

1.8mm Round Subminiature Infrared LED

HIR42-21C/L289/TR8



Features

- Compatible with infrared and vapor phase reflow solder process.
- Low forward voltage
- Good spectral matching to Si photodetector
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm)

Descriptions

- HIR42-21C/L289/TR8 is an infrared emitting diode in miniature SMD package which is molded in a water clear plastic With flat top view lens.
- The device is spectrally matched with silicon photodiode and phototransistor.

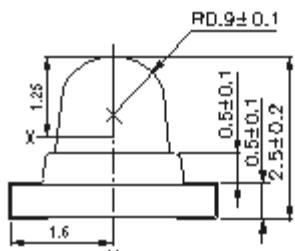
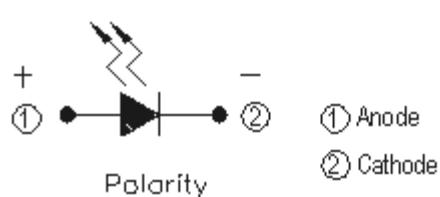
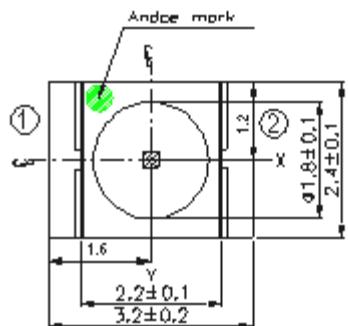
Applications

- PCB mounted infrared sensor
- Infrared emitting for miniature light barrier
- Floppy disk drive
- Optoelectronic switch
- Smoke detector

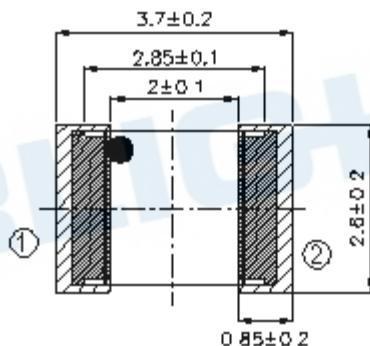
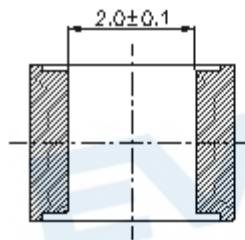
Device Selection Guide

Part Category	Chip Material	Resin Color
HIR	GaAlAs	Water Clear

Package Dimensions



Recommended solder pad



Notes: 1. All dimensions are in millimeters

2. Tolerances unless dimensions ± 0.1 mm

3. Suggested pad dimension is just for reference only

Please modify the pad dimension based on individual need

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Units
Continuous Forward Current	I _F	65	mA
Reverse Voltage	V _R	5	V
Operating Temperature	T _{opr}	-25 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Soldering Temperature *1	T _{sol}	260	°C
Power Dissipation at (or below) 25°C Free Air Temperature	P _d	130	mW

Notes: *1: Soldering time \leq 5 second

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	I _e	I _F =20mA	11	30	48	mW/sr
Peak Wavelength	λ _p	I _F =20mA	--	850	--	nm
Forward Voltage	V _F	I _F =20mA	1.2	1.4	1.6	V
Reverse Current	I _R	V _R =5V	--	--	10	μA
View Angle	2θ _{1/2}	I _F =20mA	--	20	--	deg

Radiant Intensity Specifications for Bin Grading

Rank	Condition	Min.	Max.	Units
A	I _F =20mA	11	17	mW/sr
B		15	24	
C		21	34	
D		30	48	

Notes: This bin table is only for reference, not for specific bin shipment.

