   | 3750                     | 1000       | 8                   |
| *EL0453  | 4.88x3.92x3.18 | 1000 / 1000      | 30 max.            | 19~50   | 3750                     | 15000      | 8                   |
| EL0500   | 4.88x3.92x3.18 | 2000 / 2000      | 30 max.            | 7~50    | 3750                     | 1000       | 8                   |
| EL0501   | 4.88x3.92x3.18 | 1000 / 1000      | 30 max.            | 19~50   | 3750                     | 1000       | 8                   |
| EL050L   | 4.88x3.92x3.18 | 800 / 800        | 30 max.            | 20~50   | 3750                     | 15000      | 8                   |
| **EL0530 | 4.88x3.92x3.18 | 2000 / 2000      | 30 max.            | 7~50    | 3750                     | 1000       | 8                   |
| **EL0531 | 4.88x3.92x3.18 | 1000 / 1000      | 30 max.            | 19~50   | 3750                     | 1000       | 8                   |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " " \* " mark



UNIT : mm

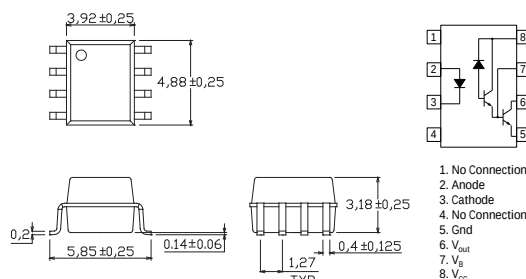


| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | I <sub>FT</sub> (mA) | Viso (V <sub>rms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|---------|----------------|------------------|--------------------|----------------------|--------------------------|------------|---------------------|
| EL0600  | 4.88x3.92x3.18 | 75 / 75          | 7 max.             | 5                    | 3750                     | --         | 50 max.             |
| EL0601  | 4.88x3.92x3.18 | 75 / 75          | 7 max.             | 5                    | 3750                     | 5000       | 50 max.             |
| EL0611  | 4.88x3.92x3.18 | 75 / 75          | 7 max.             | 5                    | 3750                     | 10000      | 50 max.             |
| EL060L  | 4.88x3.92x3.18 | 75 / 75          | 7 max.             | 5                    | 3750                     | 10000      | 50 max.             |
| *EL0630 | 4.88x3.92x3.18 | 100 / 100        | 7 max.             | 5                    | 3750                     | 5000       | 50 max.             |
| *EL0631 | 4.88x3.92x3.18 | 100 / 100        | 7 max.             | 5                    | 3750                     | 10000      | 50 max.             |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark



UNIT : mm

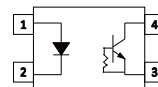
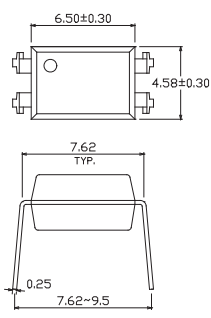


| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | CTR (%)   | Viso (V <sub>rms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|---------|----------------|------------------|--------------------|-----------|--------------------------|------------|---------------------|
| EL0700  | 4.88x3.92x3.18 | 3000 / 8000      | 7                  | 2000 typ. | 3750                     | 1000       | 60 max              |
| EL0701  | 4.88x3.92x3.18 | 11000 / 20000    | 18                 | 2500 typ. | 3750                     | 1000       | 60 max              |

## Photo Coupler | High Speed | 4pin DIP-DC



UNIT : mm



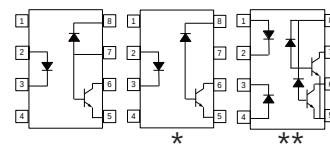
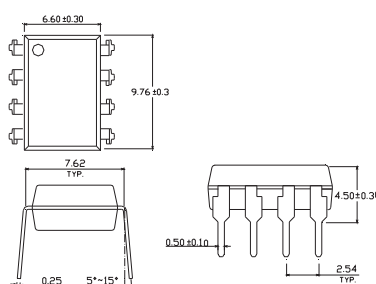
1. Anode
2. Cathode
3. Emitter
4. Collector

| Product  | Size (LxWxHmm) | V <sub>F</sub> Typ (V) | Rise / Fall Time (μs) | BV <sub>CEO</sub> Min (V) | CTR (%) | Viso (V <sub>ms</sub> ) | V <sub>CE(SAT)</sub> Max (V) |
|----------|----------------|------------------------|-----------------------|---------------------------|---------|-------------------------|------------------------------|
| EL2514-G | 6.5×4.58×3.5   | 1.2                    | 15/15                 | 40                        | 50~200  | 5000                    | 0.35                         |

