



Technical Data Sheet

Full Color Chip LED

15-23BSURSYGUBC/S530-A2/TR8

Features

- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- Multi-color type.
- Pb-free.



Descriptions

- The 15-23B SMD Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- Besides, lightweight makes them ideal for miniature applications. etc.

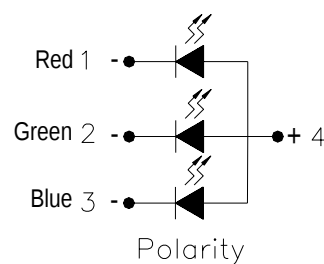
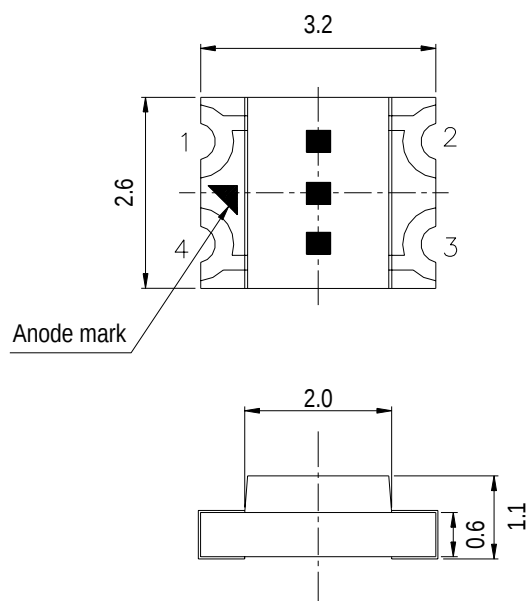
Applications

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

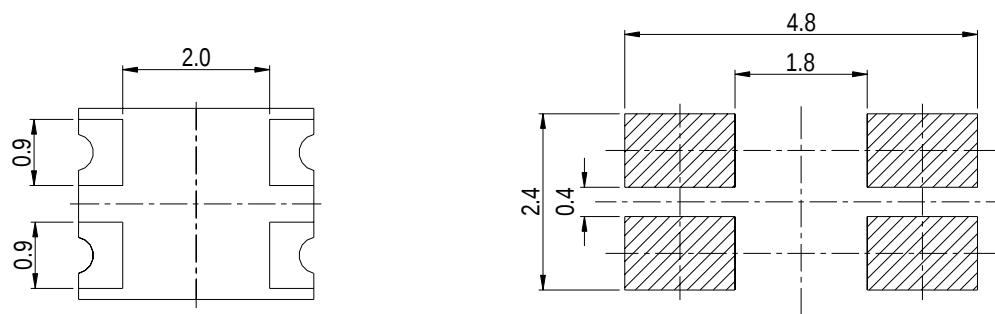
Device Selection Guide

Chip			Lens Color
Type	Material	Emitted Color	
SUR	AlGaInP	Hyper Red	Water Clear
SYG	AlGaInP	Super Yellow Green	
UB	GaN/SiC	Blue	

