

SMD ■ Top View LEDs BL-2835SN1TBC-XXXXXXXXXX



Features

- Top view white LED
- White package
- Wide viewing angle
- Pb-free
- ESD protection
- 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).

Description

Due to the package design, BL-2835 package has wide viewing angle, low power consumption and white LEDs are devices which are materialized by combing blue chips and special phosphor. This feature makes the LED ideal for light guide application.

Applications

- Backlight for LCD Monitor/TV
- Light pipe application
- Indicator and backlight in office and family equipment
- General use

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Blue	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage*1	VR	2	V
Forward Current*1	IF	20	mA
Peak Forward Current (Duty 1/10 @10ms) *1	IFP	24	mA
Power Dissipation	Pd	68	mW
Electrostatic Discharge(HBM) *2	ESD	2KV, Test/Result: 0/50. Test Times: 3Time.	
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Junction Temperature*3	T _j	≤ 115	°C
Soldering Temperature	T _{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Notes:

1. For each die.
2. The products are sensitive to static electricity and must be carefully taken when handling products.
3. Maximum condition is not guarantee for Life time.

Electro-Optical Characteristics (Ta =25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Radiant Power	Φ	20	-----	38	mW	
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	IF=20mA
Forward Voltage	V _F	2.4	-----	3.4	V	

Note:

1. Tolerance of Radiant Power: ±5%.
2. Tolerance of Forward Voltage: ±0.05V.

Bin Range of Radiant Power

Bin Code	Min.	Max.	Unit	Condition
E20	20	22	mW	I _F =20mA
E22	22	24		
E24	24	26		
E26	26	28		
E28	28	30		
E30	30	32		
E32	32	34		
E34	34	36		
E36	36	38		

Note:
 Tolerance of Radiant Power: ±5%.

Bin Range of Forward Voltage

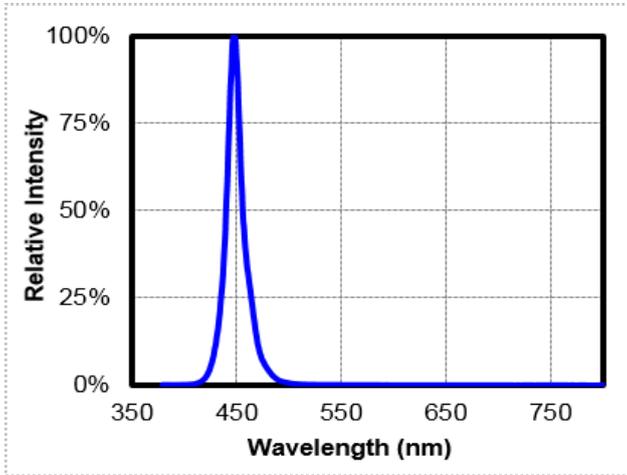
Bin Code	Min.	Max.	Unit	Condition
E24	2.4	2.6	V	I _F =20mA
E26	2.6	2.8		
E28	2.8	3.0		
E30	3.0	3.2		
E32	3.2	3.4		

Note:
 Tolerance of Forward Voltage: ±0.05V.

Typical Electro-Optical-Thermal Characteristics Curves

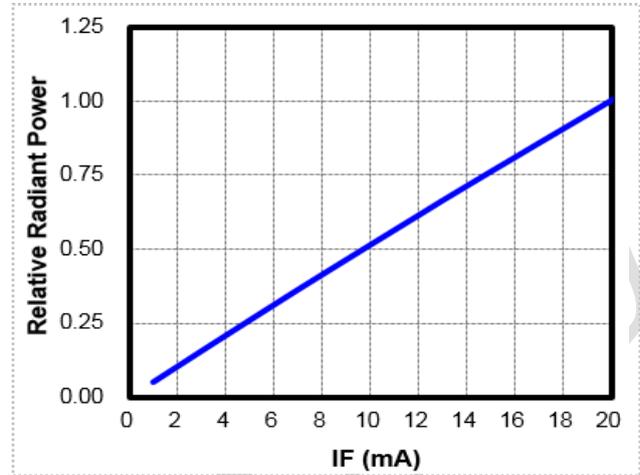
1. Spectrum Distribution

($T_A=25^{\circ}\text{C}$, $I_F=20\text{mA}$)



