Features

- K1 IR VCSEL
- ROHS and REACH Compliant
- ESD(HBM) 8KV
- MSL 3 Qualified (J-STD 020)

Description

The INV-K1TMIR is a high-power IR VCSEL. It is a SMD type package which can be used in various applications.

Applications

- Industrial facility applications
- Consumer Mobile
- Automotive Interior & Exterior
- 3D Sensing(TOF, Structure Light)
- Bio recognition

Recommended Solder Pattern

(Suggest Stencil t=0.12 mm)

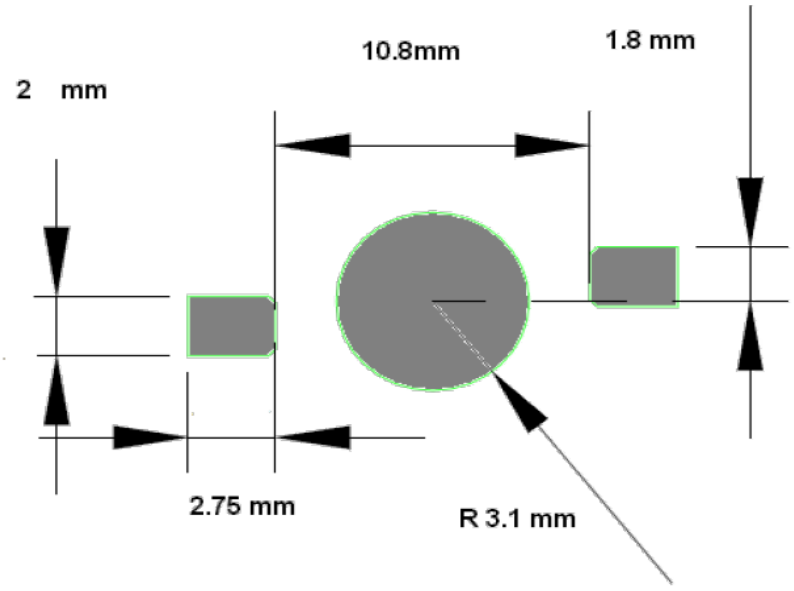


Figure 1. INV-K1TMIR Recommended Solder Pattern

Note:
*All dimensions are in millimeters.
*Tolerance is ±0.1mm unless other specified.

