



LIGHTING FOREVER

## Technical Data Sheet

### 1.6x0.8mm Package Infrared LED

#### HIR83-01B/TR8

#### Features

- Peak wavelength  $\lambda_p=850\text{nm}$
- Low forward voltage
- Pb free
- The product itself will remain within RoHS compliant version.



#### Descriptions

- HIR83-01B/TR8 is an infrared emitting diode in miniature SMD package which is molded in a black plastic with semicircle and top view lens.
- The device is spectrally matched with silicon photodiode and phototransistor.

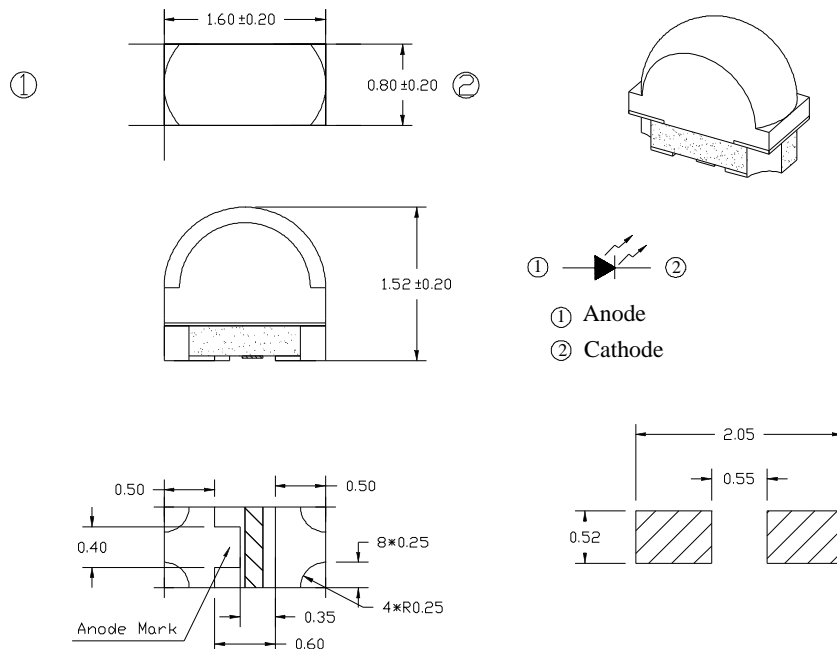
#### Applications

- Infrared applied system

#### Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
HIR83-01B/TR8	GaAlAs	Black

**Package Dimensions**



soldering pattern for side looker

- Notes:** 1.All dimensions are in millimeters  
 2.Tolerances unless dimensions  $\pm 0.1\text{mm}$

**Absolute Maximum Ratings (Ta=25 )**

Parameter	Symbol	Rating	Units
Continuous Forward Current	$I_F$	65	mA
Peak Forward Current *1	$I_{FP}$	1.0	A
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	-40 ~ +100	
Storage Temperature	$T_{stg}$	-40 ~ +100	
Soldering Temperature *2	$T_{sol}$	260	
Power Dissipation at(or below) 25 Free Air Temperature	$P_d$	100	mW

- Notes:** \*1: $I_{FP}$  Conditions--Pulse Width 100  $\mu$ s and Duty 1%.  
 \*2:Soldering time 5 seconds.

**Electro-Optical Characteristics (Ta=25 )**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	I <sub>e</sub>	I <sub>F</sub> =20mA	2.0	5.0	--	mW /sr
Peak Wavelength	λ <sub>p</sub>	I <sub>F</sub> =100mA	840	850	870	nm
Spectral Bandwidth		I <sub>F</sub> =100mA	--	30	--	nm
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	--	1.4	1.7	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	--	--	10	μ A
Rise time	t <sub>r</sub>	I <sub>F</sub> =20mA	--	16	--	ns
Fall time	t <sub>f</sub>	I <sub>F</sub> =20mA	--	30	--	ns
View Angle	2 1/2	I <sub>F</sub> =20mA (X)	--	100	--	deg
		I <sub>F</sub> =20mA (Y)	--	40	--	