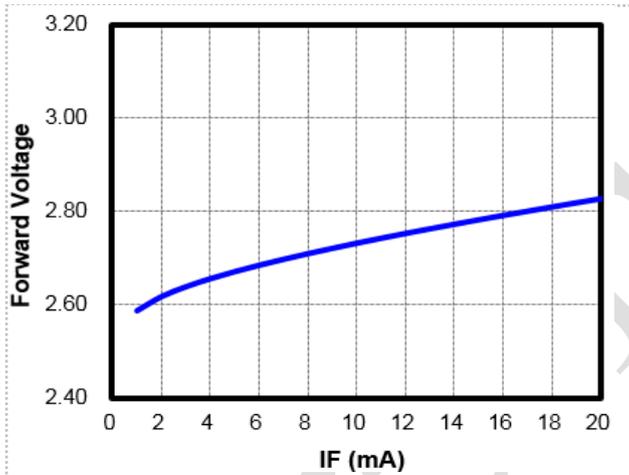
2. Relative Radiant Power vs. Forward Current

($T_A=25^{\circ}\text{C}$)



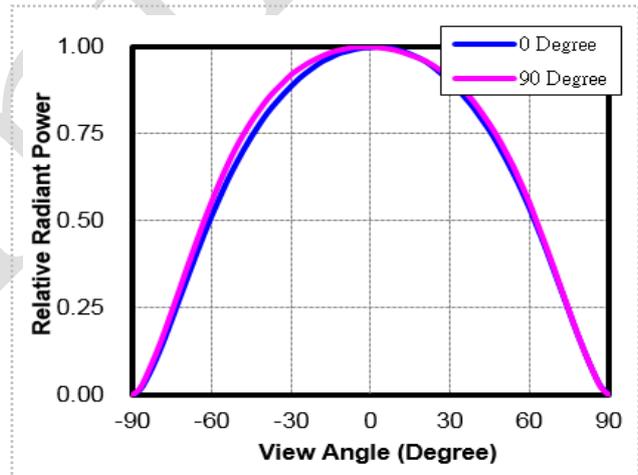
3. Relative Forward Voltage vs. Forward Current

($T_A=25^{\circ}\text{C}$)



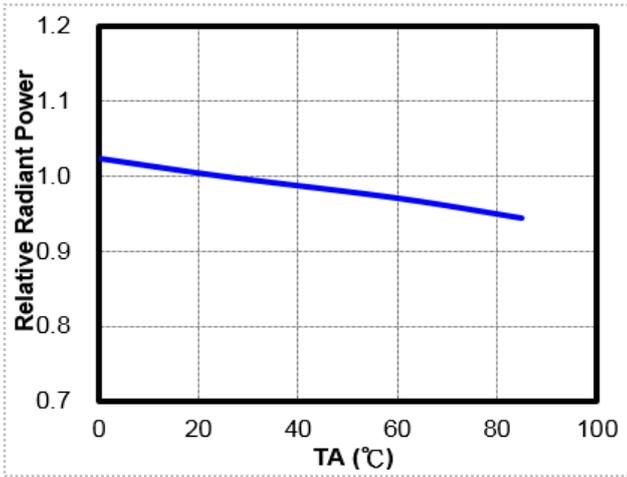
4. Radiation Diagram

($T_A=25^{\circ}\text{C}$, $I_F=20\text{mA}$)