Package Dimensions in mm

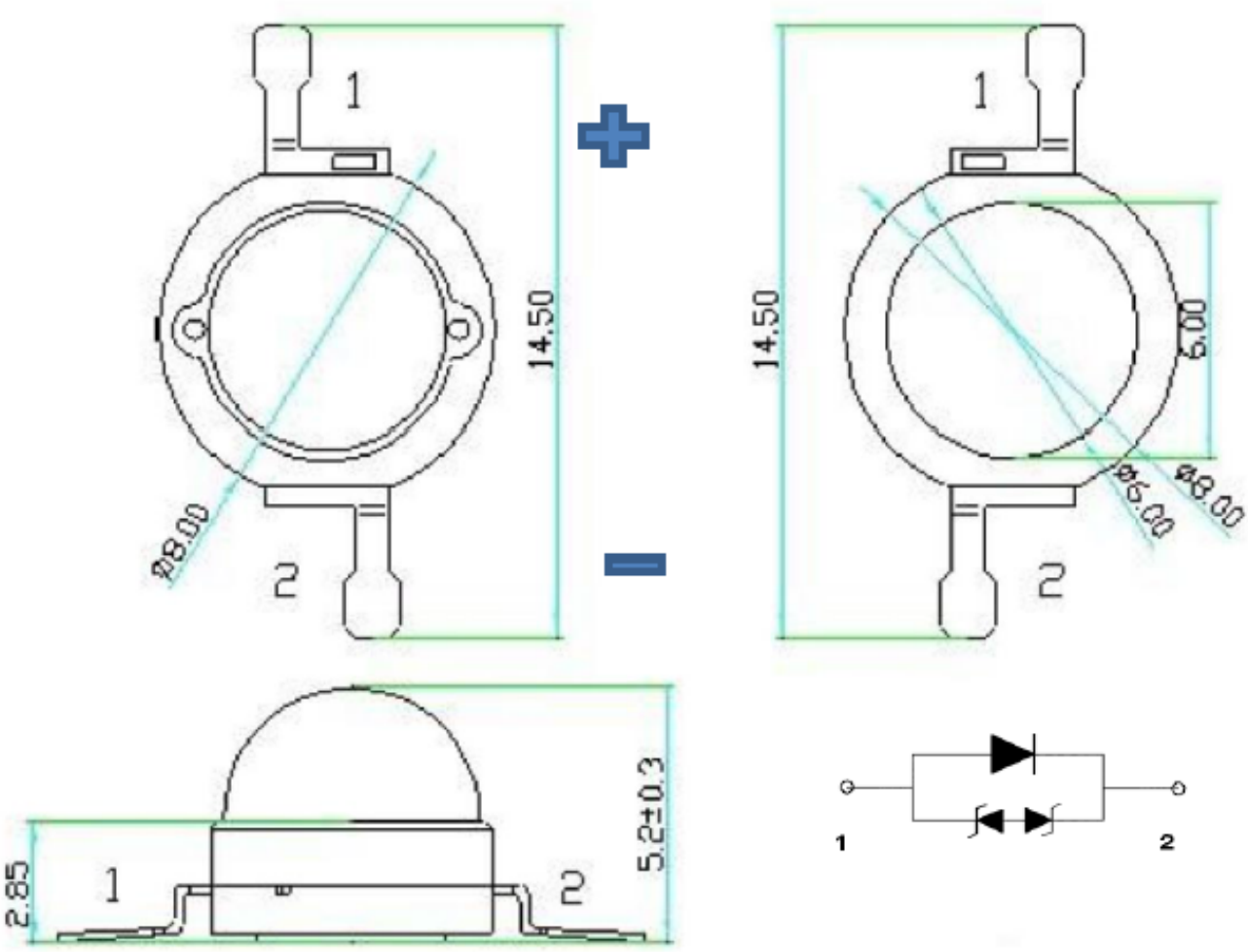


Figure 2. INV-K1TMIR Package Dimensions

***Note**

All dimensions are in millimeters. Tolerance is ±0.1mm unless other specified.

Absolute Maximum Rating at 25ºC (Note 1)

Product	Pulse Current(mA) (@1/10 duty)	V_R (V) Typ.	K (mV/℃) Temperature coefficient of voltage	Max. Tj (℃) LED junction temperature	Typ. Rjs (℃/W) Thermal resistance, junction to solder point.	Typ. ESD (V) Electrostatic discharge threshold
INV-K1TMIR	1100	5	-1.2	110	18	8000

Notes

1. For other ambient, limited setting of current will depend on de-rating curves.
2. When drive on maximum current , Tj must be kept below 110℃
3. Viewing angle(2θ 1/2) ± 10°

Electrical Characteristics T_A = 25℃ (Note 1)

Product	V_F(V)@700mA		Radiometric Power (mW) @700mA			Peak Wavelength (nm) @700mA			IR (μA) (V_R=5V)	View Angle
	min	max	min	typ	max	min	typ	max	Max	2θ1/2
INV-K1TMIR	1.8	2.8	350	---	450	840	---	860	10	25°

***Notes**

1. Performance guaranteed only under conditions listed in above tables.
2. Viewing angle(2θ1/2) ± 10°

ESD Precaution

ATTENTION: Electrostatic Discharge (ESD) protection

The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution must be taken during design and assembly.
If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).

Binning Definition (Binning@700mA)