Package Outline Dimensions



For Reflow Soldering



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

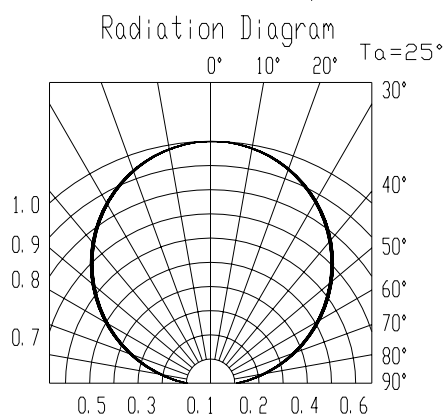
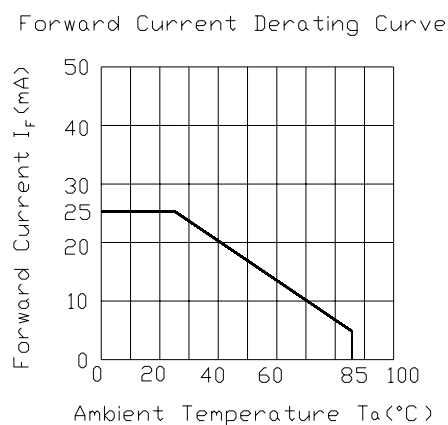
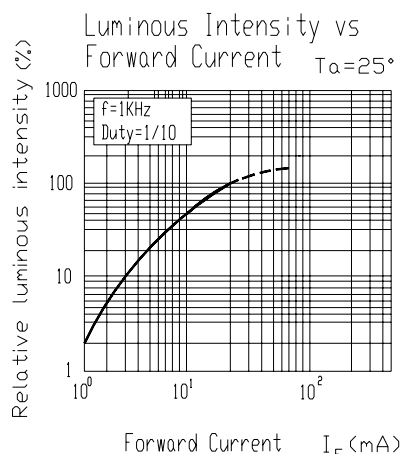
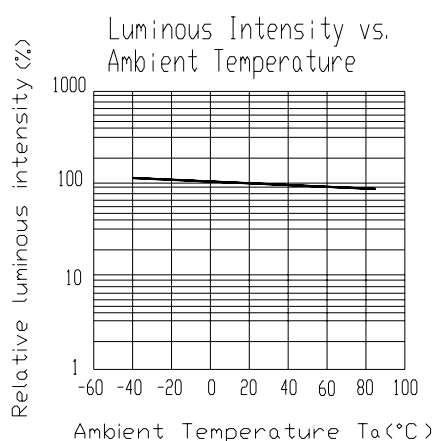
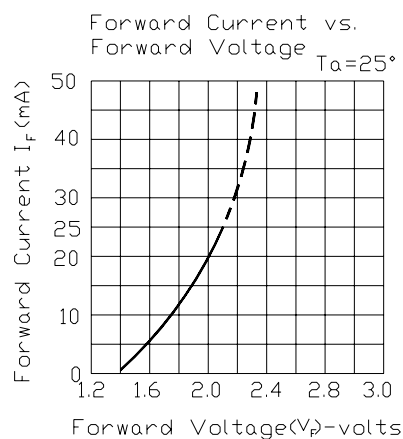
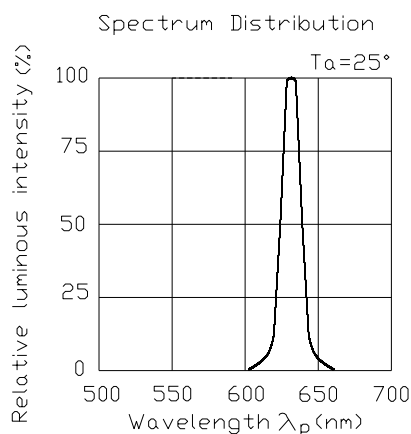
Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	SUR:25 SYG:25 UB:30	mA
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +90	°C
Soldering Temperature	T _{sol}	260 (for 5 seconds)	°C
Electrostatic Discharge	ESD	SUR:2000 SYG:2000 UB:1000	V
Power Dissipation	P _d	SUR:60 SYG:60 UB:140	mW
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	SUR:60 SYG:60 UB:70	mA

Electro-Optical Characteristics (Ta=25°C)