**Typical Electro-Optical Characteristics Curves**

Fig.1 Forward Current vs. Ambient Temperature

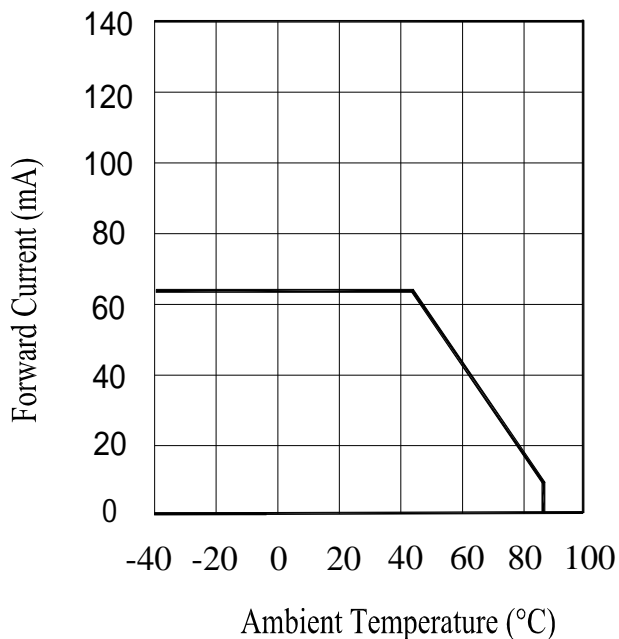


Fig.2 Spectral Distribution

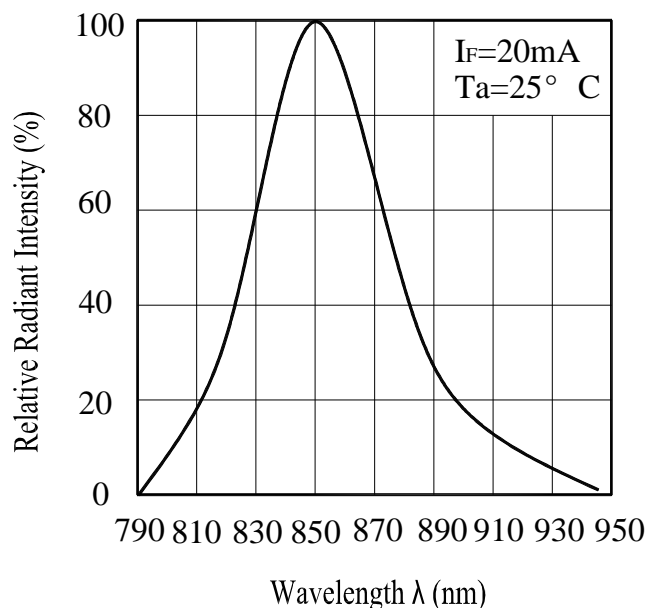


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

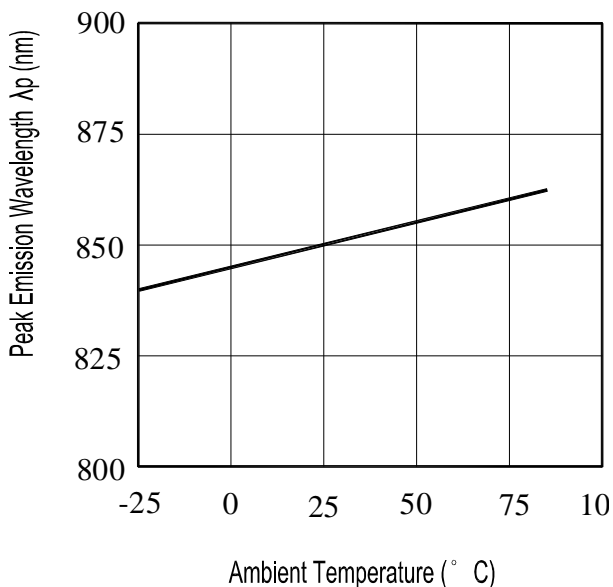
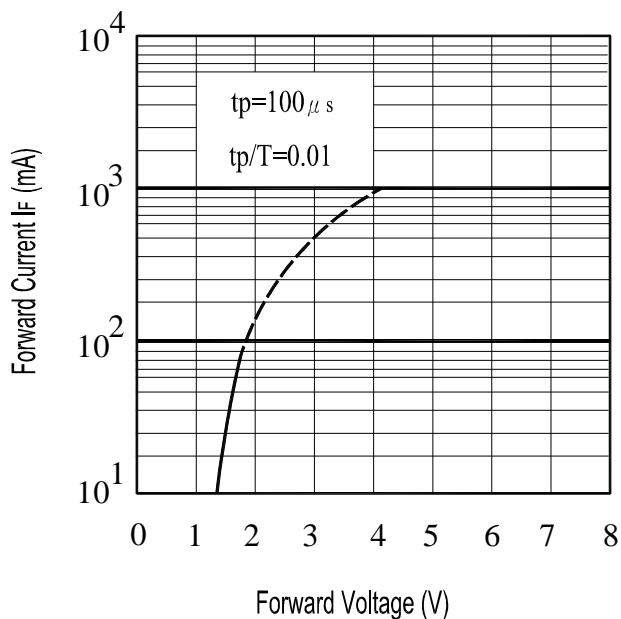


