DATASHEET

SMD ▪ B
12-23C/R6GHBHC-A01/2C



香港至恩科技有限公司
www.to-grace.com
公司授权代理销售LITE-ON:光耦，贴片LED灯等
进口原装，现货供应，价格优势，技术支持
电话：0755-83464948 传真：0755-83464076

Features

- Package in 8mm tape on 7″ diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Mono-color type.
- Pb-free.
- The product itself will remain within RoHS compliant version.

Description

- The 12-23C SMD LED is much smaller than lead frame type components, thus enable smaller board ize, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications. etc.

Applications

- Back lighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

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Device Selection Guide

Chip Type	Materials	Emitted Color	Resin Color
R6	AlGaInP	Brilliant Red	Water Clear
GH	InGaN	Brilliant Green	
BH	InGaN	Blue	

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	R6：25 GH：25 BH：25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	R6：60 GH：100 BH：100	mA
Power Dissipation	Pd	R6：60 GH：95 BH：95	mW
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Electrostatic Discharge	ESD_{HBM}	R6：2000 GH：150 BH：150	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 30 sec. Hand Soldering : 350 ℃ for 3 sec.	

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Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv R6	63	90	-----	mcd	I_F=20mA
	GH	125	180			
	BH	32	50			
Viewing Angle	$2\theta_{1/2}$	-----	100	-----	deg	I_F=20mA
Peak Wavelength	λ p R6	-----	632	-----	nm	I_F=20mA
	GH		518			
	BH		468			
Dominant Wavelength	λ d R6	-----	624	-----	nm	I_F=20mA
	GH		525			
	BH		470			
Spectrum Radiation Bandwidth	△λ R6	-----	20	-----	nm	I_F=20mA
	GH		35			
	BH		25			
Forward Voltage	V_F R6	-----	2.0	2.4	V	I_F=20mA
	GH		3.3	3.9		
	BH		3.3	3.9		
Reverse Current	I_R R6	-----	-----	10	μA	V_R=5V
	GH			50		
	BH			50		

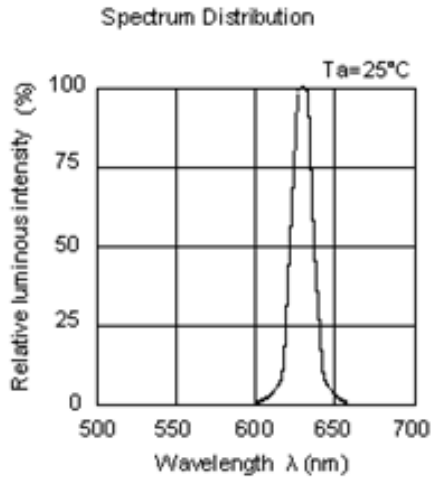
Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage ±0.1V

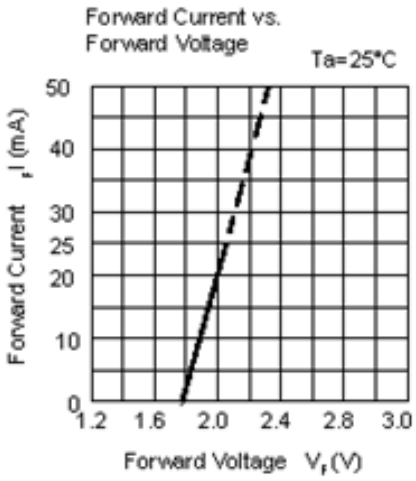
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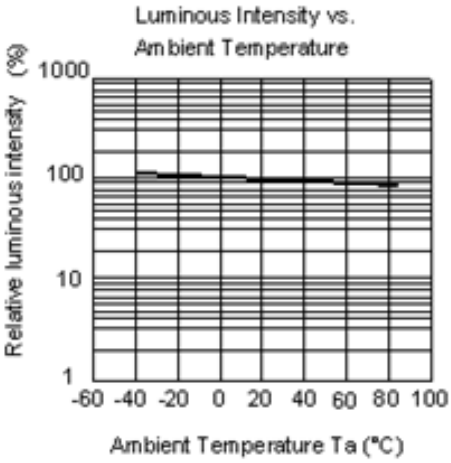
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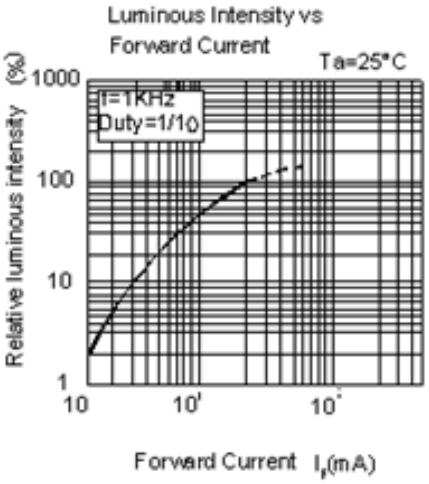
Typical Electro-Optical Characteristics Curves