Power Bin

Bin Code	Min.	Max.	Unit
P35	350	400	mW
P40	400	450	
P45	450	500	

Wavelength Bin

Bin Code	Min.	Max.	Unit
W84	840	860	nm

Voltage Bin

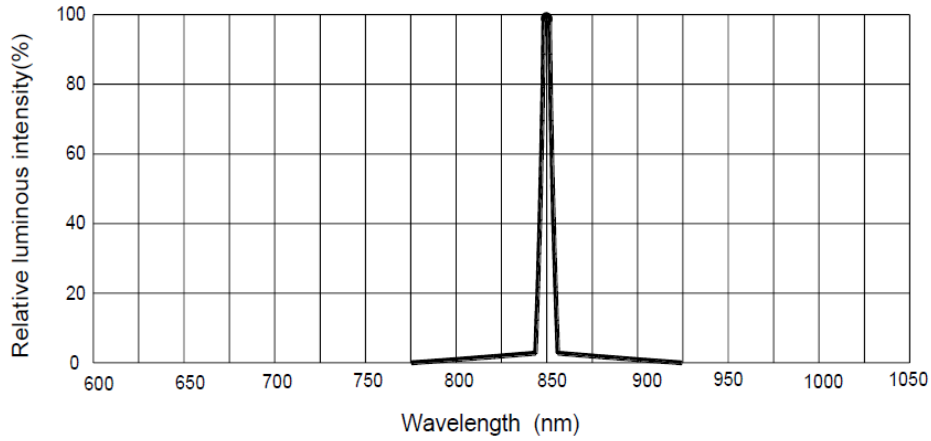
Bin Code	Min.	Max.	Unit
V1	1.8	2.2	V
V2	2.2	2.6	
V3	2.6	2.8	

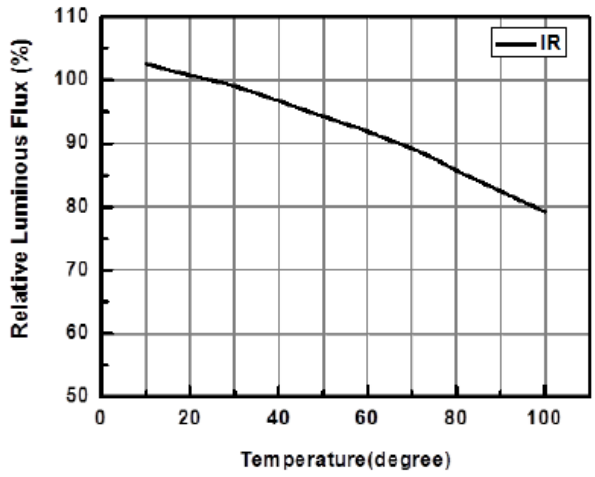
***Notes:**

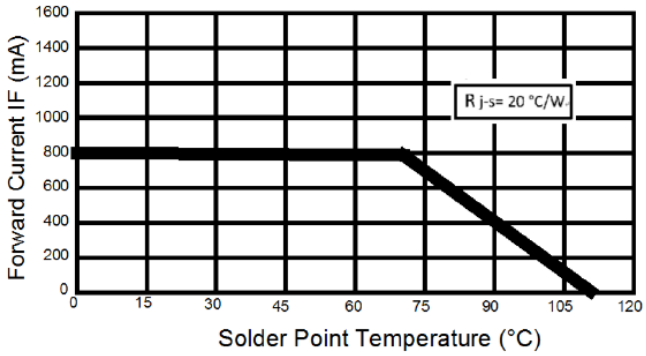
1. Radiometric Power (Po) ±10%.
2. Wavelength (Wp) ±2.0nm
3. Forward voltage (V_F) ±0.12V

