

# ***TDK-Lambda***

## **DTM65 Series Datasheets**



**DTM65-C8 Series**

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**DTM65-D Series**

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## 40-65W Medical Class II AC-DC External Power Supplies

<https://product.tdk.com/en/power/dtm>  
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Medical



Home Medical

The DTM65-C8 Class II 40 to 65W external power supplies are certified to IEC/ES/EN60601-1, EN60601-1-11 and are compliant to EN60601-1-2 (Ed4). All models also meet EN55011-B, FCC Class B conducted & radiated emissions. Requiring no earth ground, the DTM65-C8 series is ideally suited for a variety of Medical, Clinical and Home Healthcare applications, including diagnostic and monitoring equipment.

| Features                                        | Benefits                                                 |
|-------------------------------------------------|----------------------------------------------------------|
| • Medical Safety Certifications and Immunity    | • Suitable for Medical, Clinical and Home Healthcare Use |
| • Meets DoE Level VI (Level V for 5V model)     | • Meets US Energy Saving Legislation                     |
| • >88% Average Efficiency, <0.21W No Load Power | • Consumes Less Energy                                   |
| • 4kV (2xMOPP) Input to Output Isolation        | • Suitable for B and BF Rated Equipment                  |
| • Wide Range AC, Class II Input IEC320-C8       | • Global Operation, No Earth Required                    |

| Model Selector |                    |                 |               |                            |                       |                          |                      |
|----------------|--------------------|-----------------|---------------|----------------------------|-----------------------|--------------------------|----------------------|
| Model          | Output Voltage (V) | Max Current (A) | Max Power (W) | Overvoltage Protection (V) | Output Regulation (%) | Ripple & Noise (mVpk-pk) | DoE Efficiency Level |
| DTM65PW050C8   | 5                  | 8               | 40            | 5.5 - 7.5                  | ±5                    | 50                       | V                    |
| DTM65PW120C8   | 12                 | 5               | 60            | 13.2 - 18.0                | ±5                    | 120                      | VI                   |
| DTM65PW150C8   | 15                 | 4               | 60            | 16.5 - 22.5                | ±5                    | 150                      | VI                   |
| DTM65PW190C8   | 19                 | 3.42            | 65            | 20.9 - 28.5                | ±3                    | 190                      | VI                   |
| DTM65PW240C8   | 24                 | 2.7             | 65            | 26.4 - 36.0                | ±3                    | 240                      | VI                   |
| DTM65PW280C8   | 28                 | 2.32            | 65            | 30.8 - 42.0                | ±3                    | 280                      | VI                   |
| DTM65PW480C8   | 48                 | 1.35            | 65            | 52.8 - 72.0                | ±3                    | 480                      | VI                   |

| DTM65PW                                                                                                                                                                           | 190 | C8                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------|
| 050 5V Output Voltage<br>120 12V Output Voltage<br>150 15V Output Voltage<br>190 19V Output Voltage<br>240 24V Output Voltage<br>280 28V Output Voltage<br>480 48V Output Voltage |     | IEC C8 input connector |