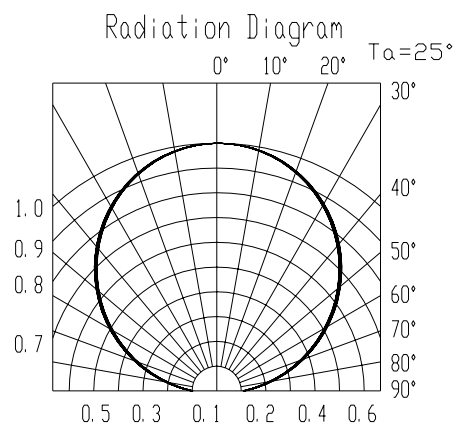
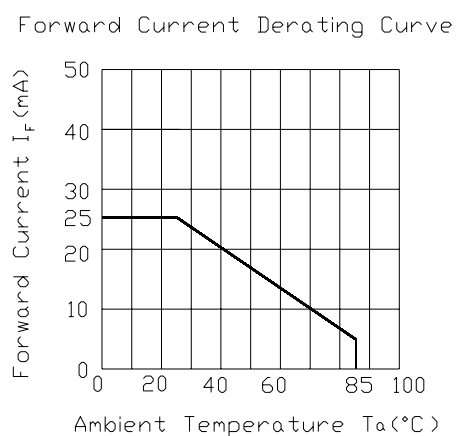
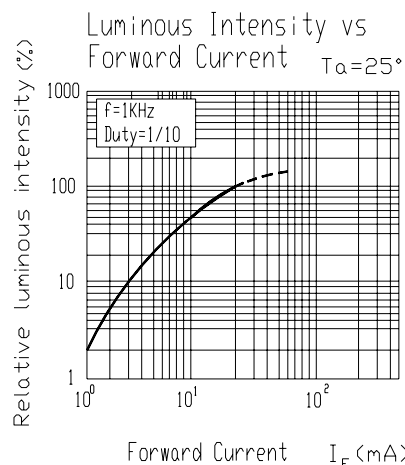
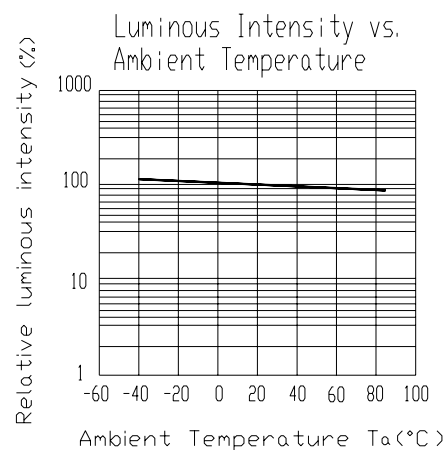
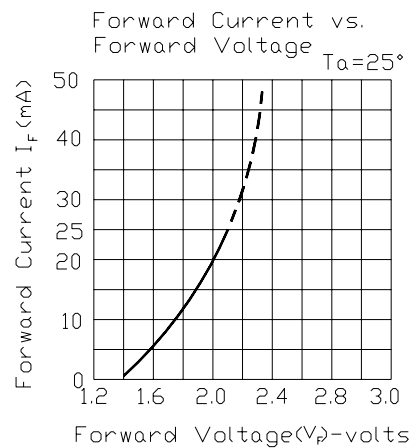
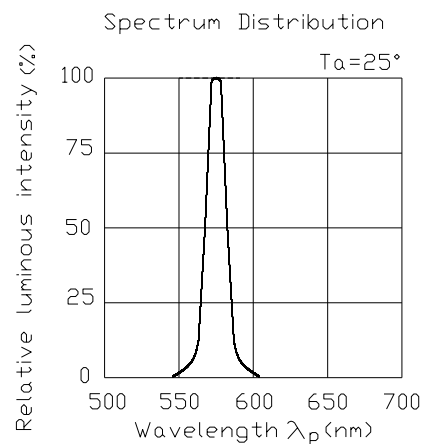
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	SUR	17	40			If=20mA
	Iv SYG	11	17	-----	mcd	
	UB	9.0	15			
Viewing Angle	2 θ 1/2	-----	120	-----	deg	If=20mA
Peak Wavelength	SUR		632			If=20mA
	λ p SYG	-----	575	-----	nm	
	UB		428			
Dominant Wavelength	SUR		624			If=20mA
	λ d SYG	-----	573	-----	nm	
	UB		466			
Spectrum Radiation Bandwidth	SUR		20			If=20mA
	$\Delta \lambda$ SYG	-----	20	-----	nm	
	UB		65			
Forward Voltage	SUR		2.0	2.4		If=20mA
	Vf SYG	-----	2.0	2.4	V	
	UB		3.8	4.5		
Reverse Current	SUR			10		VR=5V
	IR SYG	-----	-----	10	μ A	
	UB			50		