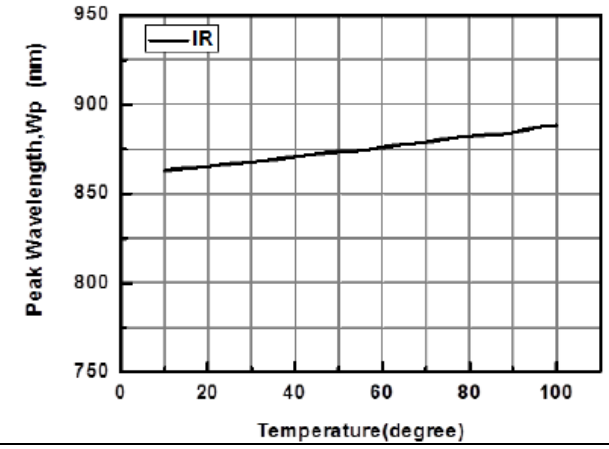
Electronic-Optical Characteristics

Spectrum Distribution

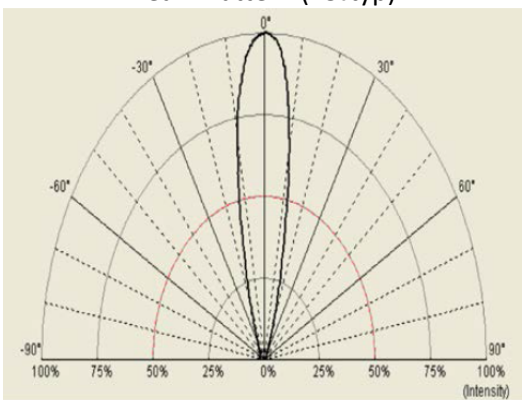








Beam Pattern (25ºtyp)



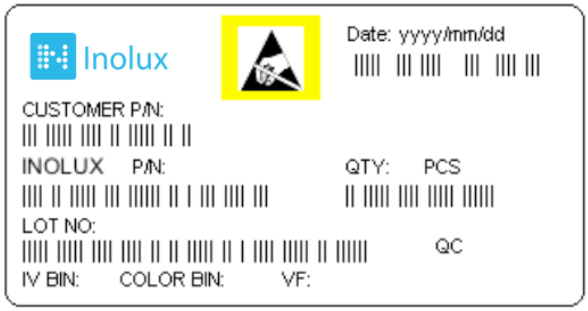
***Notes:**

Viewing angle (2θ1/2) ± 10°

Ordering Information

Orderable Part Number	Peak Wavelength (nm)	Radiometric Power (mW) @700mA		Forward Voltage (V) @700mA		Viewing Angle
		Min	Max	Min	Max	
INV-K1TMIR	840-860	350	450	1.8	2.8	25°

Label Specifications



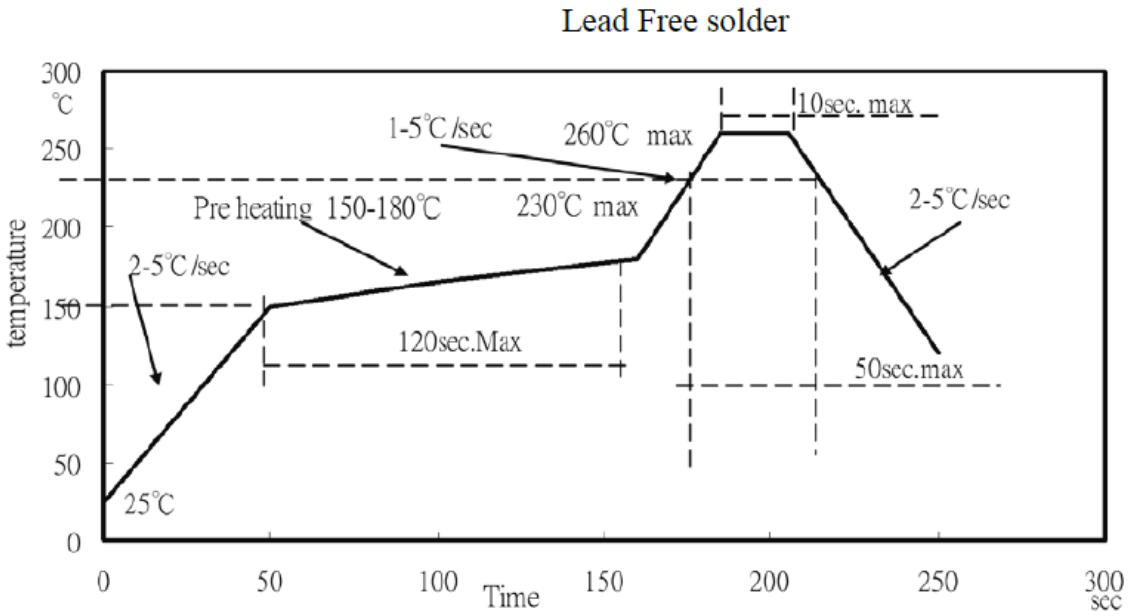
Inolux P/N:

INV	-	K1	T	M		IR	-	X	X	X	X
		Package	Orientation	Current	Lens	Color		Customized Stamp-off			
Inolux VCSEL		K1 Package	T = Top Mount	M = 700mA	(Blank) = Clear	IR = 850nm					

