



**BRIGHTTEK**  
**BRIGHTTEK (EUROPE) LIMITED**

*Brighten Up The World With LED!*



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

## PRODUCT DATASHEET

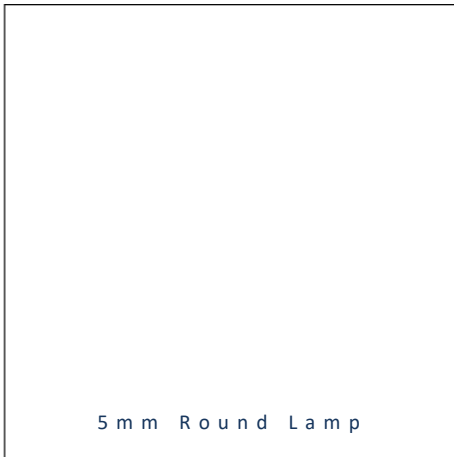


- ▶ PTH Lamp
- ▶ 5mm Round 8.7t
- ▶ Red (625nm) / Green (570nm)

N0D33L93 (Bulk)  
 N0D33L93T (Taping)



Release Date: 03 January 2018 Version: A1.1



5 m m R o u n d L a m p

### 5mm Round Lamp

**RoHS**  
Compliant



#### FEATURES (Red/Green):

- **Package:** PTH Lamp 5mm Round 8.7t
- **Forward Current:** 20/20mA\*
- **Forward Voltage (typ.):** 2.0/2.2V
- **Luminous Intensity (typ.):** 40/40mcd @20mA
- **Colour:** Red/Green
- **Wavelength:** 625/570nm
- **Viewing angle:** 50/50°
- **Materials:**
  - Die: AlGaInP on GaP/GaP
  - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
  - Forward voltage
  - Luminous intensity
  - Dominant Wavelength
- **Soldering methods:** Hand; Reflow soldering
- **Preconditioning:** acc. to JEDEC Level 3
- **Packing:** 500pcs/Bulk; 2000pcs/Taping

\* in the order of Red/Green.

#### APPLICATIONS:

- Indicator
- Traffic Display
- Decoration Lighting

## CHARACTERISTICS:

### Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I <sub>F</sub>	20/20*	mA
Peak Forward Current Duty 1/10@10KHz	I <sub>FP</sub>	100/100	mA
Reverse Voltage	V <sub>R</sub>	5/5	V
Reverse Current @5V	I <sub>R</sub>	10/10	μA
Power Dissipation	P <sub>D</sub>	85/85	mW
Operating Temperature	T <sub>OPR</sub>	-40~+85	°C
Storage Temperature	T <sub>STG</sub>	-40~+100	°C

- \* In the order of Red/Green.