## Photo Coupler | High Speed | 8Pin DIP-DC



UNIT : mm



1. No Connection
2. Anode
3. Cathode
4. No Connection
5. Gnd
6. V<sub>out</sub>
7. V<sub>cc</sub>
8. V<sub>cc</sub>

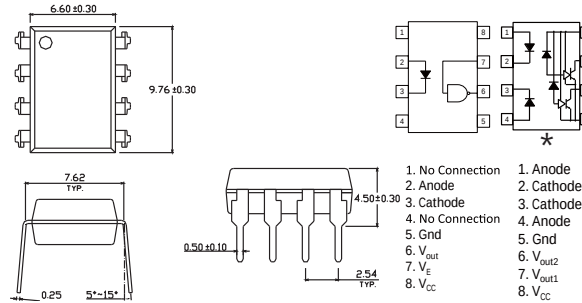
| Product  | Size (LxWxHmm) | t <sub>PHL</sub> / t <sub>PLH</sub> (ns) | Supply Voltage (V) | CTR (%) | Viso (V <sub>ms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|----------|----------------|------------------------------------------|--------------------|---------|-------------------------|------------|---------------------|
| 6N135    | 9.76x6.6x3.5   | 2000 / 2000                              | 30 max.            | 7~50    | 5000                    | 1000       | 8                   |
| 6N136    | 9.76x6.6x3.5   | 1000 / 1000                              | 30 max.            | 19~50   | 5000                    | 1000       | 8                   |
| *EL4502  | 9.76x6.6x3.5   | 1000 / 1000                              | 30 max.            | 19~50   | 5000                    | 1000       | 8                   |
| *EL4503  | 9.76x6.6x3.5   | 1000 / 1000                              | 30 max.            | 19~50   | 5000                    | 15000      | 8                   |
| *EL4504  | 9.76x6.6x3.5   | 400 / 400                                | 30 max.            | 25~60   | 5000                    | 15000      | 8                   |
| **EL2530 | 9.76x6.6x3.5   | 2000 / 2000                              | 30 max.            | 7~50    | 5000                    | 1000       | 8                   |
| **EL2531 | 9.76x6.6x3.5   | 1000 / 1000                              | 30 max.            | 19~50   | 5000                    | 1000       | 8                   |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " " \*\* " mark

Photo Coupler ■ High Speed ■ 8Pin DIP-DC



UNIT : mm

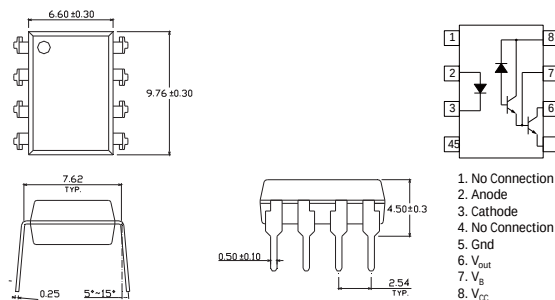


| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | $I_{FT}$ (mA) | Viso ( $V_{rms}$ ) | CMR (V/us) | $I_O$ (mA) |
|---------|----------------|------------------|--------------------|---------------|--------------------|------------|------------|
| 6N137   | 9.76x6.6x3.5   | 75 / 75          | 7 max.             | 5             | 5000               | -          | 50 max.    |
| EL2601  | 9.76x6.6x3.5   | 75 / 75          | 7 max.             | 5             | 5000               | 5000       | 50 max.    |
| EL2611  | 9.76x6.6x3.5   | 75 / 75          | 7 max.             | 5             | 5000               | 10000      | 50 max.    |
| EL260L  | 9.76x6.6x3.5   | 75 / 75          | 7 max.             | 5             | 5000               | 10000      | 50 max.    |
| *EL2630 | 9.76x6.6x3.5   | 100 / 100        | 7 max.             | 5             | 5000               | 5000       | 50 max.    |
| *EL2631 | 9.76x6.6x3.5   | 100 / 100        | 7 max.             | 5             | 5000               | 10000      | 50 max.    |