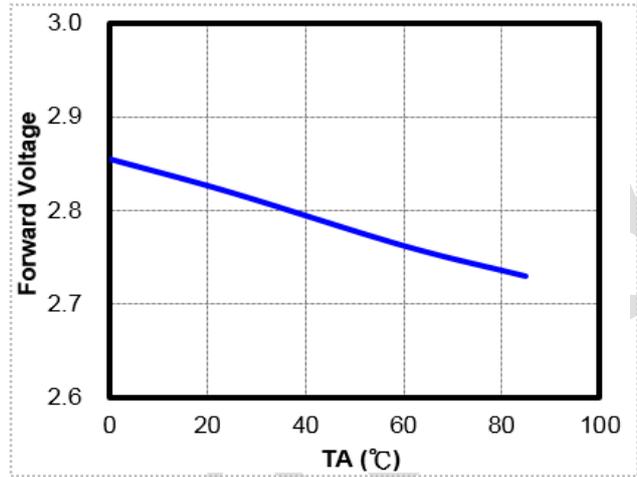


Typical Electro-Optical-Thermal Characteristics Curves

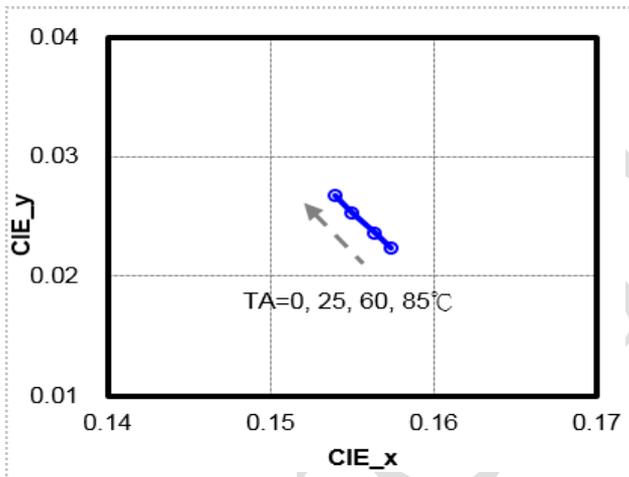
5. Relative Radiant Power vs. Ambient Temperature
 ($I_F=20\text{mA}$)



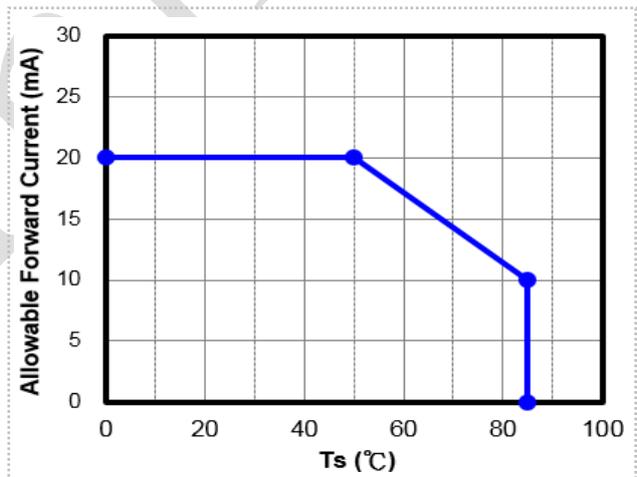
6. Forward Voltage vs. Ambient Temperature
 ($I_F=20\text{mA}$)



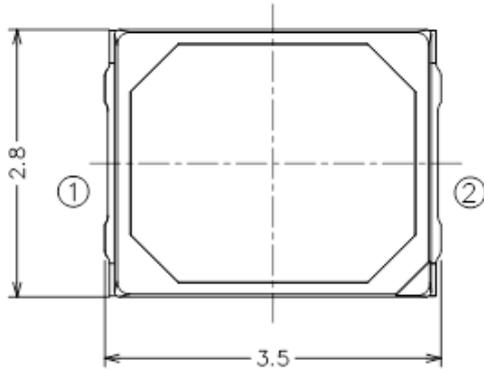
7. Chromaticity Coordinates vs. Ambient Temperature
 ($I_F=20\text{mA}$)



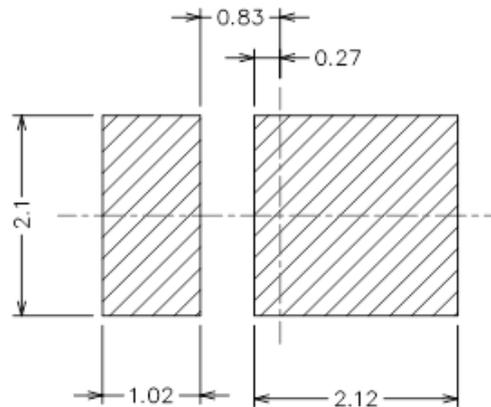
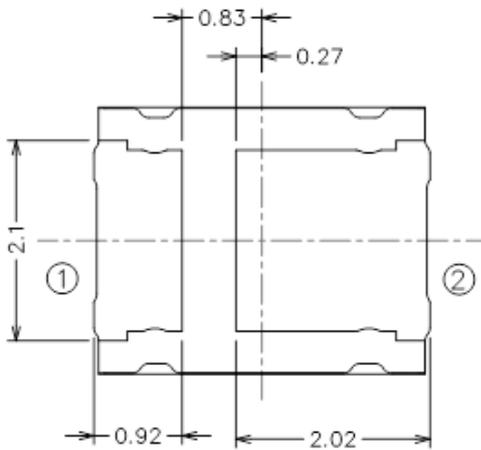
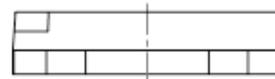
8. Forward Current De-rating Curve
 ($I_F=20\text{mA}$)