### Electrical & Optical Characteristics (Ta=25°C)

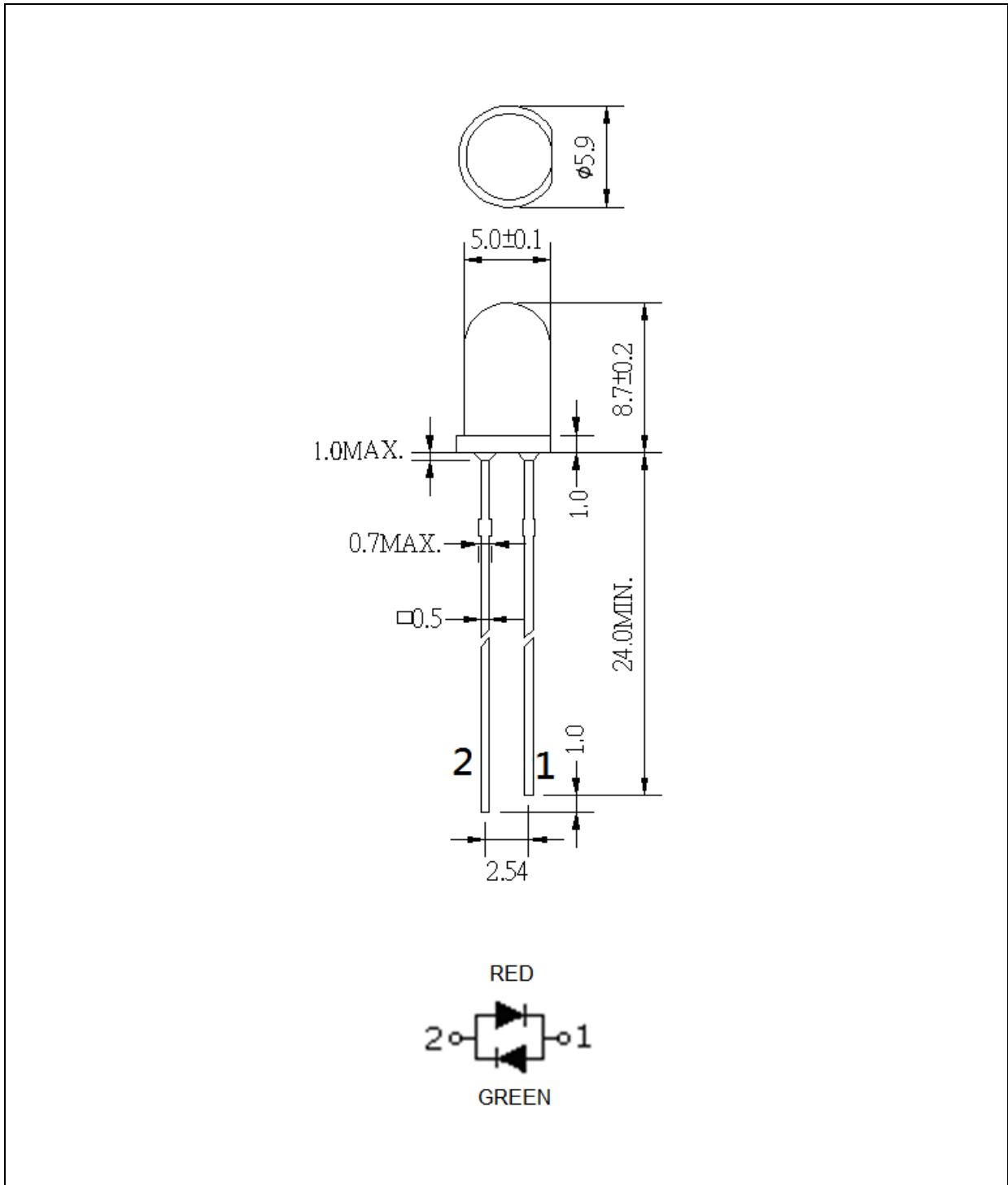
Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Forward Voltage	V <sub>F</sub>	1.7/1.8	2.0/2.1	2.6/2.6	V	I <sub>F</sub> =20mA
Luminous Intensity	I <sub>v</sub>	38/30	45/40	55/45	mcd	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>D</sub>	---	625/570	---	nm	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>P</sub>	---	635/568	---	nm	I <sub>F</sub> =20mA
Spectral Line Half Bandwidth	Δλ	---	45/30	---	nm	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	---	50/50	---	deg	I <sub>F</sub> =20mA

- Luminous intensity (I<sub>v</sub>) ±15%, Forward Voltage (V<sub>F</sub>) ±0.1V, Viewing angle(2θ<sub>1/2</sub>) ±5%



**OUTLINE DIMENSION:**

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance  $\pm 0.2$ mm, unless otherwise noted.

**BINNING GROUPS:**


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 Forward Voltage Classifications ( $I_F = 20\text{mA}$ ):

Code		Min.	Max.	Unit
V	Red	1.7	2.6	V
	Green	1.8	2.6	V

 Luminous Intensity Classifications ( $I_F = 20\text{mA}$ ):