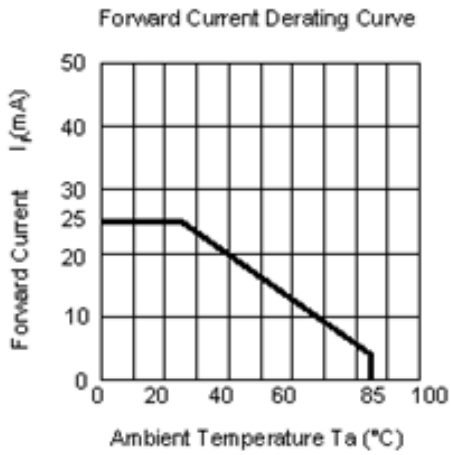
R6

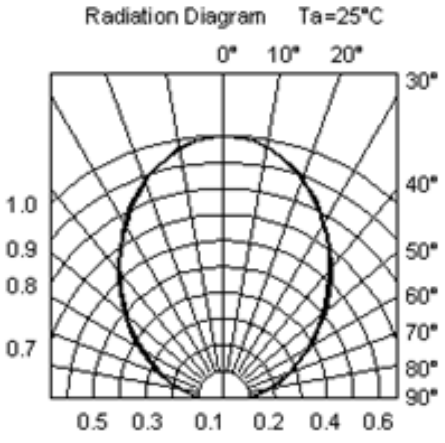










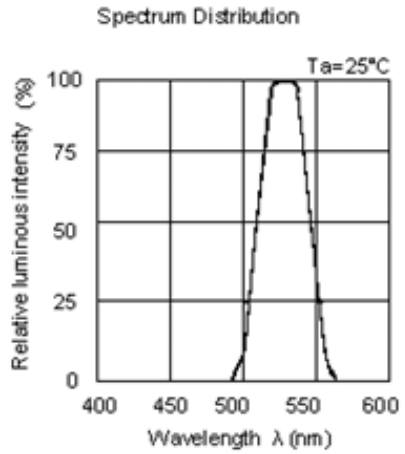


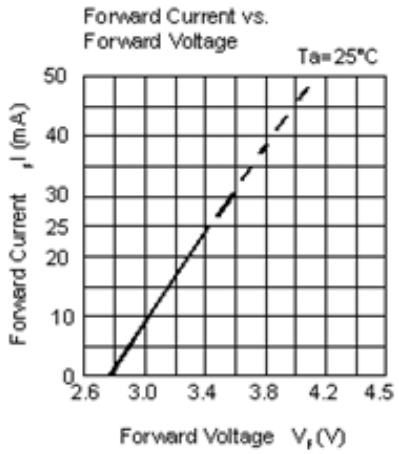
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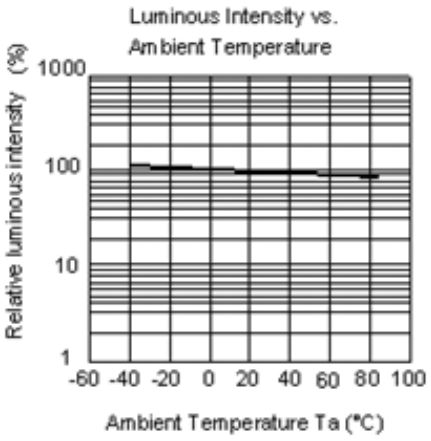
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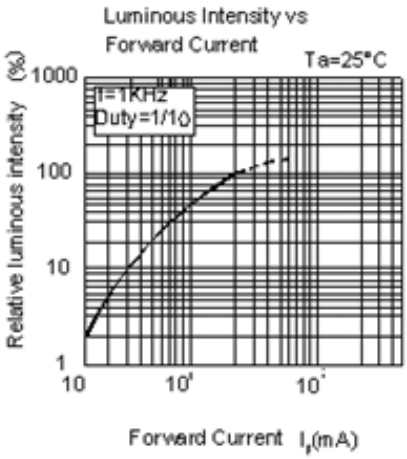
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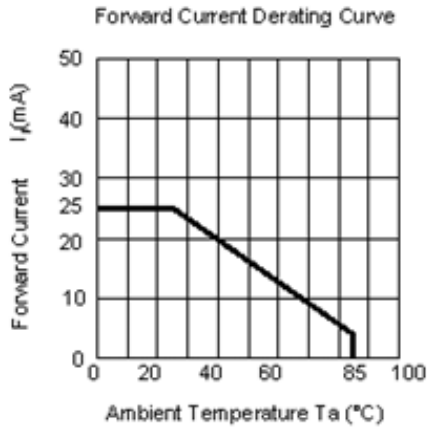
GH