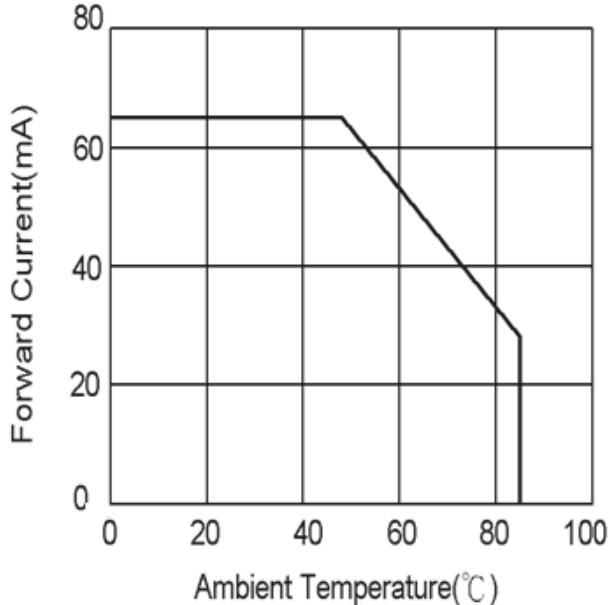
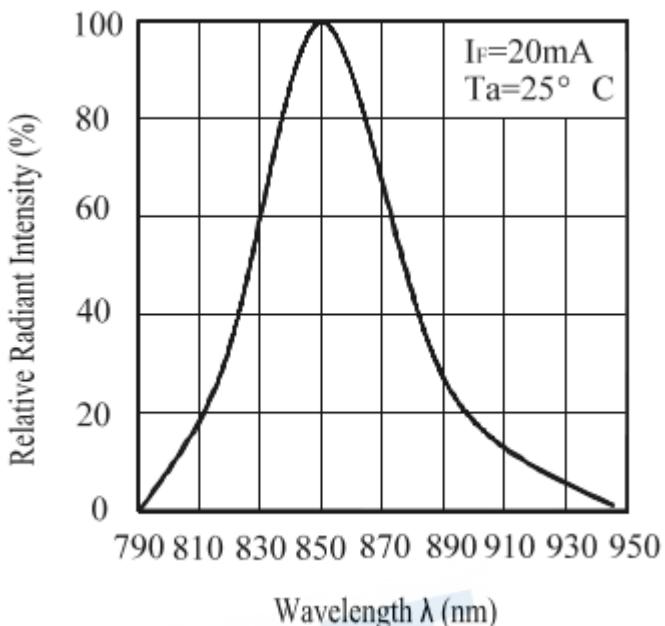
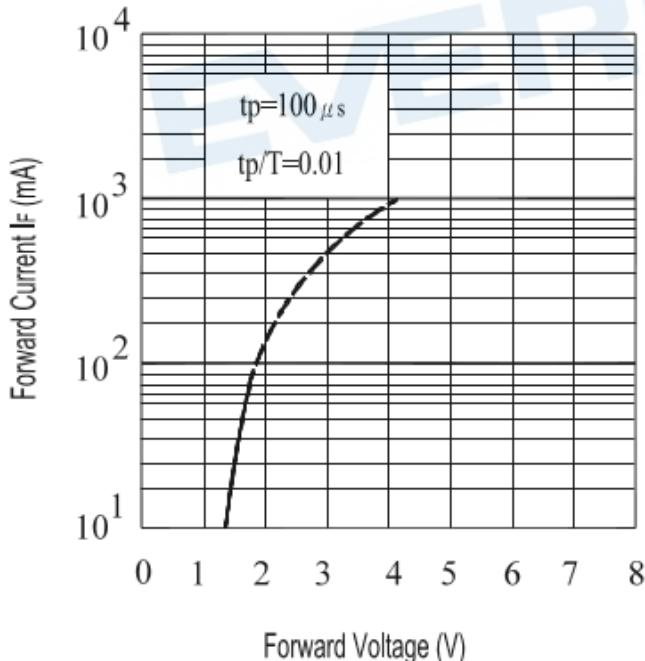
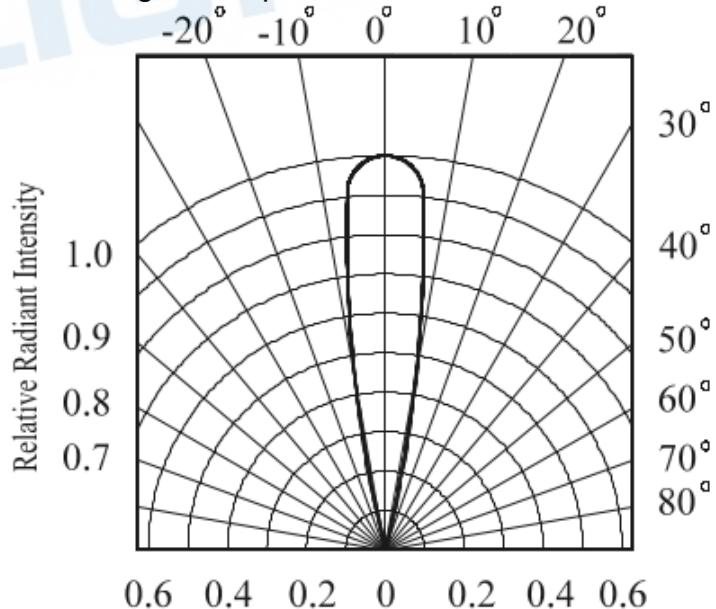
Typical Electro-Optical Characteristics CurvesFig.1 Forward Current vs.
Ambient Temperature