| Specification                         |                  |                                                                                        |
|---------------------------------------|------------------|----------------------------------------------------------------------------------------|
| Model                                 |                  | DTM65-C8                                                                               |
| <b>Input</b>                          |                  |                                                                                        |
| Input Voltage range                   | Vac              | 90 - 264                                                                               |
| Input Frequency                       | Hz               | 47 - 63                                                                                |
| Input Current (90Vac)                 | A                | 2                                                                                      |
| Inrush Current at 230Vac (Cold Start) | A                | <100 (25°C ambient)                                                                    |
| Leakage Current                       | uA               | <100                                                                                   |
| No Load Power Consumption             | mW               | <210                                                                                   |
| Hold Up Time (typ) at 115Vac Input    | ms               | 10                                                                                     |
| Average Efficiency (1)                | %                | >88 (5V model: >83.8)                                                                  |
| Conducted & Radiated EMI              | -                | EN55011-B                                                                              |
| Immunity                              | -                | EN60601-1-2                                                                            |
| Insulation Class                      | -                | Class II                                                                               |
| Safety Agency Certifications          | -                | UL/EN/IEC60601-1, ANSI/AAMI ES60601-1, CSA-C22.2 No.60601, CE Mark (LVD, EMC and RoHS) |
| <b>Output</b>                         |                  |                                                                                        |
| Voltage Accuracy                      | %                | ±1                                                                                     |
| Output Voltage Adjustment             | -                | None                                                                                   |
| Switching Frequency (Full Load)       | kHz              | 45 - 65                                                                                |
| Total Regulation                      | -                | See Model Selector Table                                                               |
| Ripple & Noise (2)                    | -                | See Model Selector Table                                                               |
| Temperature Coefficient               | %/°C             | ±0.05                                                                                  |
| Minimum Load                          | -                | No minimum load required                                                               |
| Overcurrent Protection                | %                | 160 (Auto-Recovery)                                                                    |
| Overvoltage Protection                | -                | See Model Selector Table (Cycle input power to reset)                                  |
| Short Circuit Protection              | -                | Continuous - Hiccup Mode (Auto-Recovery)                                               |
| Indicators                            | -                | LED indicates DC output is on                                                          |
| Parallel Operation                    | -                | Not possible                                                                           |
| <b>Environmental</b>                  |                  |                                                                                        |
| Operating Temperature                 | °C               | 0 to 60 derate linearly to 50% load from 40 to 60                                      |
| Storage Temperature                   | °C               | -10 to 70                                                                              |
| Humidity (non condensing)             | %RH              | 10 - 90                                                                                |
| Cooling                               | -                | Convection                                                                             |
| Altitude                              | m                | 3,000                                                                                  |
| Withstand Voltage (For 1 minute)      | Vac              | Input to Output 4,000 (2xMOPP)                                                         |
| Isolation Resistance                  | MΩ               | 20                                                                                     |
| IP Rating                             | -                | IP22                                                                                   |
| Vibration (Operating)                 | m/s <sup>2</sup> | 23.52 (10 - 55Hz: constant sweep 1 min X, Y, Z for 1 hour)                             |
| Shock                                 | m/s <sup>2</sup> | <196.1 (20G)                                                                           |
| <b>Other</b>                          |                  |                                                                                        |
| Weight (Typ)                          | g                | 240                                                                                    |
| Size (LxWxH)                          | mm               | 106 x 60 x 31                                                                          |
| Size (LxWxH)                          | Inches           | 4.17 x 2.36 x 1.22                                                                     |
| AC Input Connector                    | -                | IEC 320-C8 (2 prong)                                                                   |
| DC Output Connector                   | -                | Kycon KPPx-4P or equivalent Pins 1 & 2: -Vout, Pins 3 & 4: +Vout                       |
| Cable Length & Thickness              | -                | 1000mm; UL1571 #14 AWG                                                                 |
| MTBF (MIL-HDBK), 100% load, 25°C      | hrs              | 100,000                                                                                |
| Warranty                              | yrs              | 3                                                                                      |