Star mark \* : Please refer to the schematic of Pin configuration with "★" mark



UNIT : mm

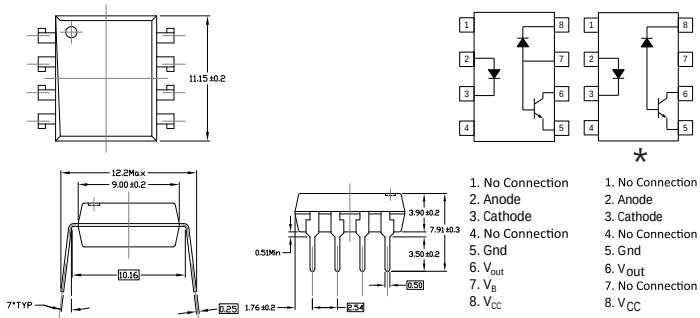


| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | CTR (%)  | Viso ( $V_{rms}$ ) | CMR (V/us) | $I_O$ (mA) |
|---------|----------------|------------------|--------------------|----------|--------------------|------------|------------|
| 6N138   | 9.76x6.6x3.5   | 15000 / 50000    | 7 max.             | 300 min. | 5000               | 1000       | 60 max.    |
| 6N139   | 9.76x6.6x3.5   | 30000 / 90000    | 18 max.            | 500 min. | 5000               | 1000       | 60 max.    |

Photo Coupler ■ High Speed ■ 8Pin Wide Body DIP-DC



UNIT : mm

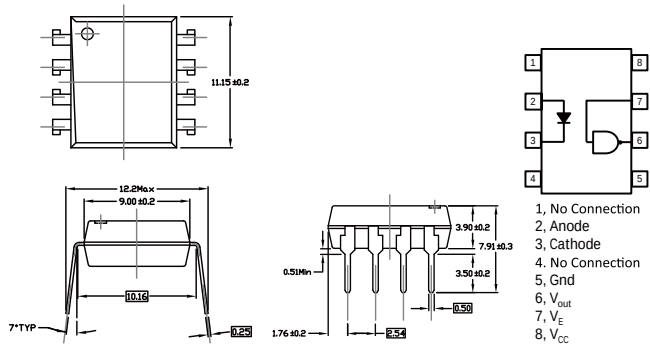


| Product  | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | CTR (%) | Viso (V <sub>rms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|----------|----------------|------------------|--------------------|---------|--------------------------|------------|---------------------|
| ELW135   | 11.15×9×3.9    | 2000 / 2000      | 30 max.            | 7~50    | 5000                     | 1000       | 8 max.              |
| ELW136   | 11.15×9×3.9    | 1000 / 1000      | 30 max.            | 19~50   | 5000                     | 1000       | 8 max.              |
| *ELW4503 | 11.15×9×3.9    | 1000 / 1000      | 30 max.            | 19~50   | 5000                     | 15000      | 8 max.              |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark



UNIT : mm

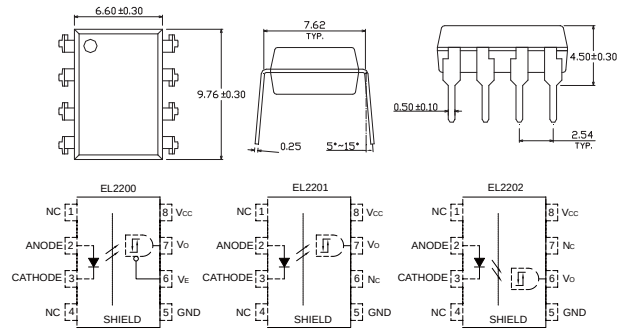


| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | I <sub>FT</sub> (mA) | Viso (V <sub>rms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|---------|----------------|------------------|--------------------|----------------------|--------------------------|------------|---------------------|
| ELW137  | 11.15×9×3.9    | 100 / 100        | 7 max.             | 5                    | 5000                     | -          | 50 max.             |
| ELW2601 | 11.15×9×3.9    | 100 / 100        | 7 max.             | 5                    | 5000                     | 5000       | 50 max.             |
| ELW2611 | 11.15×9×3.9    | 100 / 100        | 7 max.             | 5                    | 5000                     | 10000      | 50 max.             |

Photo Coupler | High Speed Low Input Current | 8Pin DIP-DC



UNIT : mm

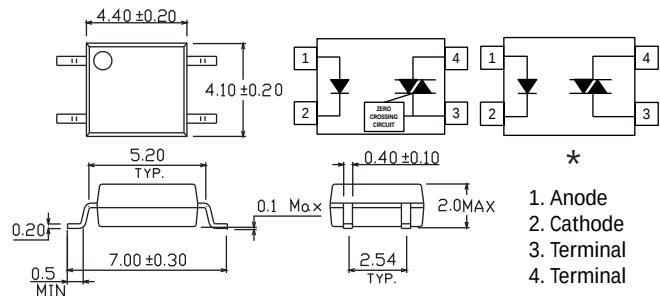


| Product | Size (LxWxHmm) | tPHL / tPLH (ns) | Supply Voltage (V) | I <sub>FT</sub> (mA) | Viso (V <sub>rms</sub> ) | CMR (V/us) | I <sub>O</sub> (mA) |
|---------|----------------|------------------|--------------------|----------------------|--------------------------|------------|---------------------|
| EL2200  | 9.76×6.6×3.5   | 300 / 300        | 20 max             | 1.6                  | 5000                     | 1000       | 25 max              |
| EL2201  | 9.76×6.6×3.5   | 300 / 300        | 20 max             | 1.6                  | 5000                     | 1000       | 25 max              |
| EL2202  | 9.76×6.6×3.5   | 300 / 300        | 20 max             | 1.6                  | 5000                     | 1000       | 25 max              |