Typical Electro-Optical Characteristics Curves SUR



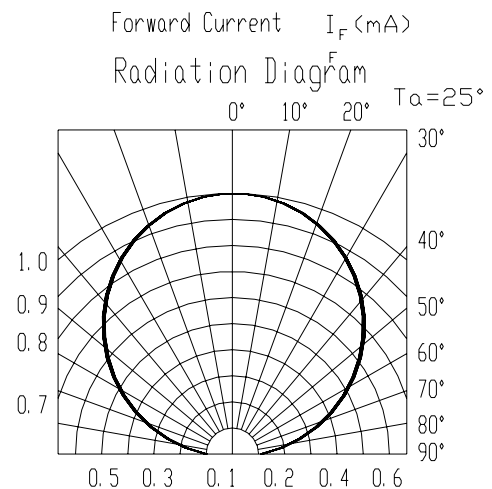
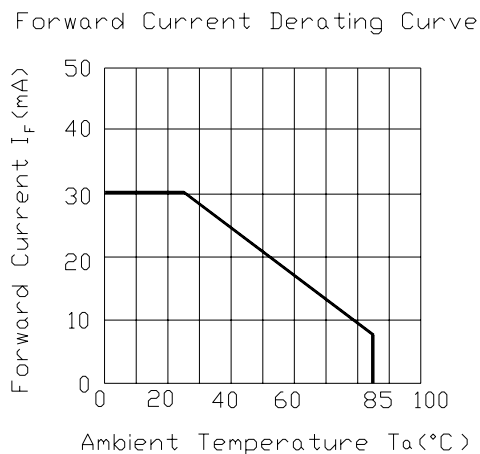
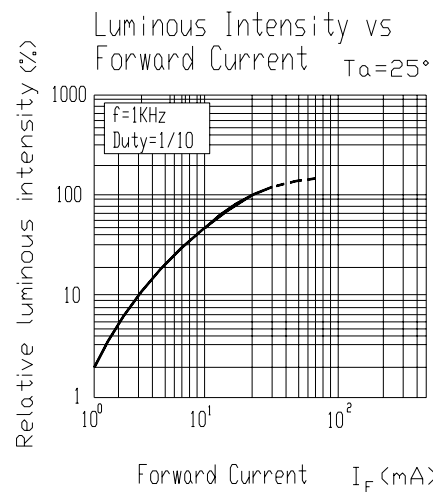
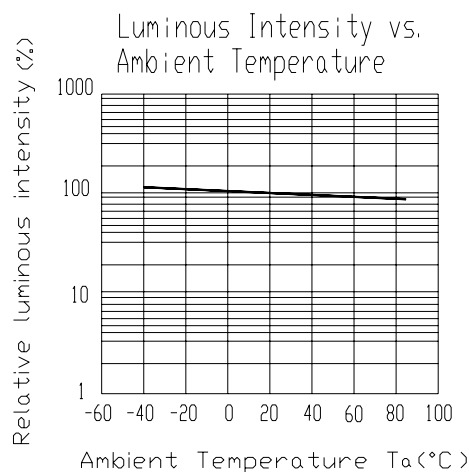
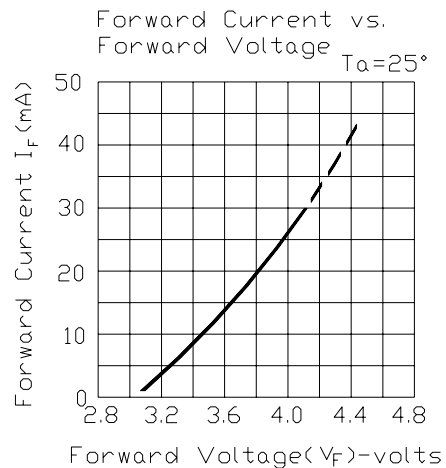
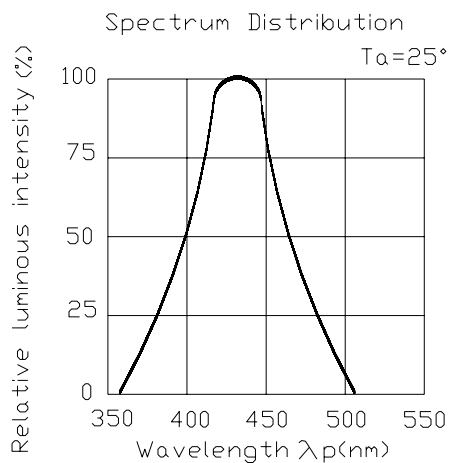
Typical Electro-Optical Characteristics Curves