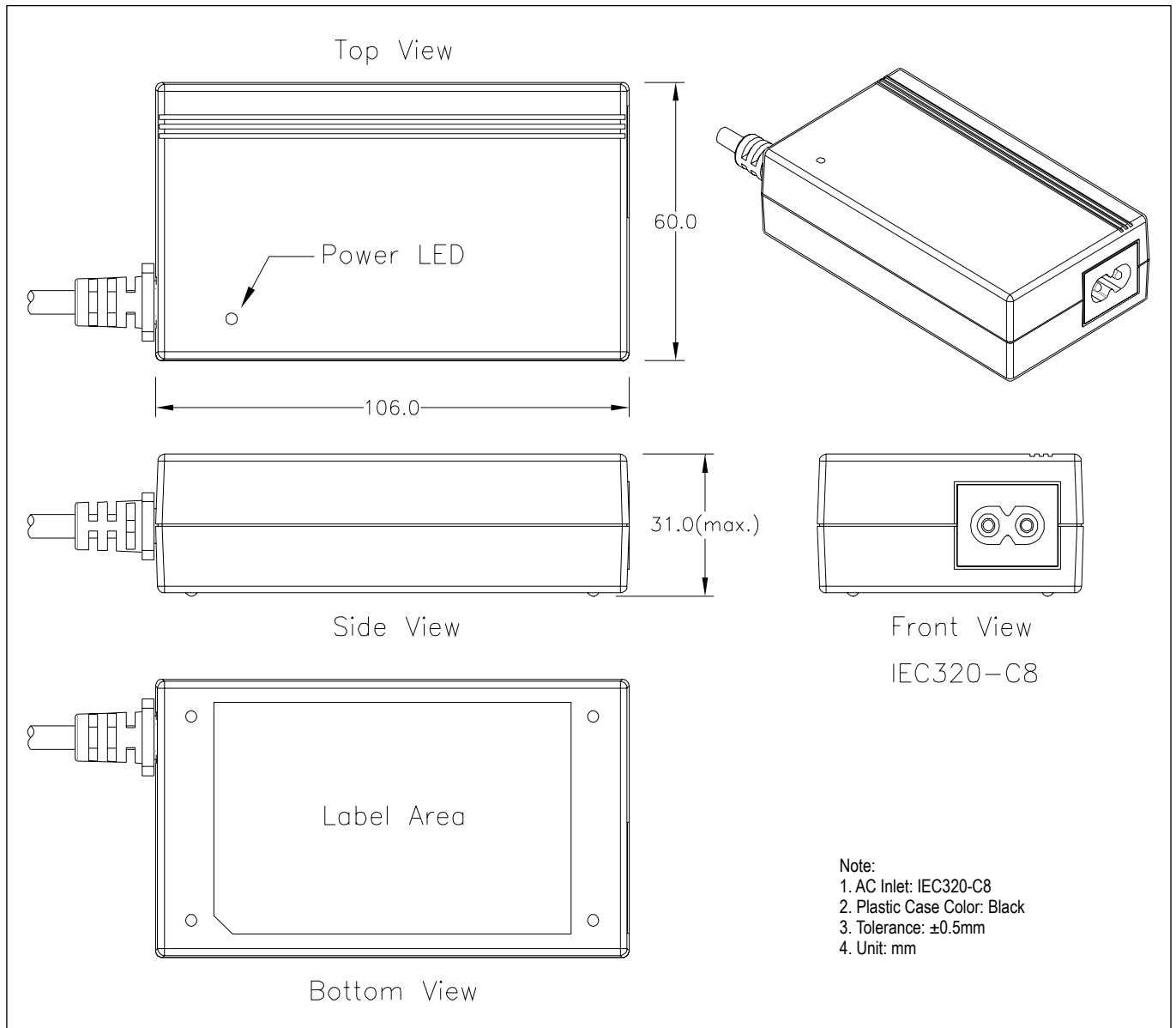
## Notes

See website for detailed specifications, test methods and installation manual

(1) Measured at 25%, 50%, 75% and 100% load conditions

(2) Ripple and noise is measured at 20MHz BW. Add 0.1uF ceramic capacitor and 10uF Electrolytic capacitor in parallel across the output

## Outline Drawing





## TDK-Lambda France SAS

Tel: +33 1 60 12 71 65  
france@fr.tdk-lambda.com  
www.emea.lambda.tdk.com/fr



## Italy Sales Office

Tel: +39 02 61 29 38 63  
info.italia@it.tdk-lambda.com  
www.emea.lambda.tdk.com/it



## Netherlands

info@nl.tdk-lambda.com  
www.emea.lambda.tdk.com/nl



## TDK-Lambda Germany GmbH

Tel: +49 7841 666 0  
info.germany@de.tdk-lambda.com  
www.emea.lambda.tdk.com/de



## Austria Sales Office

Tel: +43 2256 655 84  
info@at.tdk-lambda.com  
www.emea.lambda.tdk.com/at



## Switzerland Sales Office

Tel: +41 44 850 53 53  
info@ch.tdk-lambda.com  
www.emea.lambda.tdk.com/ch



## Nordic Sales Office

Tel: +45 8853 8086  
info@dk.tdk-lambda.com  
www.emea.lambda.tdk.com/dk



## TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66  
info@uk.tdk-lambda.com  
www.emea.lambda.tdk.com/uk



## TDK-Lambda Ltd.

Tel: +9 723 902 4333  
info@tdk-lambda.co.il  
www.emea.lambda.tdk.com/il



## C.I.S.

### Commercial Support:

Tel: +7 (495) 665 2627

### Technical Support:

Tel: +7 (812) 658 0463  
info@tdk-lambda.ru  
www.emea.lambda.tdk.com/ru



## TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324  
powersolutions@us.tdk-lambda.com  
www.us.lambda.tdk.com



## TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599  
sales.br@tdk-electronics.tdk.com  
www.tdk-electronics.tdk.com/en