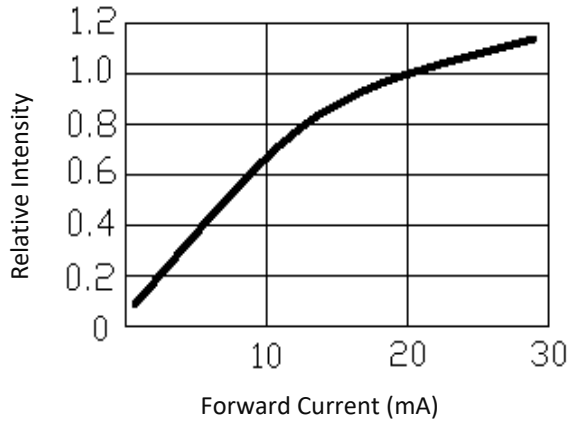
Code		Min.	Max.	Unit
IV	Red	38	55	mcd
	Green	30	45	mcd

 Dominant Wavelength Classifications ( $I_F = 20\text{mA}$ ):

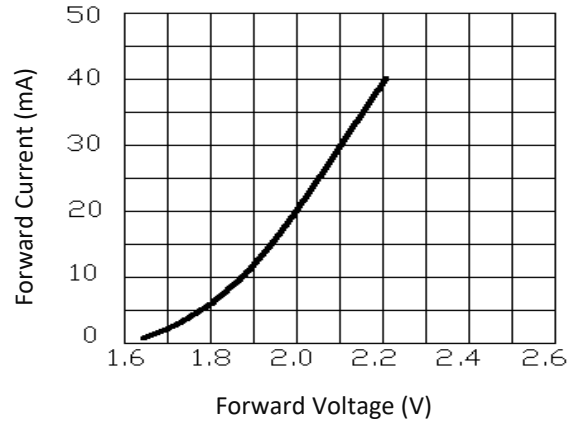
Code		Min.	Max.	Unit
TR	Red	620	630	nm
	Green	565	575	nm