SYG



Typical Electro-Optical Characteristics Curves

UB

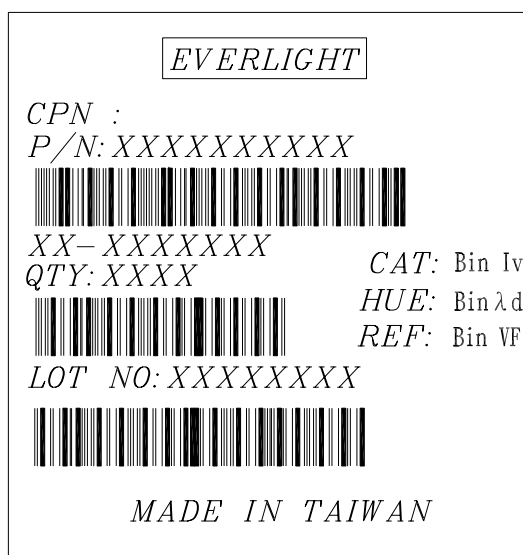


Label explanation

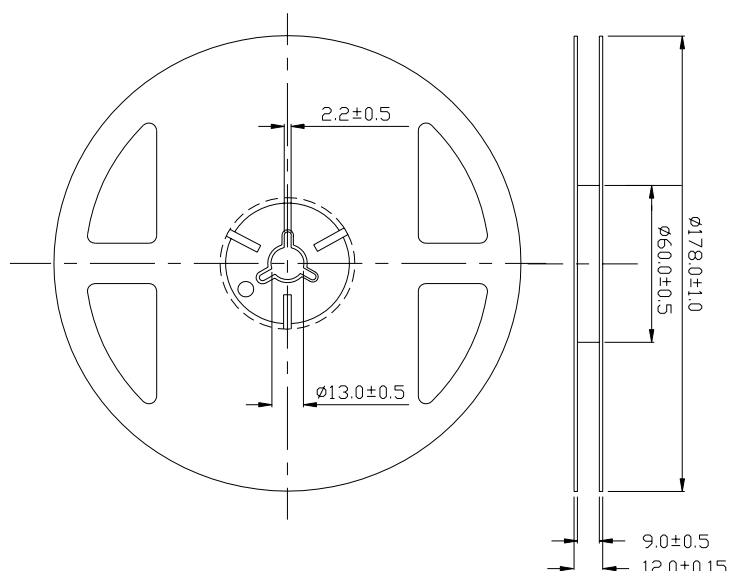
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