## TDK-Lambda Corporation

Tel: +81-3-6778-1113  
www.jp.lambda.tdk.com



## TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777  
powersolutions@cn.tdk-lambda.com  
www.lambda.tdk.com.cn



## TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211  
tls.mkt@sg.tdk-lambda.com  
www.sg.lambda.tdk.com



## TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660  
mathew.philip@in.tdk-lambda.com  
www.sg.lambda.tdk.com



## 40-65W Medical Class I AC-DC External Power Supplies

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The DTM65-D Class I 40 to 65W external power supplies are certified to IEC/ES/EN/UL/CSA 60601-1 and are compliant to EN60601-1-2 (Ed4). With an average efficiency of greater than 89% and an off-load power consumption of less than 0.15W, this series also complies with DoE Level VI and EU Tier 2 v5 standards for efficiency and off-load power. The DTM65-D series is ideally suited for a variety of hospital, dental and healthcare applications, including diagnostic and monitoring equipment.

| Features                                        | Benefits                                    |
|-------------------------------------------------|---------------------------------------------|
| • Medical Safety Certifications and Immunity    | • Suitable for Medical and Clinical Use     |
| • Meets DoE Level VI & EU Tier 2 Efficiency     | • Meets US and EU Energy Saving Legislation |
| • >89% Average Efficiency, <0.15W No Load Power | • Consumes Less Energy                      |
| • 4kV (2xMOPP) Input to Output Isolation        | • Suitable for B and BF Rated Equipment     |
| • Wide Range Input (90-264VAC)                  | • Global Operation                          |

| Model Selector |                    |                 |               |                            |                          |
|----------------|--------------------|-----------------|---------------|----------------------------|--------------------------|
| Model          | Output Voltage (V) | Max Current (A) | Max Power (W) | Overvoltage Protection (V) | Ripple & Noise (mVpk-pk) |
| DTM65PW050D    | 5                  | 8.0             | 40            | 5.5 - 8.5                  | 120                      |
| DTM65PW120D    | 12                 | 5.0             | 60            | 13.2 - 16.0                | 120                      |
| DTM65PW150D    | 15                 | 4.0             | 60            | 16.5 - 30.0                | 150                      |
| DTM65PW190D    | 19                 | 3.42            | 65            | 20.9 - 35.0                | 190                      |
| DTM65PW240D    | 24                 | 2.70            | 65            | 26.4 - 35.0                | 240                      |
| DTM65PW280D    | 28                 | 2.32            | 65            | 30.0 - 35.0                | 280                      |
| DTM65PW360D    | 36                 | 1.81            | 65            | 41.0 - 50.0                | 360                      |
| DTM65PW480D    | 48                 | 1.35            | 65            | 52.8 - 60.0                | 480                      |

| DTM65PW | 240D |
|---------|------|
|---------|------|

|      |                    |
|------|--------------------|
| 050D | 5V Output Voltage  |
| 120D | 12V Output Voltage |
| 150D | 15V Output Voltage |
| 190D | 19V Output Voltage |
| 240D | 24V Output Voltage |
| 280D | 28V Output Voltage |
| 360D | 36V Output Voltage |
| 480D | 48V Output Voltage |