Fig.4 Forward Current vs. Forward Voltage



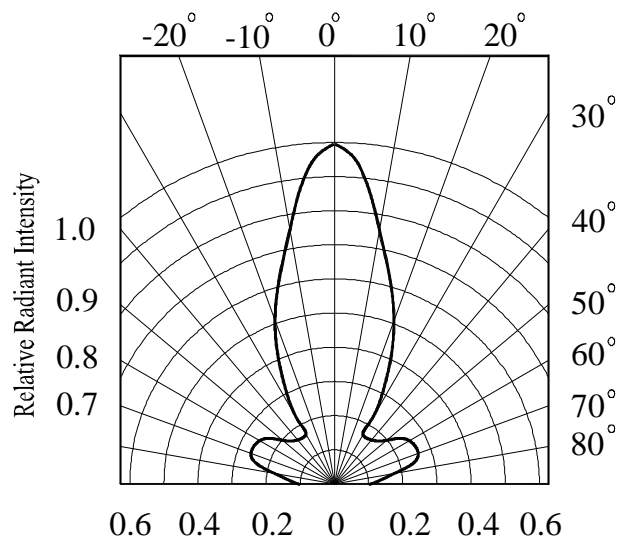
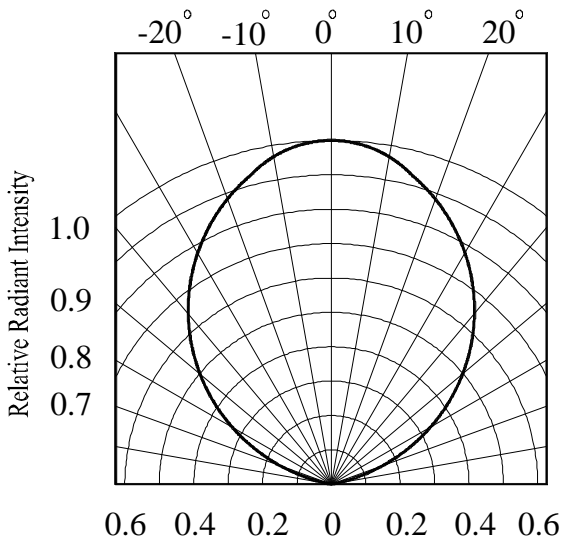
**Typical Electro-Optical Characteristics Curves**

Fig.5 Relative Radiant Intensity vs.

Angular Displacement

(X axle)

(Y axle)



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## 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 30 or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30 or less and 70%RH or less.