Photo Coupler | Triac | 4Pin SOP-DC



UNIT : mm



| Product  | Size (LxWxHmm) | V <sub>TM</sub> (V) | V <sub>INH</sub> (V) | V <sub>DRM</sub> (V) | V <sub>F_Max</sub> (V) | Viso (V <sub>rms</sub> ) | I <sub>FT</sub> (mA) |
|----------|----------------|---------------------|----------------------|----------------------|------------------------|--------------------------|----------------------|
| ELM3042  | 4.4x4.1x2      | 3                   | 20                   | 400                  | 1.5                    | 3750                     | 10                   |
| ELM3043  | 4.4x4.1x2      | 3                   | 20                   | 400                  | 1.5                    | 3750                     | 5                    |
| ELM3044  | 4.4x4.1x2      | 3                   | 20                   | 400                  | 1.5                    | 3750                     | 3                    |
| ELM3062  | 4.4x4.1x2      | 3                   | 20                   | 600                  | 1.5                    | 3750                     | 10                   |
| ELM3063  | 4.4x4.1x2      | 3                   | 20                   | 600                  | 1.5                    | 3750                     | 5                    |
| ELM3064  | 4.4x4.1x2      | 3                   | 20                   | 600                  | 1.5                    | 3750                     | 3                    |
| ELM3082  | 4.4x4.1x2      | 3                   | 20                   | 800                  | 1.5                    | 3750                     | 10                   |
| ELM3083  | 4.4x4.1x2      | 3                   | 20                   | 800                  | 1.5                    | 3750                     | 5                    |
| ELM3084  | 4.4x4.1x2      | 3                   | 20                   | 800                  | 1.5                    | 3750                     | 3                    |
| *ELM3022 | 4.4x4.1x2      | 2.5                 | --                   | 400                  | 1.2                    | 3750                     | 10                   |
| *ELM3023 | 4.4x4.1x2      | 2.5                 | --                   | 400                  | 1.2                    | 3750                     | 5                    |
| *ELM3024 | 4.4x4.1x2      | 2.5                 | --                   | 400                  | 1.2                    | 3750                     | 3                    |
| *ELM3052 | 4.4x4.1x2      | 2.5                 | --                   | 600                  | 1.2                    | 3750                     | 10                   |
| *ELM3053 | 4.4x4.1x2      | 2.5                 | --                   | 600                  | 1.2                    | 3750                     | 5                    |
| *ELM3054 | 4.4x4.1x2      | 2.5                 | --                   | 600                  | 1.2                    | 3750                     | 3                    |

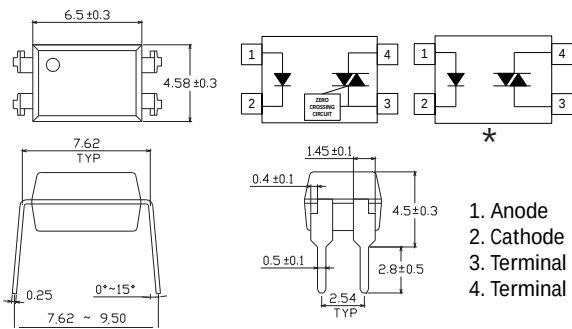
Star mark \* : Please refer to the schematic of Pin configuration with \* mark