| Specification                             |        |                                                                                               |
|-------------------------------------------|--------|-----------------------------------------------------------------------------------------------|
| Model                                     |        | DTM65-D                                                                                       |
| <b>Input</b>                              |        |                                                                                               |
| Input Voltage range                       | Vac    | 90 - 264                                                                                      |
| Input Frequency                           | Hz     | 47 - 63                                                                                       |
| Input Current (90/264Vac)                 | A      | 2 / 1                                                                                         |
| Inrush Current at 230Vac (Cold Start) (1) | A      | <90 (25°C ambient)                                                                            |
| Touch Current                             | uA     | <100                                                                                          |
| No Load Power Consumption                 | mW     | <150                                                                                          |
| Hold Up Time (typ) at 115Vac Input        | ms     | 16                                                                                            |
| Average Efficiency (2)                    | %      | >89 (5V Model: 87.3)                                                                          |
| Conducted & Radiated EMI                  | -      | EN55011-B, FCC Part 18 Class B                                                                |
| Immunity                                  | -      | IEC60601-1-2 Ed4:2014                                                                         |
| Safety Agency Certifications              | -      | IEC/ES/UL/CSA/EN60601-1, CE Mark (LVD, EMC and RoHS)                                          |
| <b>Output</b>                             |        |                                                                                               |
| Voltage Accuracy                          | %      | Included in Total Regulation Specification                                                    |
| Output Voltage Adjustment                 | -      | None                                                                                          |
| Switching Frequency (Full Load)           | kHz    | 50 - 70                                                                                       |
| Total Regulation                          | %      | ±5                                                                                            |
| Ripple & Noise (3)                        | -      | See Model Selector Table                                                                      |
| Temperature Coefficient                   | %/°C   | ±0.05                                                                                         |
| Minimum Load                              | -      | No minimum load required                                                                      |
| Overcurrent Protection                    | %      | 170 (Auto-Recovery)                                                                           |
| Overvoltage Protection                    | -      | See Model Selector Table (Cycle input power to reset)                                         |
| Short Circuit Protection                  | -      | Continuous - Hiccup Mode (Auto-Recovery)                                                      |
| Indicators                                | -      | LED indicates DC output is on                                                                 |
| Parallel Operation                        | -      | Not possible                                                                                  |
| <b>Environmental</b>                      |        |                                                                                               |
| Operating Temperature (4)                 | °C     | -20 to 60 derate linearly to 50% load from 50 to 60                                           |
| Storage Temperature                       | °C     | -20 to 85                                                                                     |
| Humidity (non condensing)                 | %RH    | 10 - 90                                                                                       |
| Cooling                                   | -      | Convection                                                                                    |
| Altitude                                  | m      | 5,000                                                                                         |
| Withstand Voltage (For 1 minute)          | Vac    | Input to Output 4,000 (2xMoPP), Input to Ground 1,500 (1xMoPP); Output is connected to Ground |
| Isolation Resistance                      | MΩ     | 20                                                                                            |
| IP Rating                                 | -      | IP20                                                                                          |
| <b>Other</b>                              |        |                                                                                               |
| Weight (Typ)                              | g      | 390                                                                                           |
| Size (LxWxH)                              | mm     | 132 x 69 x 40                                                                                 |
| Size (LxWxH)                              | Inches | 5.20 x 2.72 x 1.57                                                                            |
| AC Input Connector                        | -      | IEC 320-C14 (3 prong)                                                                         |
| DC Output Connector                       | -      | Kycon KPPx-4P or equivalent, Pins 1 & 2: -Vout, Pins 3 & 4: +Vout                             |
| Cable Length & Thickness                  |        | 5V Model: 600mm; UL 1571 #14AWG; 12 to 48V Models: 1,000mm; UL 1571 #14AWG                    |
| MTBF (MIL-HDBK-217), 100% load, 25°C      | hrs    | 100,000                                                                                       |
| Warranty                                  | yrs    | 3                                                                                             |