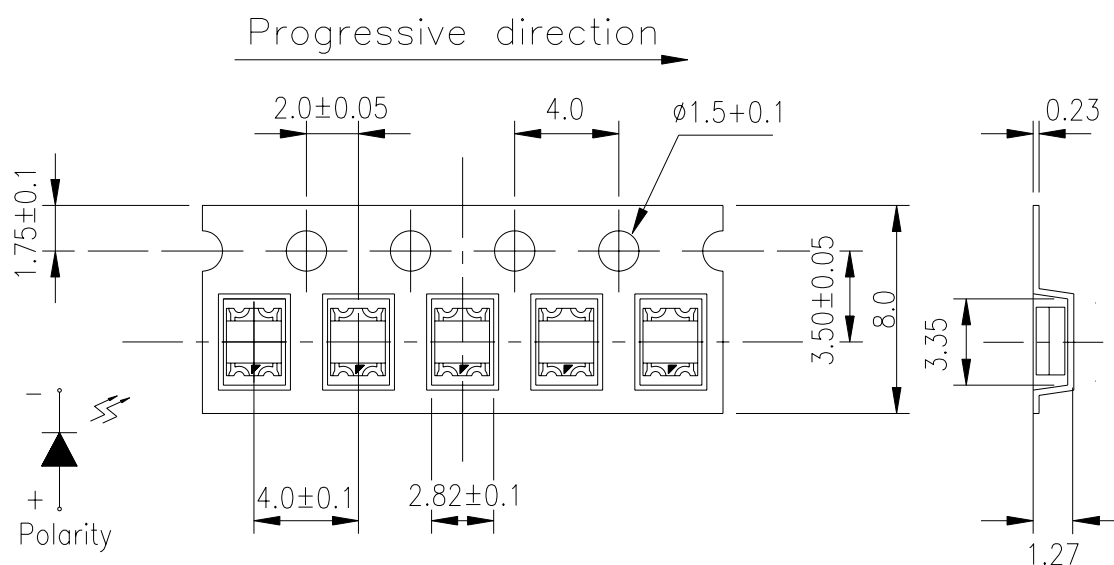


Reel Dimensions



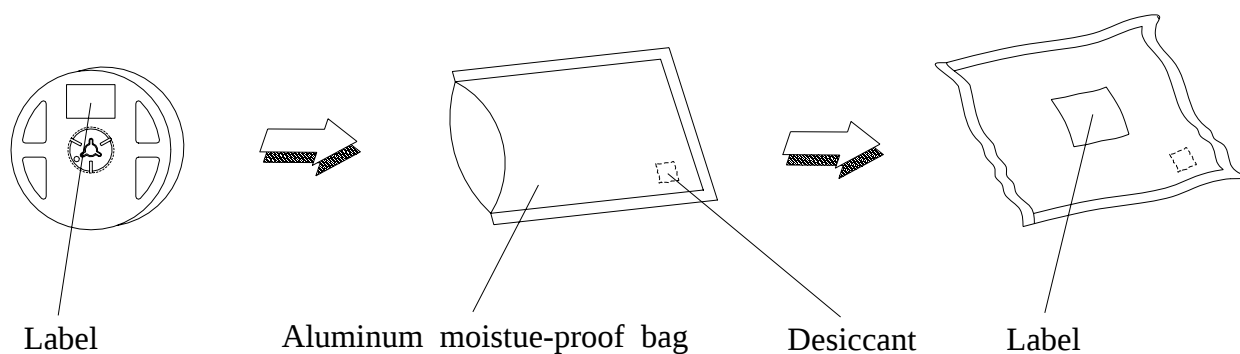
Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$,Unit = mm

Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Moisture Resistant Packaging



15-23BSURSYGUBC/S530-A2/TR8**Reliability Test Items And Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

LTPD : 10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260°C±5°C Min. 5sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	H : +100°C 15min ∫ 5 min L : -40°C 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	I _F = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs.	22 PCS.	0/1

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°C 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°C or less and 70%RH or less.

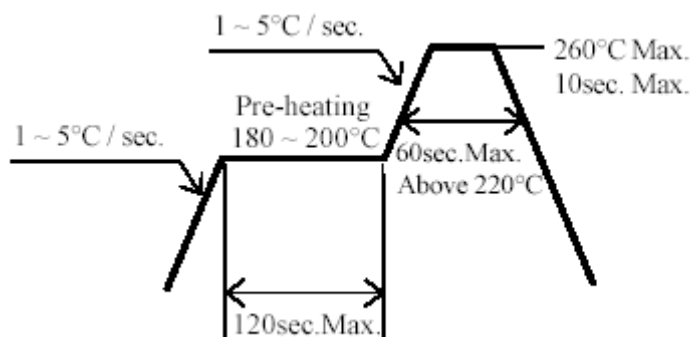
2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

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±5°C 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.

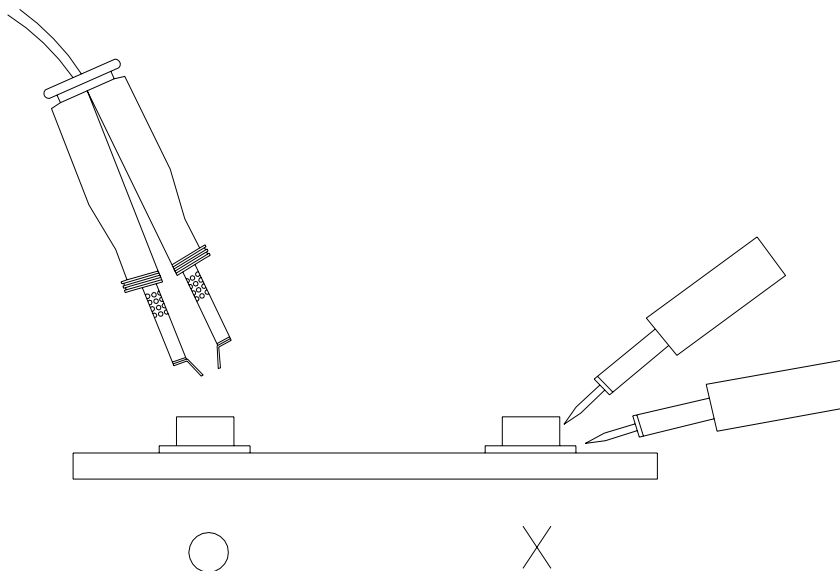
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280°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.



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