Photo Coupler ■ Triac ■ 4Pin DIP-DC



UNIT : mm



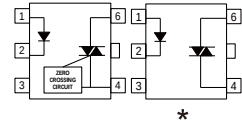
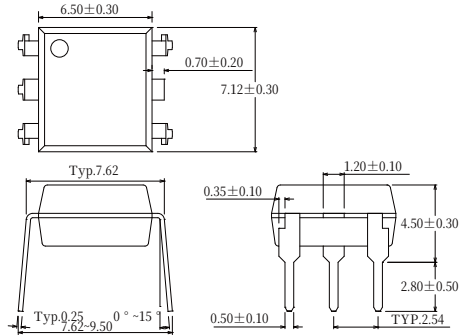
| Product  | Size<br>(LxWxHmm) | V <sub>TM</sub> (V) | V <sub>INH</sub> (V) | V <sub>DRM</sub> (V) | V <sub>F_Max</sub> (V) | Viso (V <sub>rms</sub> ) | I <sub>FT</sub> (mA) |
|----------|-------------------|---------------------|----------------------|----------------------|------------------------|--------------------------|----------------------|
| ELT3041  | 6.5×4.58×3.5      | 3                   | 20                   | 400                  | 1.5                    | 5000                     | 15                   |
| ELT3042  | 6.5×4.58×3.5      | 3                   | 20                   | 400                  | 1.5                    | 5000                     | 10                   |
| ELT3043  | 6.5×4.58×3.5      | 3                   | 20                   | 400                  | 1.5                    | 5000                     | 5                    |
| ELT3061  | 6.5×4.58×3.5      | 3                   | 20                   | 600                  | 1.5                    | 5000                     | 15                   |
| ELT3062  | 6.5×4.58×3.5      | 3                   | 20                   | 600                  | 1.5                    | 5000                     | 10                   |
| ELT3063  | 6.5×4.58×3.5      | 3                   | 20                   | 600                  | 1.5                    | 5000                     | 5                    |
| ELT3081  | 6.5×4.58×3.5      | 3                   | 20                   | 800                  | 1.5                    | 5000                     | 15                   |
| ELT3082  | 6.5×4.58×3.5      | 3                   | 20                   | 800                  | 1.5                    | 5000                     | 10                   |
| ELT3083  | 6.5×4.58×3.5      | 3                   | 20                   | 800                  | 1.5                    | 5000                     | 5                    |
| *ELT3021 | 6.5×4.58×3.5      | 2.5                 | -                    | 400                  | 1.2                    | 5000                     | 15                   |
| *ELT3022 | 6.5×4.58×3.5      | 2.5                 | -                    | 400                  | 1.2                    | 5000                     | 10                   |
| *ELT3023 | 6.5×4.58×3.5      | 2.5                 | -                    | 400                  | 1.2                    | 5000                     | 5                    |
| *ELT3051 | 6.5×4.58×3.5      | 2.5                 | -                    | 600                  | 1.2                    | 5000                     | 15                   |
| *ELT3052 | 6.5×4.58×3.5      | 2.5                 | -                    | 600                  | 1.2                    | 5000                     | 10                   |
| *ELT3053 | 6.5×4.58×3.5      | 2.5                 | -                    | 600                  | 1.2                    | 5000                     | 5                    |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark

# Photo Coupler I Triac I 5Pin DIP-DC



UNIT : mm

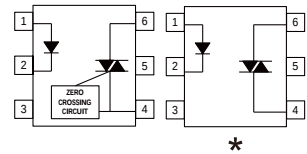
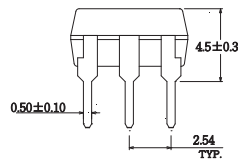
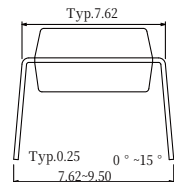
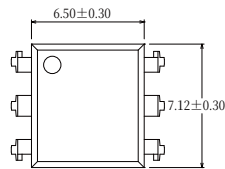


| Product     | Size (LxWxHmm) | $V_{TM}$ (V) | $V_{INH}$ (V) | $V_{DRM}$ (V) | $V_{F\_Typ}$ (V) | $V_{iso}$ ( $V_{rms}$ ) | $I_{FT}$ (mA) |
|-------------|----------------|--------------|---------------|---------------|------------------|-------------------------|---------------|
| EL3031(P5)  | 7.12x6.5x3.5   | 3            | 20            | 250           | --               | 5000                    | 15            |
| EL3032(P5)  | 7.12x6.5x3.5   | 3            | 20            | 250           | --               | 5000                    | 10            |
| EL3033(P5)  | 7.12x6.5x3.5   | 3            | 20            | 250           | --               | 5000                    | 5             |
| EL3041(P5)  | 7.12x6.5x3.5   | 3            | 20            | 400           | --               | 5000                    | 15            |
| EL3042(P5)  | 7.12x6.5x3.5   | 3            | 20            | 400           | --               | 5000                    | 10            |
| EL3043(P5)  | 7.12x6.5x3.5   | 3            | 20            | 400           | --               | 5000                    | 5             |
| EL3061(P5)  | 7.12x6.5x3.5   | 3            | 20            | 600           | --               | 5000                    | 15            |
| EL3062(P5)  | 7.12x6.5x3.5   | 3            | 20            | 600           | --               | 5000                    | 10            |
| EL3063(P5)  | 7.12x6.5x3.5   | 3            | 20            | 600           | --               | 5000                    | 5             |
| EL3081(P5)  | 7.12x6.5x3.5   | 3            | 20            | 800           | --               | 5000                    | 15            |
| EL3082(P5)  | 7.12x6.5x3.5   | 3            | 20            | 800           | --               | 5000                    | 10            |
| EL3083(P5)  | 7.12x6.5x3.5   | 3            | 20            | 800           | --               | 5000                    | 5             |
| *EL3010(P5) | 7.12x6.5x3.5   | 2.5          | --            | 250           | 1.18             | 5000                    | 15            |
| *EL3011(P5) | 7.12x6.5x3.5   | 2.5          | --            | 250           | 1.18             | 5000                    | 10            |
| *EL3012(P5) | 7.12x6.5x3.5   | 2.5          | --            | 250           | 1.18             | 5000                    | 5             |
| *EL3021(P5) | 7.12x6.5x3.5   | 2.5          | --            | 400           | 1.18             | 5000                    | 15            |
| *EL3022(P5) | 7.12x6.5x3.5   | 2.5          | --            | 400           | 1.18             | 5000                    | 10            |
| *EL3023(P5) | 7.12x6.5x3.5   | 2.5          | --            | 400           | 1.18             | 5000                    | 5             |
| *EL3051(P5) | 7.12x6.5x3.5   | 2.5          | --            | 600           | 1.18             | 5000                    | 15            |
| *EL3052(P5) | 7.12x6.5x3.5   | 2.5          | --            | 600           | 1.18             | 5000                    | 10            |
| *EL3053(P5) | 7.12x6.5x3.5   | 2.5          | --            | 600           | 1.18             | 5000                    | 5             |