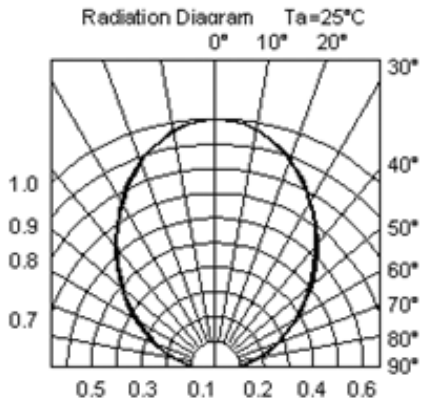










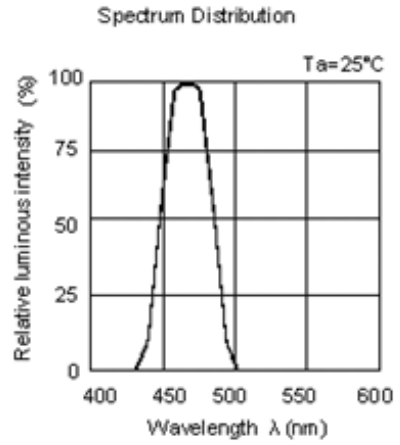


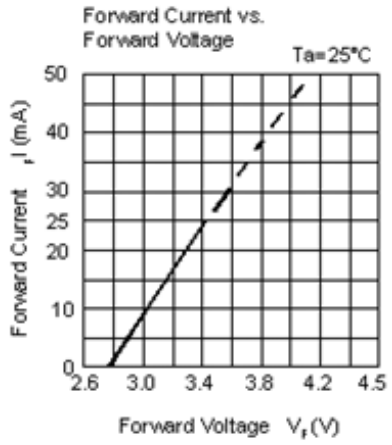
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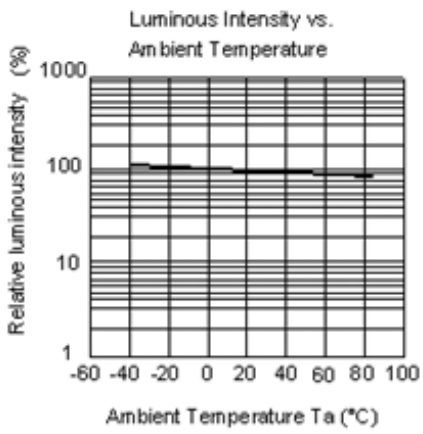
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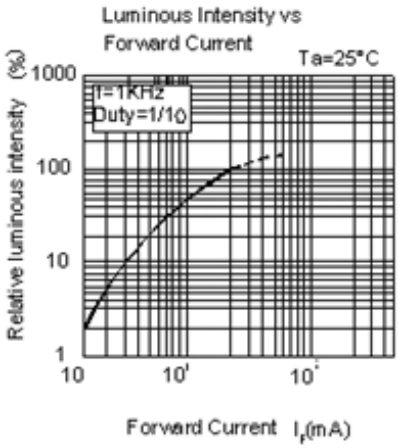
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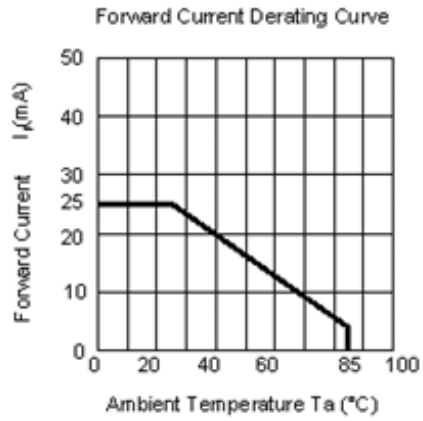
BH