**Notes**

See website for detailed specifications, test methods and installation manual

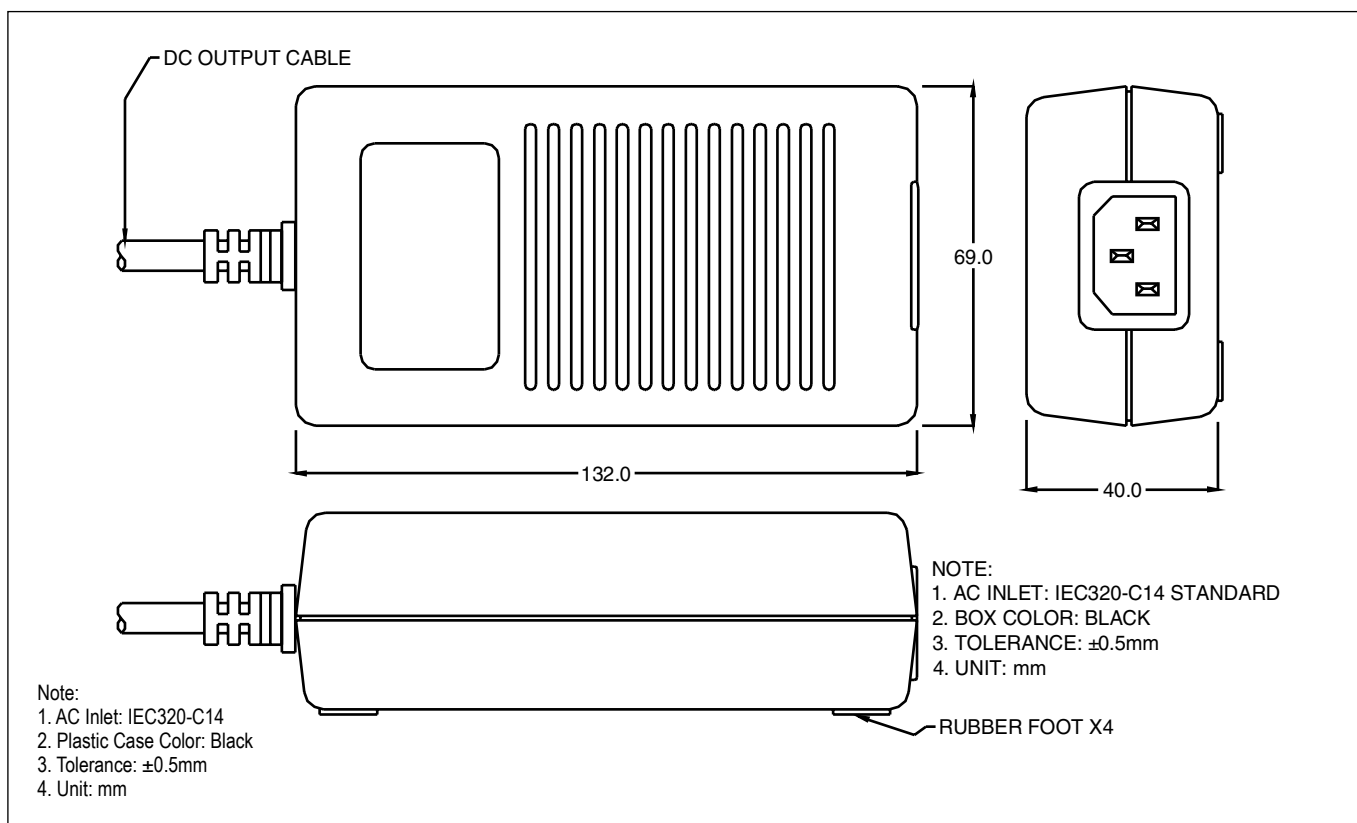
(1) Inrush current for 5V model is 120A peak @ 230VAC cold start (25°C ambient)

(2) Measured at 25%, 50%, 75% and 100% load conditions

(3) Ripple and noise is measured at 20MHz BW. Add 0.1uF ceramic capacitor and 47uF Electrolytic capacitor in parallel across the output

(4) Derate linearly to 80% load from 0 to -20°C

## Outline Drawing







## TDK-Lambda France SAS

Tel: +33 1 60 12 71 65  
france@fr.tdk-lambda.com  
www.emea.lambda.tdk.com/fr



## Italy Sales Office

Tel: +39 02 61 29 38 63  
info.italia@it.tdk-lambda.com  
www.emea.lambda.tdk.com/it



## Netherlands

info@nl.tdk-lambda.com  
www.emea.lambda.tdk.com/nl



## TDK-Lambda Germany GmbH

Tel: +49 7841 666 0  
info.germany@de.tdk-lambda.com  
www.emea.lambda.tdk.com/de



## Austria Sales Office

Tel: +43 2256 655 84  
info@at.tdk-lambda.com  
www.emea.lambda.tdk.com/at



## Switzerland Sales Office

Tel: +41 44 850 53 53  
info@ch.tdk-lambda.com  
www.emea.lambda.tdk.com/ch



## Nordic Sales Office

Tel: +45 8853 8086  
info@dk.tdk-lambda.com  
www.emea.lambda.tdk.com/dk



## TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66  
info@uk.tdk-lambda.com  
www.emea.lambda.tdk.com/uk



## TDK-Lambda Ltd.

Tel: +9 723 902 4333  
info@tdk-lambda.co.il  
www.emea.lambda.tdk.com/il



## C.I.S.

### Commercial Support:

Tel: +7 (495) 665 2627

### Technical Support:

Tel: +7 (812) 658 0463  
info@tdk-lambda.ru  
www.emea.lambda.tdk.com/ru



## TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324  
powersolutions@us.tdk-lambda.com  
www.us.lambda.tdk.com



## TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599  
sales.br@tdk-electronics.tdk.com  
www.tdk-electronics.tdk.com/en



## TDK-Lambda Corporation

Tel: +81-3-6778-1113  
www.jp.lambda.tdk.com



## TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777  
powersolutions@cn.tdk-lambda.com  
www.lambda.tdk.com.cn



## TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211  
tls.mkt@sg.tdk-lambda.com  
www.sg.lambda.tdk.com



## TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660  
mathew.philip@in.tdk-lambda.com  
www.sg.lambda.tdk.com