Photo Coupler ■ Triac ■ 6Pin DIP-DC



UNIT : mm



- 1. Anode
- 2. Cathode
- 3. No Connection
- 4. Terminal
- 5. Substrate (do not connect)
- 6. Terminal

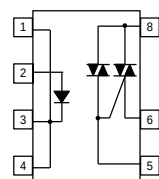
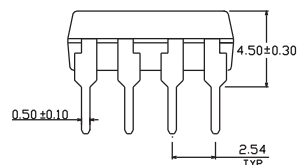
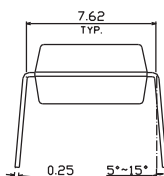
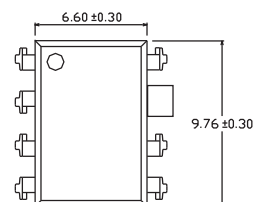
| Product | Size (LxWxHmm) | V <sub>TM</sub> (V) | V <sub>INH</sub> (V) | V <sub>DRM</sub> (V) | V <sub>F Typ</sub> (V) | V <sub>iso</sub> (V <sub>rms</sub> ) | I <sub>FT</sub> (mA) |
|---------|----------------|---------------------|----------------------|----------------------|------------------------|--------------------------------------|----------------------|
| EL3031  | 7.12x6.5x3.5   | 3                   | 20                   | 250                  | --                     | 5000                                 | 15                   |
| EL3032  | 7.12x6.5x3.5   | 3                   | 20                   | 250                  | --                     | 5000                                 | 10                   |
| EL3033  | 7.12x6.5x3.5   | 3                   | 20                   | 250                  | --                     | 5000                                 | 5                    |
| EL3041  | 7.12x6.5x3.5   | 3                   | 20                   | 400                  | --                     | 5000                                 | 15                   |
| EL3042  | 7.12x6.5x3.5   | 3                   | 20                   | 400                  | --                     | 5000                                 | 10                   |
| EL3043  | 7.12x6.5x3.5   | 3                   | 20                   | 400                  | --                     | 5000                                 | 5                    |
| EL3061  | 7.12x6.5x3.5   | 3                   | 20                   | 600                  | --                     | 5000                                 | 15                   |
| EL3062  | 7.12x6.5x3.5   | 3                   | 20                   | 600                  | --                     | 5000                                 | 10                   |
| EL3063  | 7.12x6.5x3.5   | 3                   | 20                   | 600                  | --                     | 5000                                 | 5                    |
| EL3081  | 7.12x6.5x3.5   | 3                   | 20                   | 800                  | --                     | 5000                                 | 15                   |
| EL3082  | 7.12x6.5x3.5   | 3                   | 20                   | 800                  | --                     | 5000                                 | 10                   |
| EL3083  | 7.12x6.5x3.5   | 3                   | 20                   | 800                  | --                     | 5000                                 | 5                    |
| *EL3010 | 7.12x6.5x3.5   | 2.5                 | --                   | 250                  | 1.18                   | 5000                                 | 15                   |
| *EL3011 | 7.12x6.5x3.5   | 2.5                 | --                   | 250                  | 1.18                   | 5000                                 | 10                   |
| *EL3012 | 7.12x6.5x3.5   | 2.5                 | --                   | 250                  | 1.18                   | 5000                                 | 5                    |
| *EL3021 | 7.12x6.5x3.5   | 2.5                 | --                   | 400                  | 1.18                   | 5000                                 | 15                   |
| *EL3022 | 7.12x6.5x3.5   | 2.5                 | --                   | 400                  | 1.18                   | 5000                                 | 10                   |
| *EL3023 | 7.12x6.5x3.5   | 2.5                 | --                   | 400                  | 1.18                   | 5000                                 | 5                    |
| *EL3051 | 7.12x6.5x3.5   | 2.5                 | --                   | 600                  | 1.18                   | 5000                                 | 15                   |
| *EL3052 | 7.12x6.5x3.5   | 2.5                 | --                   | 600                  | 1.18                   | 5000                                 | 10                   |
| *EL3053 | 7.12x6.5x3.5   | 2.5                 | --                   | 600                  | 1.18                   | 5000                                 | 5                    |