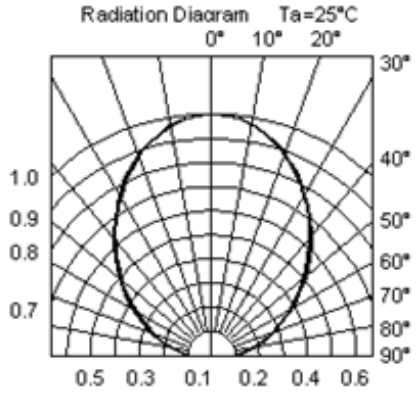








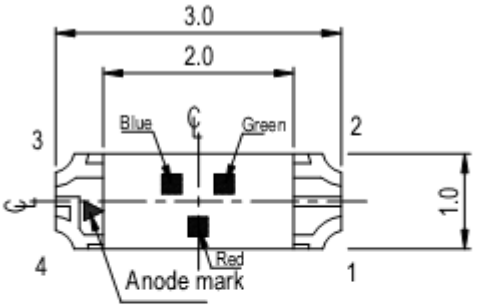


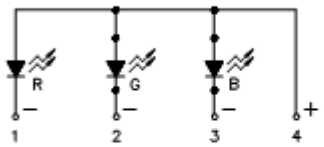


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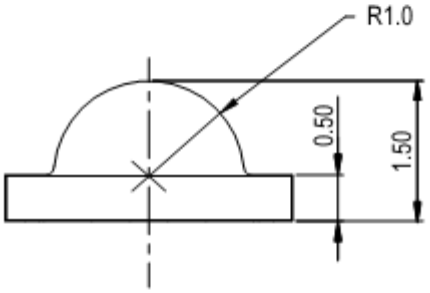
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Package Dimension

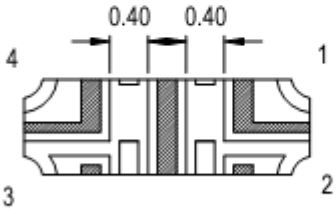


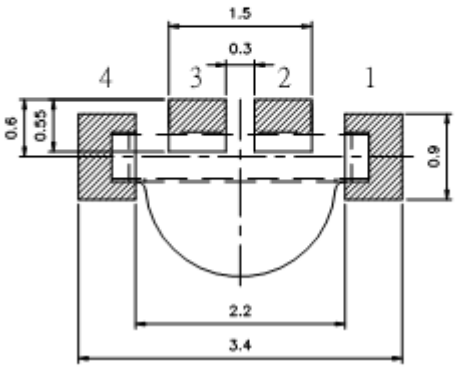


Polarity



For reflow soldering (propose)





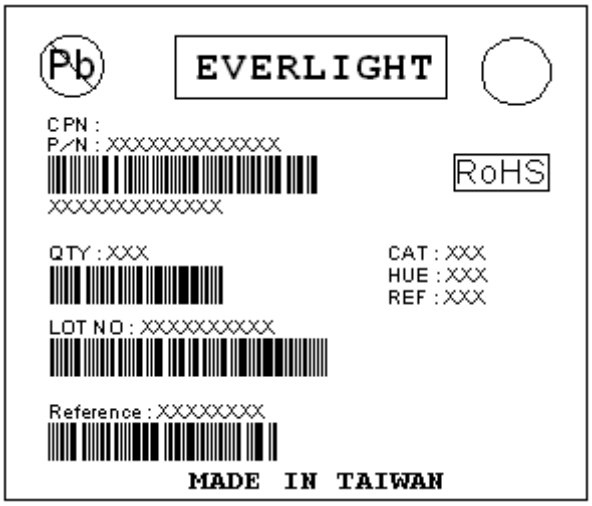
Note: Tolerances unless mentioned ±0.1mm. Unit = mm
Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