Fig.2 Spectral Distribution

Fig.3 Forward Current vs
Forward VoltageFig.4 Relative Radiant Intensity vs.
Angular Displacement

Precautions For Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 10°C~30°C and 90%RH or less.

2.3 The LEDs suggested be used within one year.

2.4 After opening the package, the devices must be stored at 10°C~30°C and \leq 60%RH, and used within 168 hours (floor life). If unused LEDs remain, it should be stored in moisture proof packages.

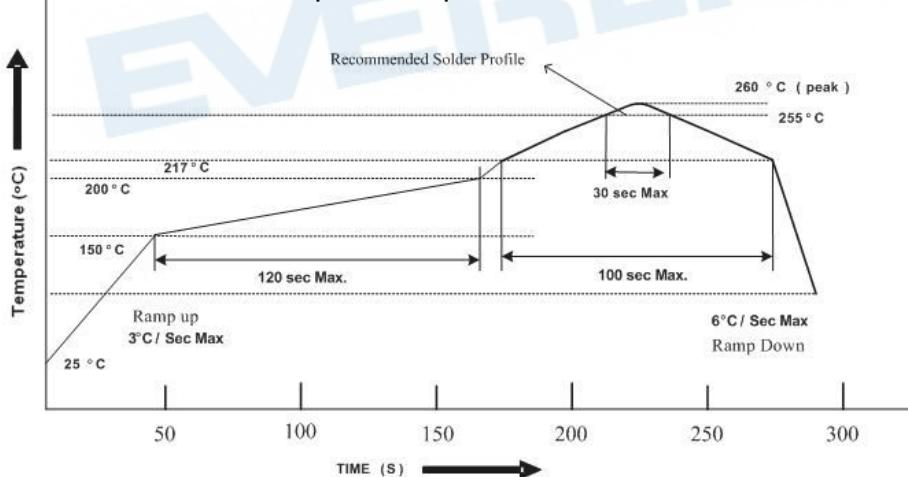
2.5 If the moisture absorbent material (desiccant material) has faded or unopened bag has exceeded the shelf life or devices (out of bag) have exceeded the floor life, baking treatment is required.

2.6 If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the following conditions:

96 hours at $60^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and $< 5\%$ RH (reeled/tubed/loose units)

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.