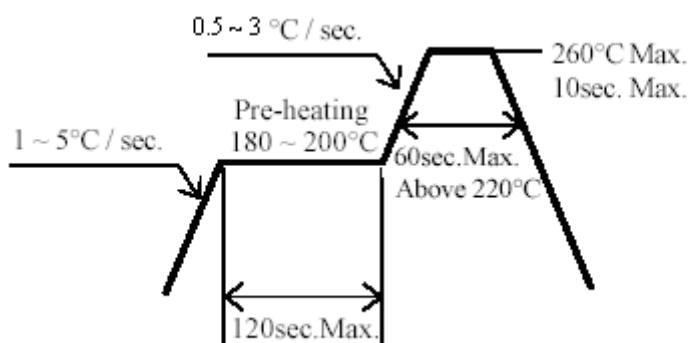
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

2.6 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment :  $60 \pm 5$  for 24 hours.

### 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.

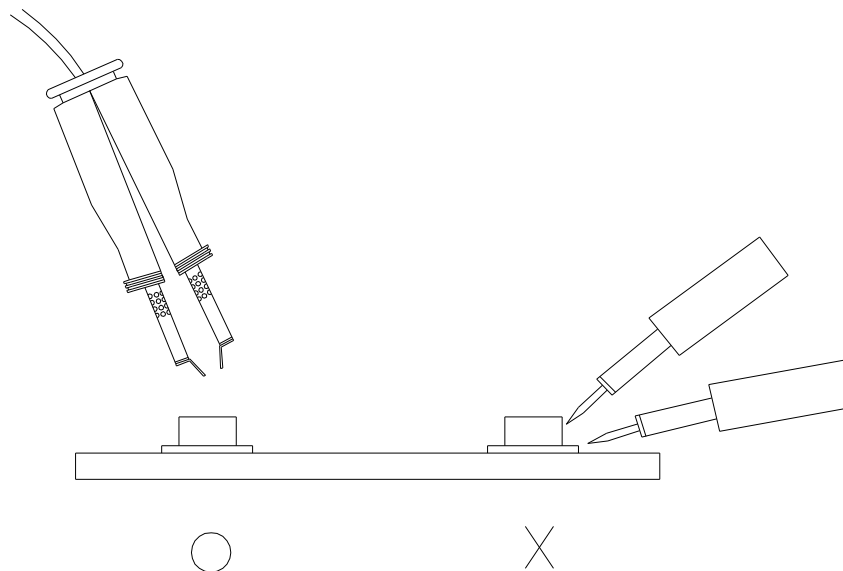
3.4 After soldering, do not warp the circuit board.

#### 4.Soldering Iron

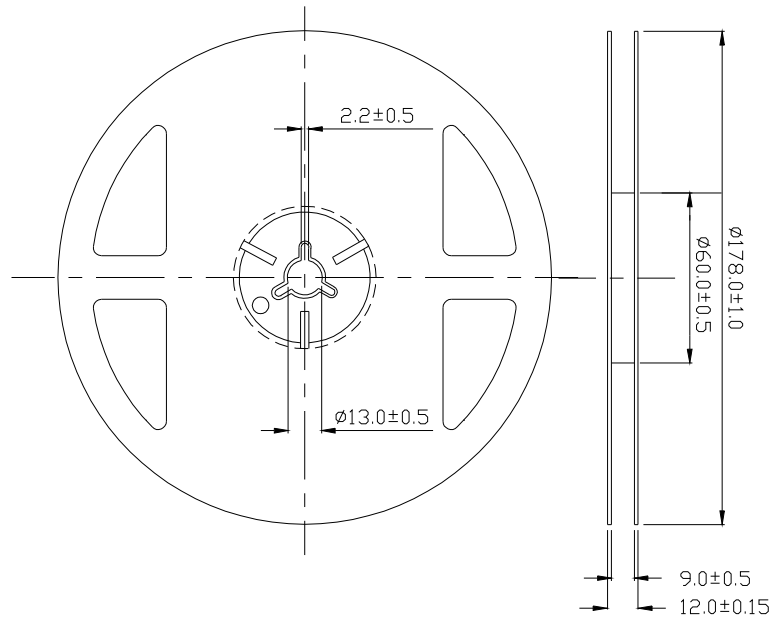
Each terminal is to go to the tip of soldering iron temperature less than 350 for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the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