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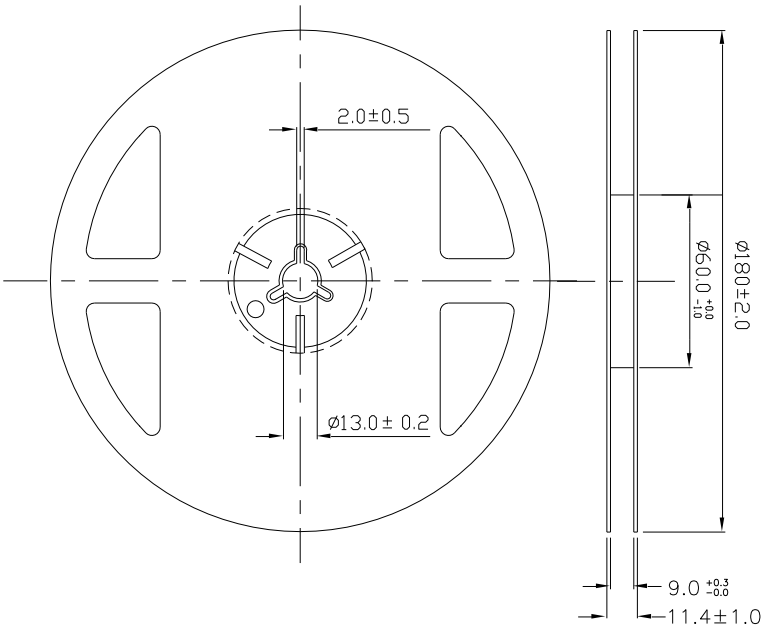
Moisture Resistant Packing Materials

Label Explanation



- CAT: Luminous Intensity Rank
- HUE: Dom.Wavelength Rank
- REF: Forward Voltage Rank