Lot No.:

Z	2	0	1	7	01	24	001
Internal Tracker	Year (2017, 2018, …..)				Month	Date	Serial

Reflow Soldering



Soldering Iron

Basic Spec is ≦ 4 sec. when 260°C (+10°C ➔ -1 second). Power dissipation of Iron should be less than 15W. Surface temperature should be under 230°C

Rework

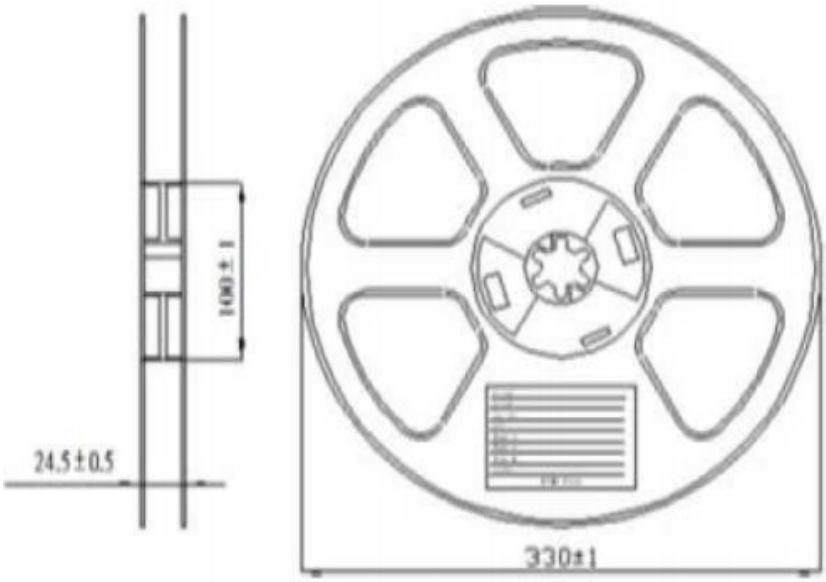
Rework should be completed within 4 second under 245°C

Notes

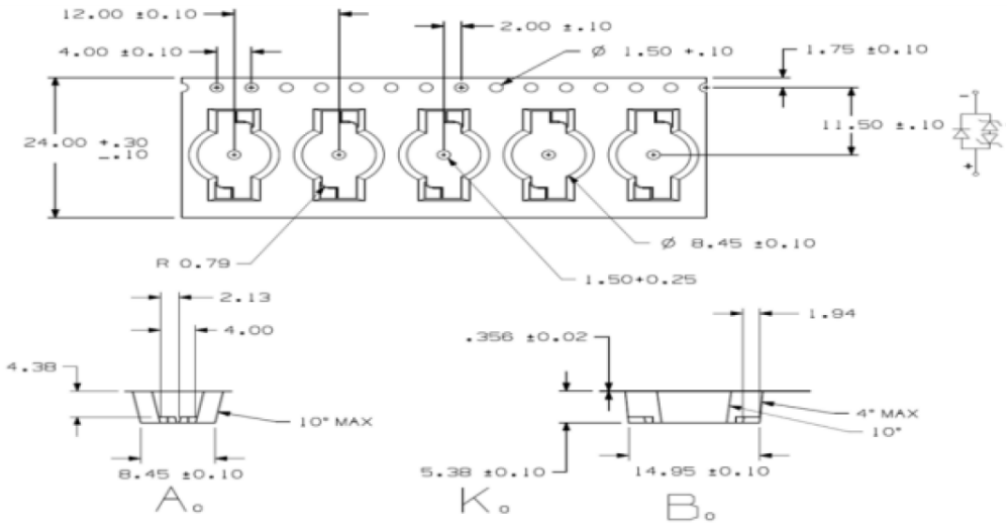
1. Do not stress the silicone resin while it is exposed to high temperature.
2. The number of reflow process should not exceed 3 times.

Packing

Dimension of Reel (Unit: mm)



Dimension of Tape (Unit: mm)



Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing SMDs is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications;
4. 500pcs/Reel

Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial Release		1.0	05-14-2019

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