## ELECTRO-OPTICAL CHARACTERISTICS (RED):

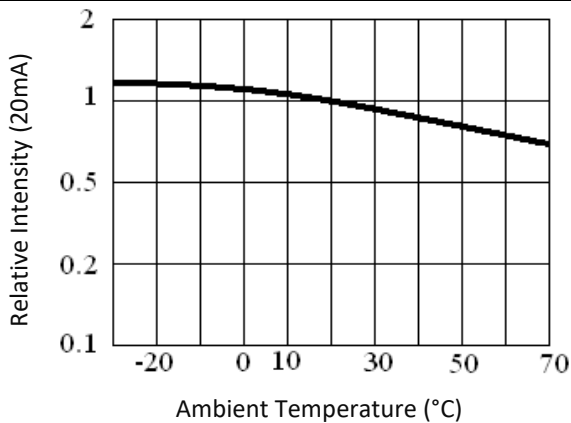
Relative Intensity v.s. Forward Current



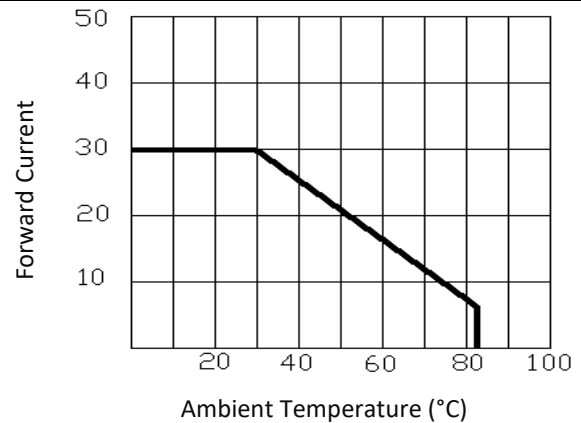
Forward Current v.s. Forward Voltage



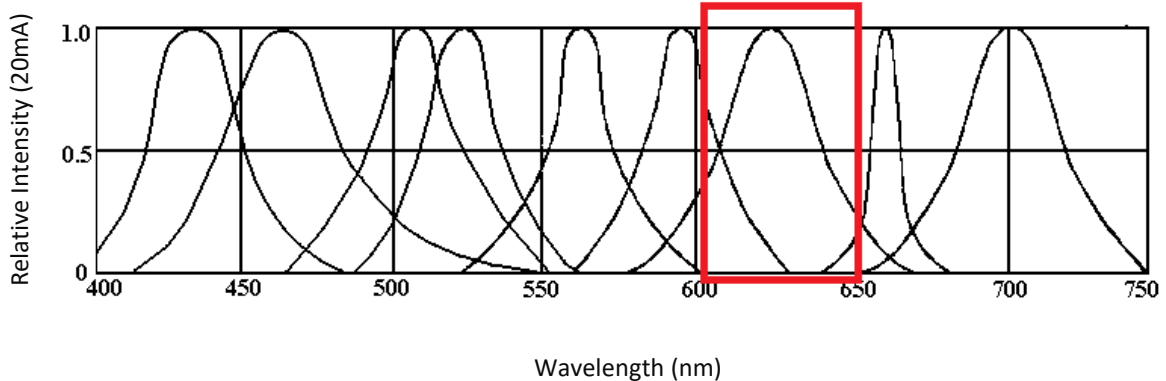
Relative Intensity v.s. Temperature



Forward Current v.s. Temperature

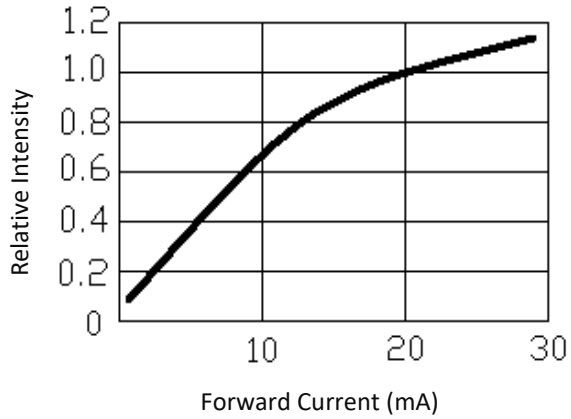


Relative Intensity v.s. Wavelength

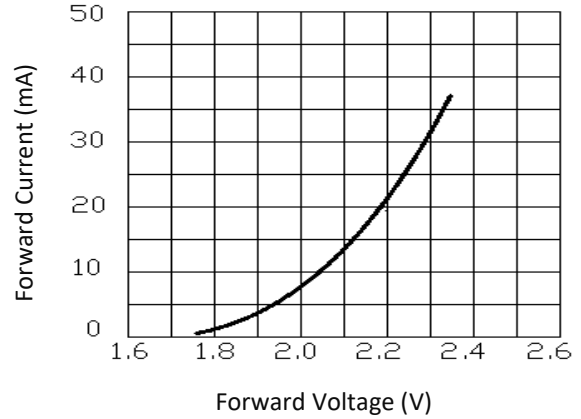