Reel Dimensions

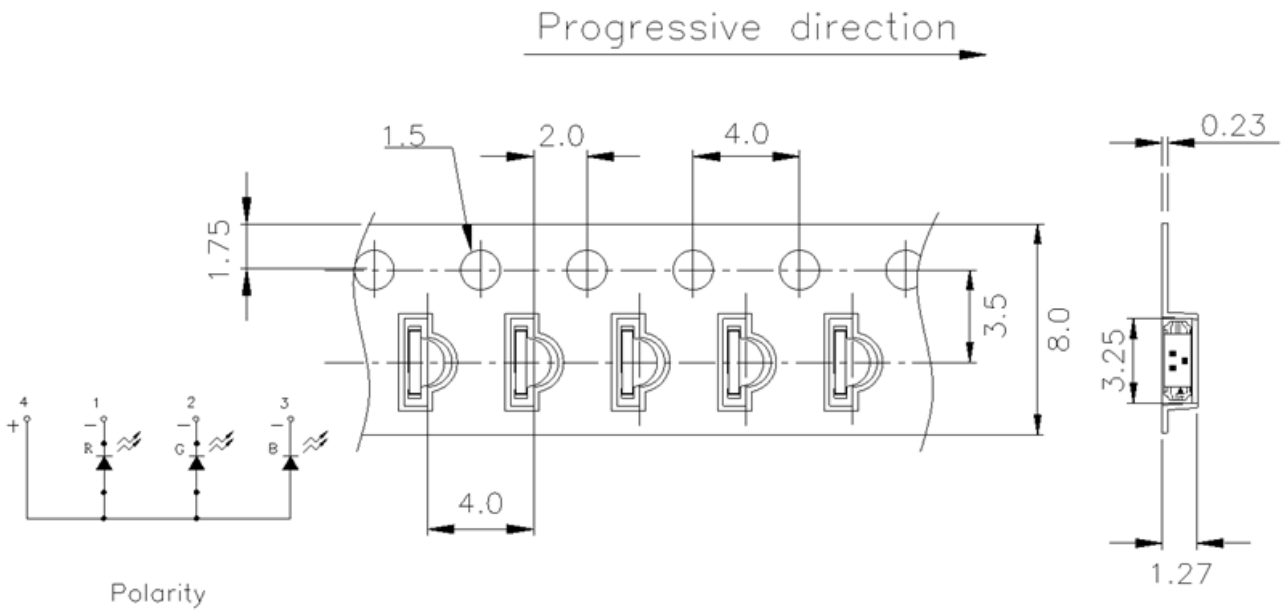


Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

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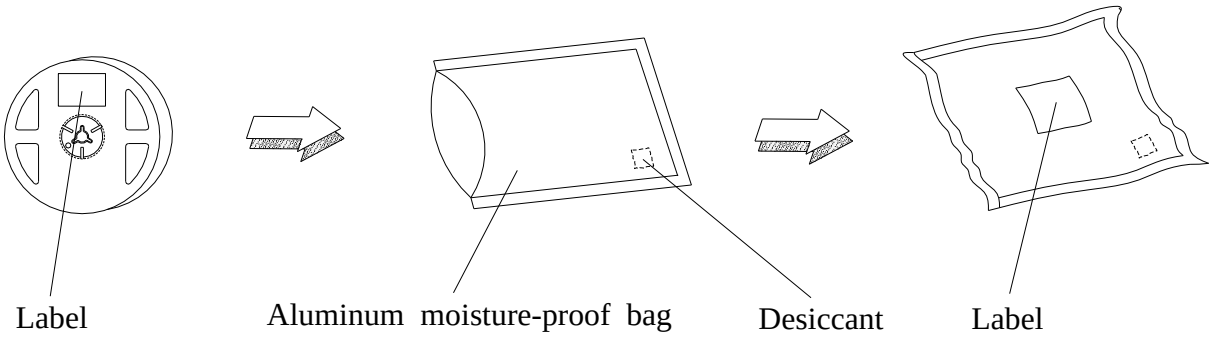
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Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

Moisture Resistant Packaging



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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 After opening the package: The LED's floor life is 1 year under 30℃ or less and 60% RH or less.

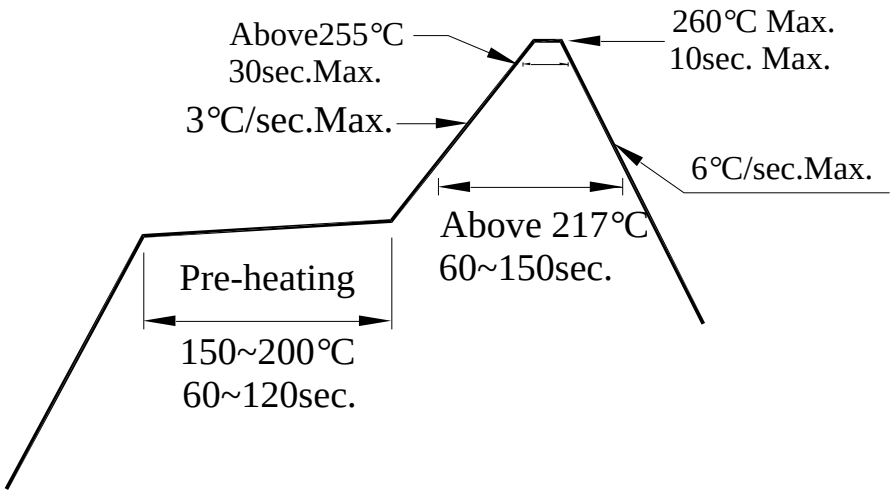
If unused LEDs remain, it should be stored in moisture proof packages.

2.4 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±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.

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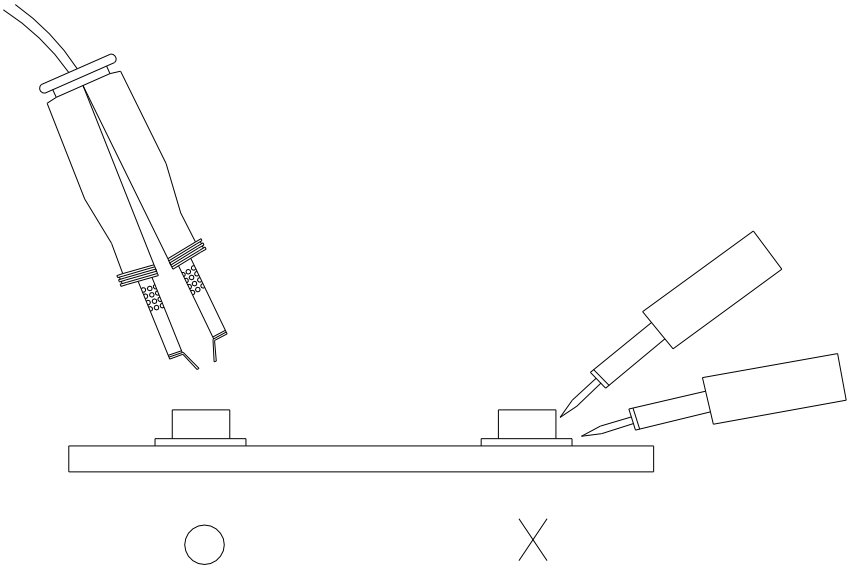
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4.Soldering Iron

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.



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