Star mark \* : Please refer to the schematic of Pin configuration with " \* " mark

Photo Coupler | Photo Power Triac | 7pin DIP-DC



UNIT : mm



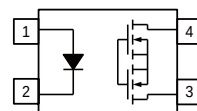
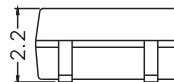
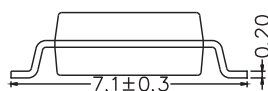
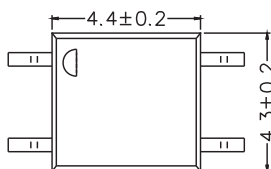
- 2. Anode
- 1, 3, 4. Cathode
- 5. Triac Gate
- 6. Triac T1
- 8. Triac T2

| Product | Size (LxWxHmm) | IT(rms) (A) | VDRM (V) | ITSM(A) | VTM (V) | Viso (Vrms) | IFT (mA) |
|---------|----------------|-------------|----------|---------|---------|-------------|----------|
| ELR0223 | 9.76x6.5x3.5   | 0.3         | 600V     | 3       | 2.5     | 5000        | 10       |
| ELR1223 | 9.76x6.5x3.5   | 0.6         | 600V     | 6       | 2.5     | 5000        | 10       |
| ELR2223 | 9.76x6.5x3.5   | 0.9         | 600V     | 9       | 2.5     | 5000        | 10       |
| ELR3223 | 9.76x6.5x3.5   | 1.2         | 600V     | 12      | 2.5     | 5000        | 10       |

Photo Coupler | Solid State Relay | 4pin SOP-DC



UNIT : mm



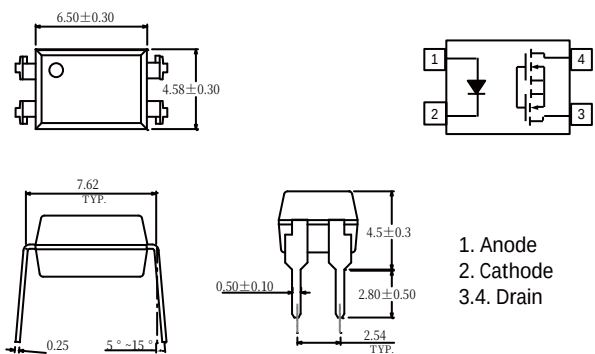
- 1. Anode
- 2. Cathode
- 3.4. Drain

| Product | Size (LxWxHmm) | Output type            | Load Voltage (V) | Load Current (mA) | Ron Typ.(Ω) | Ifon max. (mA) | Viso (Vrms) |
|---------|----------------|------------------------|------------------|-------------------|-------------|----------------|-------------|
| ELM440A | 4.4x4.3x2.2    | Normally Open 1 Form A | 400              | 120               | 20          | 5              | 3750        |
| ELM460A | 4.4x4.3x2.2    | Normally Open 1 Form A | 600              | 50                | 40          | 5              | 3750        |