## ELECTRO-OPTICAL CHARACTERISTICS (GREEN):

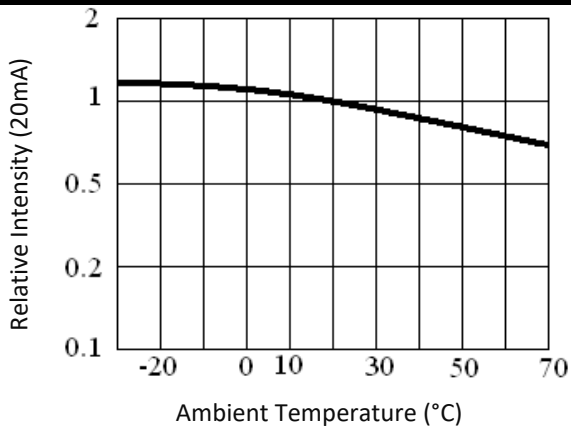
Relative Intensity v.s. Forward Current



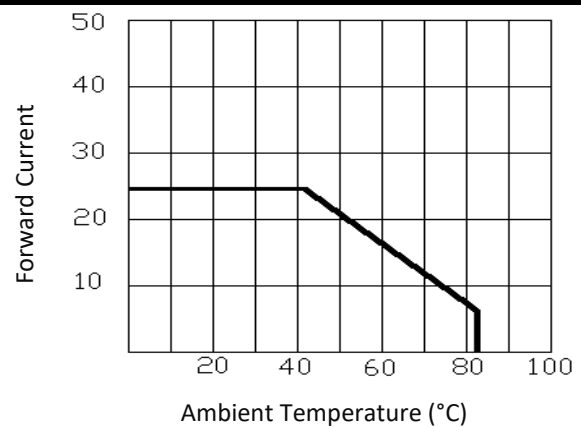
Forward Current v.s. Forward Voltage



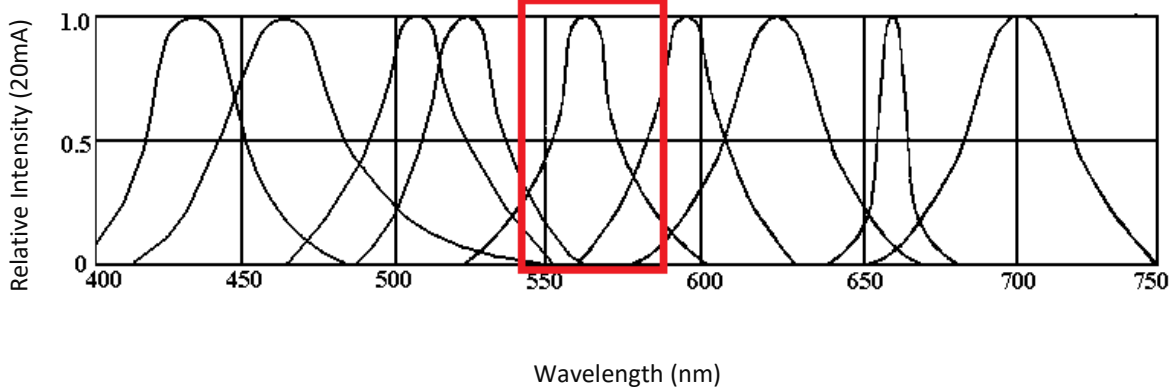
Relative Intensity v.s. Temperature



Forward Current v.s. Temperature



Relative Intensity v.s. Wavelength



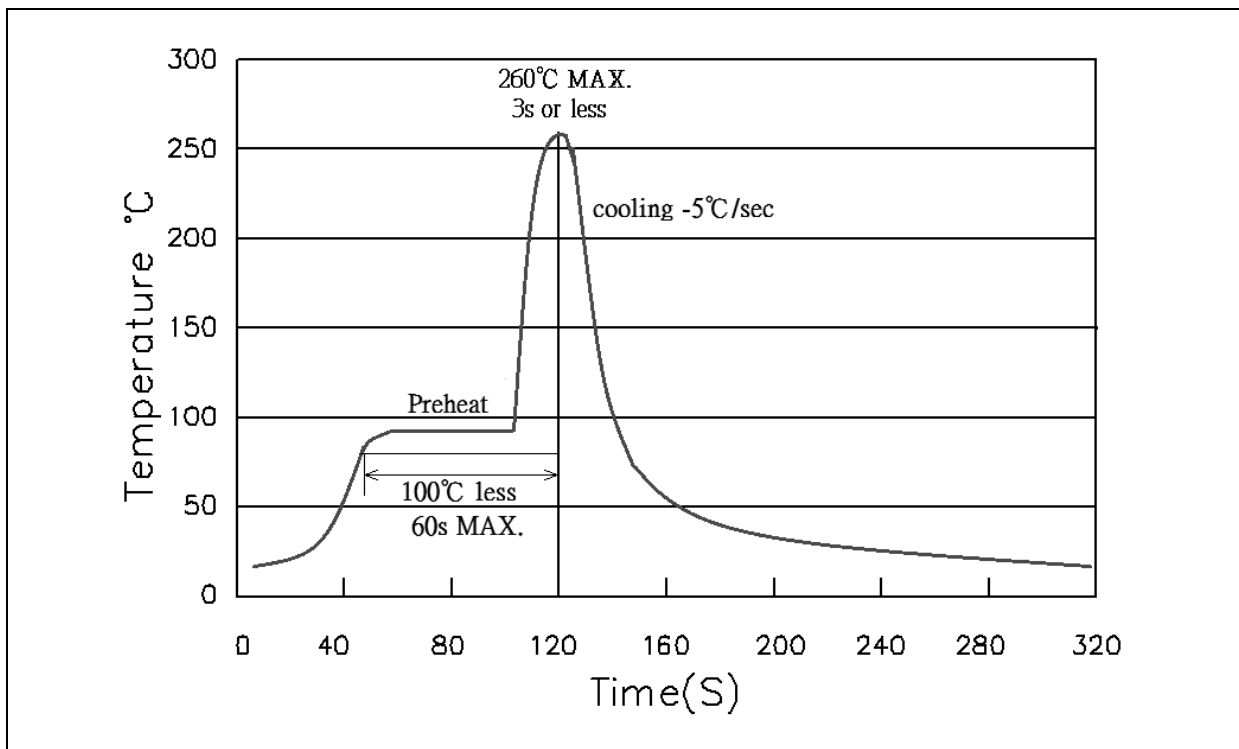
## RECOMMENDED SOLDERING PROFILE:

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### Hand Solder (Solder Iron):

- Temperature at tip of iron: 300°C Max. (25W Max.).
- Soldering Time: 3 seconds ± 1 sec.
- Maximum reflow soldering: 1 time.

### Lead-free Solder:



### Note:

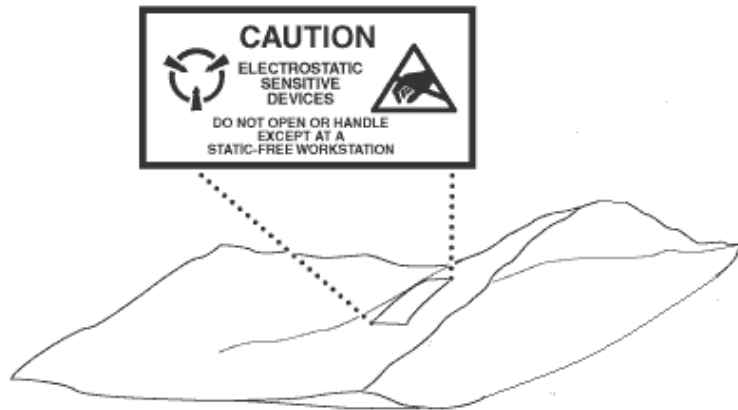
1. Maximum reflow soldering: 1 time.
2. Before, during, and after soldering, should not apply stress on the components and PCB board.

**PACKING SPECIFICATION:**

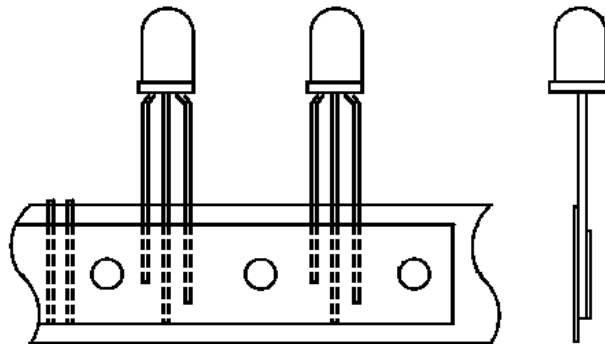
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Reel Dimension:

500pcs/Bulk



2000pcs/Taping





## PRECAUTIONS OF USE:

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### Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccating agent and apply baking at 60°C±5°C for 15hrs before use.

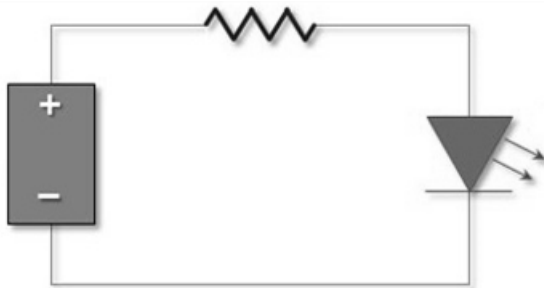
### Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 60±3°C x 24hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

### Testing Circuit:



Must apply resistor(s) for protection (over current proof).

### Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

### ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

**REVISION RECORD:**

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Version	Date	Summary of Revision
A1.0	06/01/2017	Datasheet set-up.
A1.1	03/01/2018	New datasheet format.