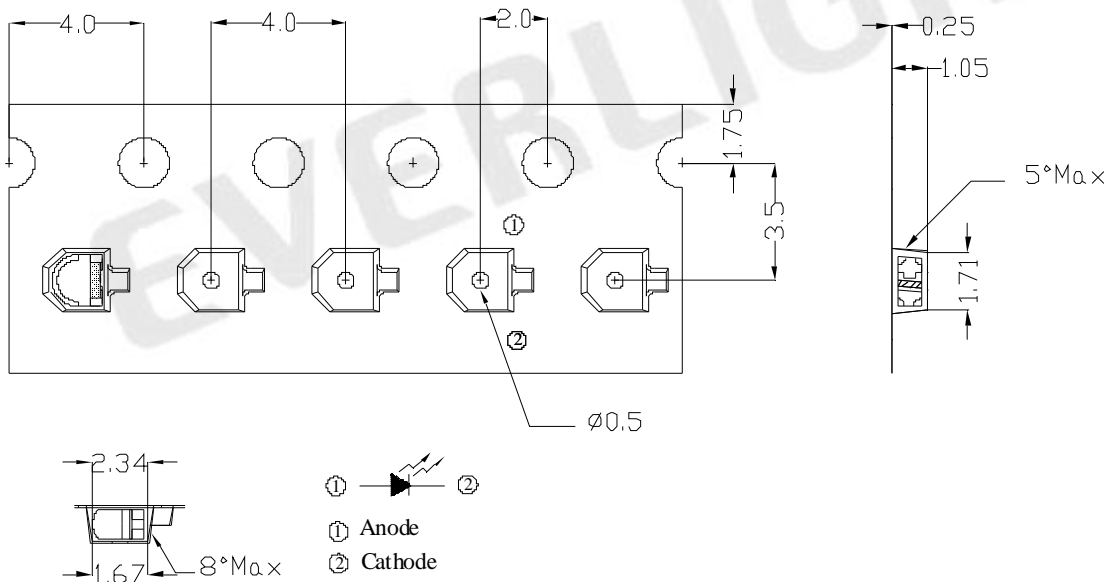


**Package Dimensions**



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm

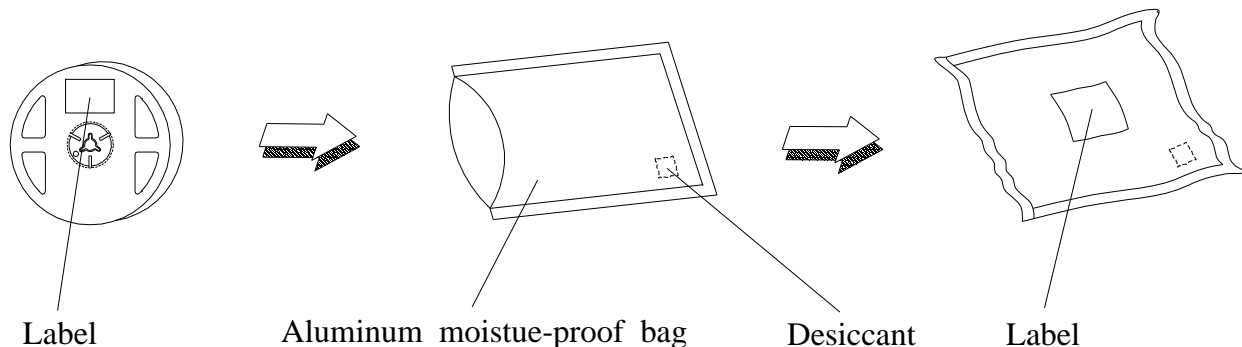
**2. Carrier Tape Dimensions:(Quantity: 2000pcs/reel)**



**Note:** The tolerances unless mentioned is  $\pm 0.1$ mm ,Unit = mm



**Packing Procedure**



**Label Form Specification**



CPN: Customer's Production Number  
P/N : Production Number  
QTY: Packing Quantity  
CAT: Ranks  
HUE: Peak Wavelength  
REF: Reference  
LOT No: Lot Number  
MADE IN TAIWAN: Production Place

**Notes**

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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