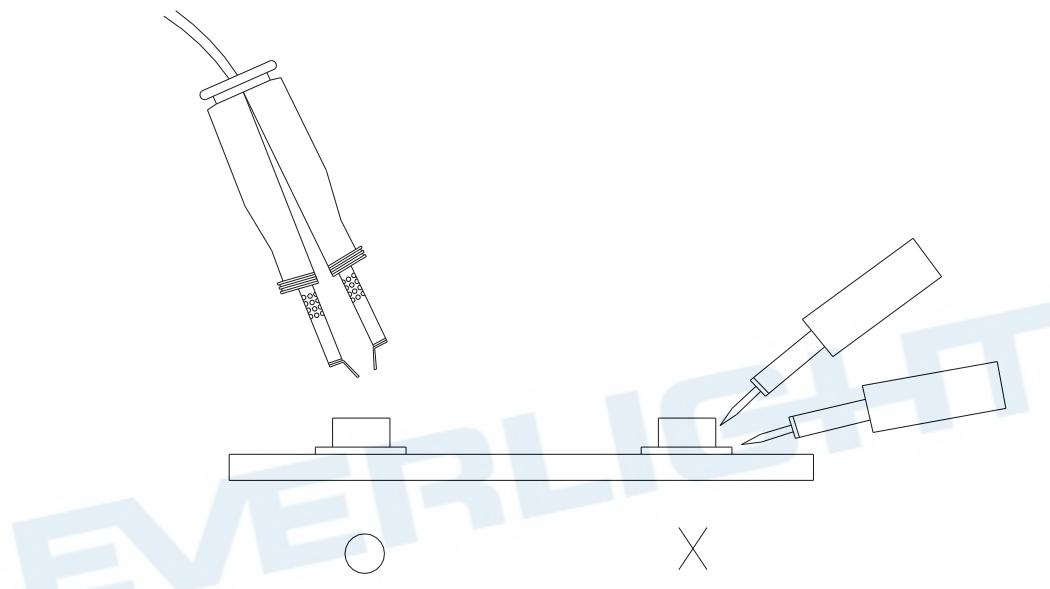
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

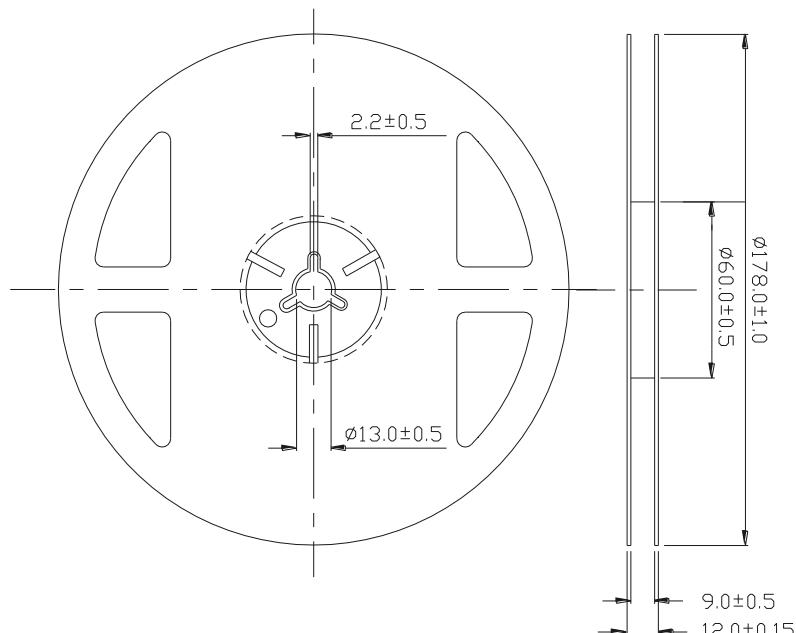
Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