Photo Coupler | Solid State Relay | 4Pin DIP-DC



UNIT : mm

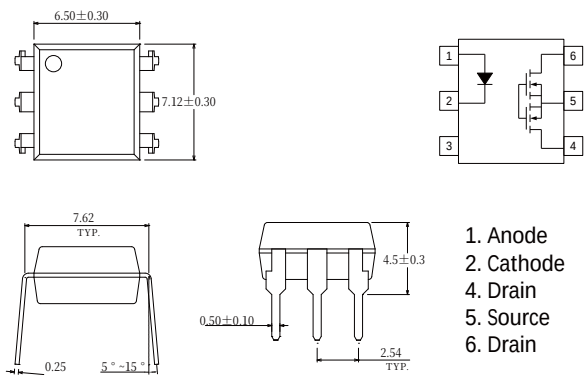


| Product | Size (LxWxHmm) | Output type            | Load Voltage (V) | Load Current (mA) | Ron Typ.(Ω) | Ifon max. (mA) | Viso (Vrms) |
|---------|----------------|------------------------|------------------|-------------------|-------------|----------------|-------------|
| EL406A  | 6.5×4.58×3.5   | Normally Open 1 Form A | 60               | 550               | 0.75        | 5              | 5000        |
| EL425A  | 6.5×4.58×3.5   | Normally Open 1 Form A | 250              | 180               | 6.5         | 5              | 5000        |
| EL440A  | 6.5×4.58×3.5   | Normally Open 1 Form A | 400              | 120               | 20          | 5              | 5000        |
| EL460A  | 6.5×4.58×3.5   | Normally Open 1 Form A | 600              | 50                | 40          | 5              | 5000        |

Photo Coupler | Solid State Relay | 6Pin DIP-DC



UNIT : mm

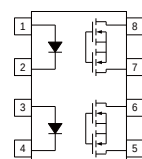
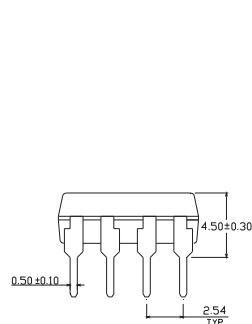
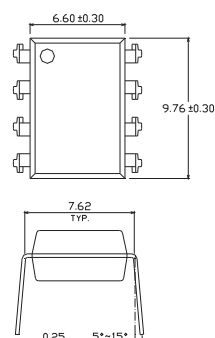


| Product | Size (LxWxHmm) | Output type            | Load Voltage (V) | Load Current (mA) | Ron Typ.(Ω) | Ifon max. (mA) | Viso (Vrms) |
|---------|----------------|------------------------|------------------|-------------------|-------------|----------------|-------------|
| EL606A  | 7.12×6.5×3.5   | Normally Open 1 Form A | 60               | 550               | 0.75        | 3              | 5000        |
| EL625A  | 7.12×6.5×3.5   | Normally Open 1 Form A | 250              | 180               | 6.5         | 3              | 5000        |
| EL640A  | 7.12×6.5×3.5   | Normally Open 1 Form A | 400              | 120               | 20          | 3              | 5000        |
| EL660A  | 7.12×6.5×3.5   | Normally Open 1 Form A | 600              | 50                | 40          | 3              | 5000        |

Photo Coupler ■ Solid State Relay ■ 8Pin DIP-DC



UNIT : mm



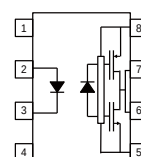
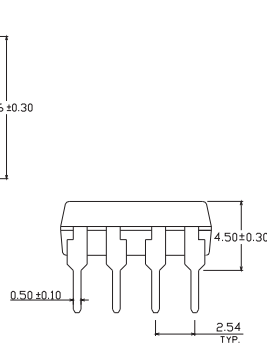
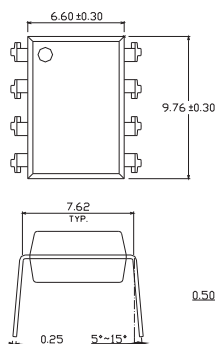
1, 3. Anode  
2, 4. Cathode  
5, 6, 7, 8. Drain

| Product | Size (LxWxHmm) | Output type            | Load Voltage (V) | Load Current (mA) | Ron Typ.(Ω) | Ifon max. (mA) | Viso (Vrms) |
|---------|----------------|------------------------|------------------|-------------------|-------------|----------------|-------------|
| EL840A  | 9.76x6.5x3.5   | Normally Open 2 Form A | 400              | 120               | 20          | 5              | 5000        |
| EL860A  | 9.76x6.5x3.5   | Normally Open 2 Form A | 600              | 50                | 40          | 5              | 5000        |

Photo Coupler ■ Gate Driver ■ 8pin DIP-DC



UNIT : mm



1, No Connection  
2, Anode  
3, Cathode  
4, No Connection  
5, Gnd  
6, V<sub>out</sub>  
7, V<sub>out</sub>  
8, V<sub>cc</sub>

| Product | Size (LxWxHmm) | tPHL/ tPLH (ns)    | High Level Output Current (A) | Low Level Output Current (A) | Viso (Vrms) | CMR (KV/us) | IFT (mA) |
|---------|----------------|--------------------|-------------------------------|------------------------------|-------------|-------------|----------|
| EL3120  | 9.76x6.5x3.5   | 300 max. /300 max. | 2 min.                        | -2 min.                      | 5000        | 20          | 5        |

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