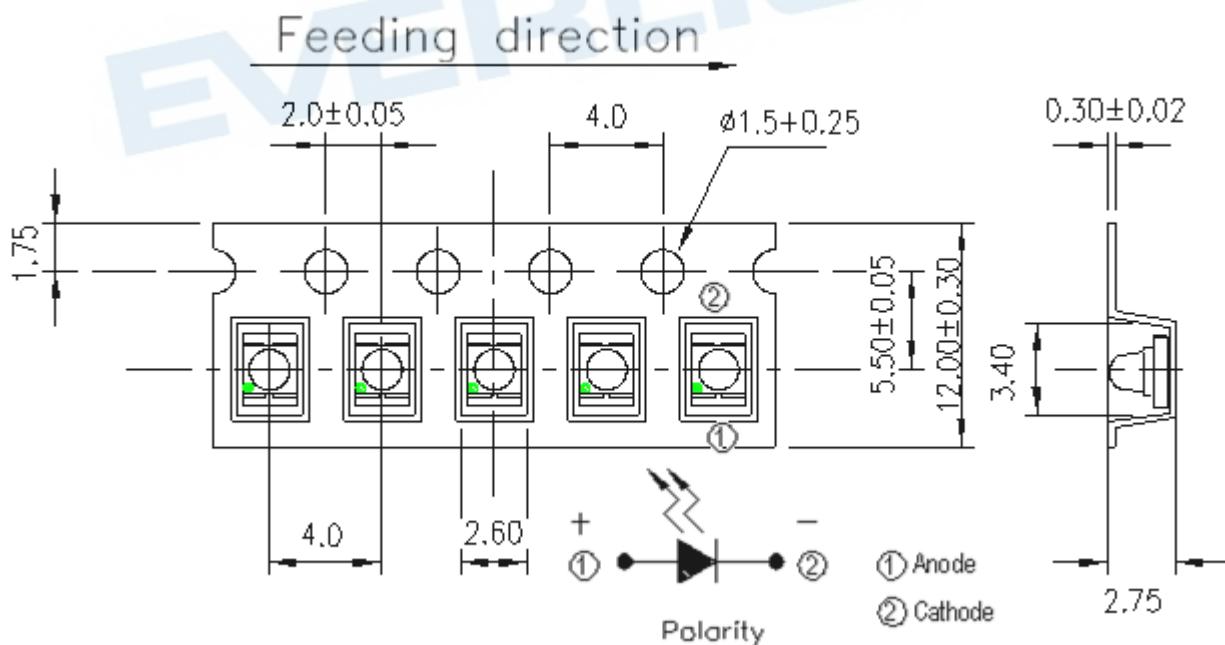


Package Dimensions

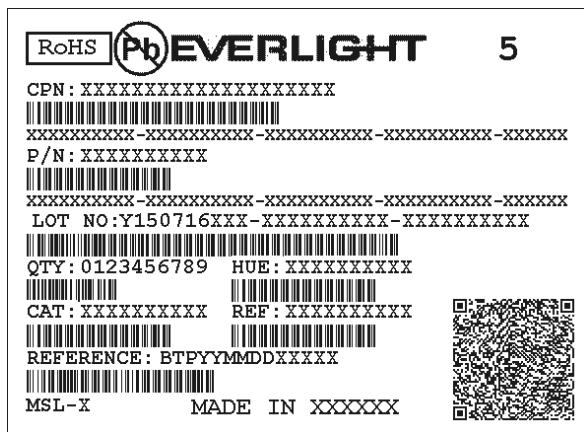


Note: The tolerances unless mentioned are ± 0.1 mm, Unit: mm

Carrier Taping Dimensions: (Quantity: 1000PCS/Reel)



Note: The tolerances unless mentioned are ± 0.1 mm, Unit: mm

Label Form Specification

CPN: Customer's Production Number

P/N : Production Number

LOT No: Lot Number

QTY: Packing Quantity

HUE: Peak Wavelength

CAT: Ranks

REF: Reference

MSL-X: MSL Level

Made In: Manufacture place

DISCLAIMER

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