Package Dimension



Polarity



Bot. view

Soldering patterns

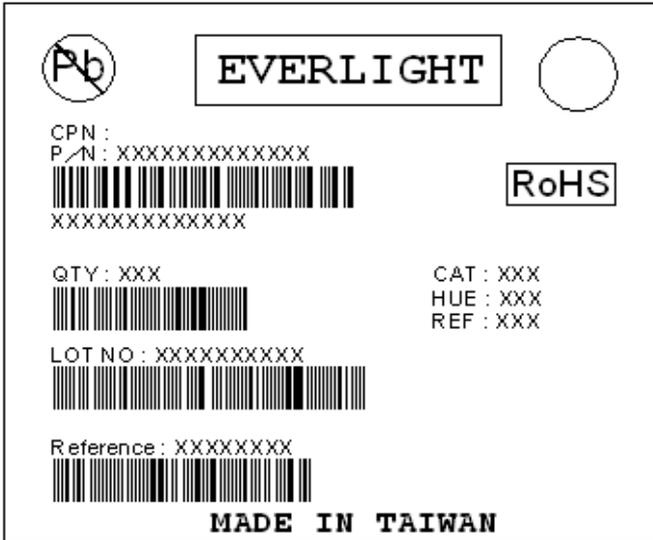
Suggested pad dimension is just reference only.
Please modify the pad dimension based on individual need.

Note:

The tolerance unless mentioned is ± 0.1 mm, unit = mm

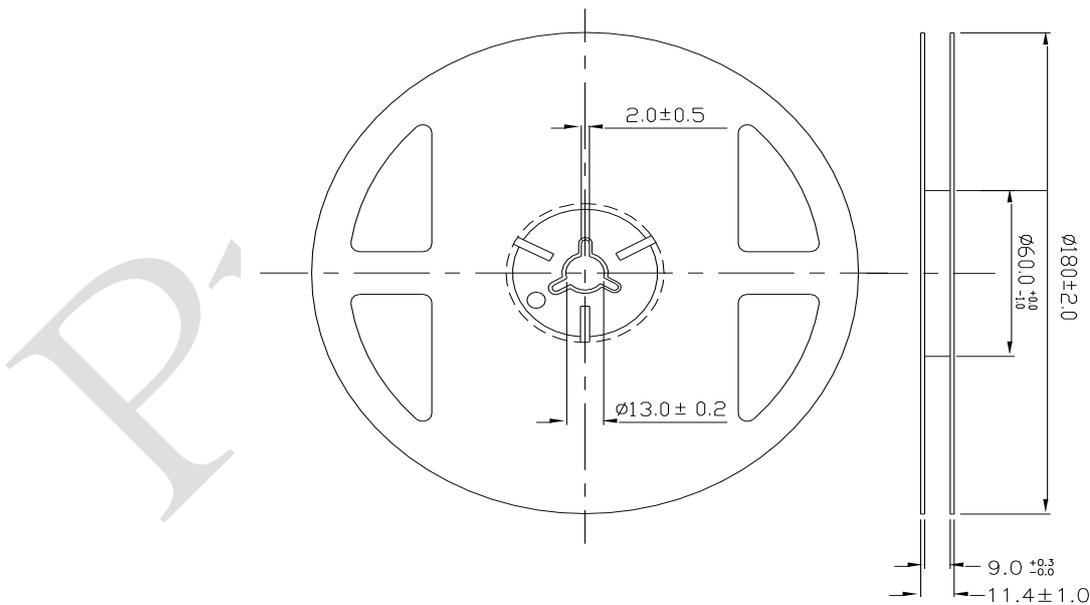
Moisture Resistant Packing Materials

Label Explanation



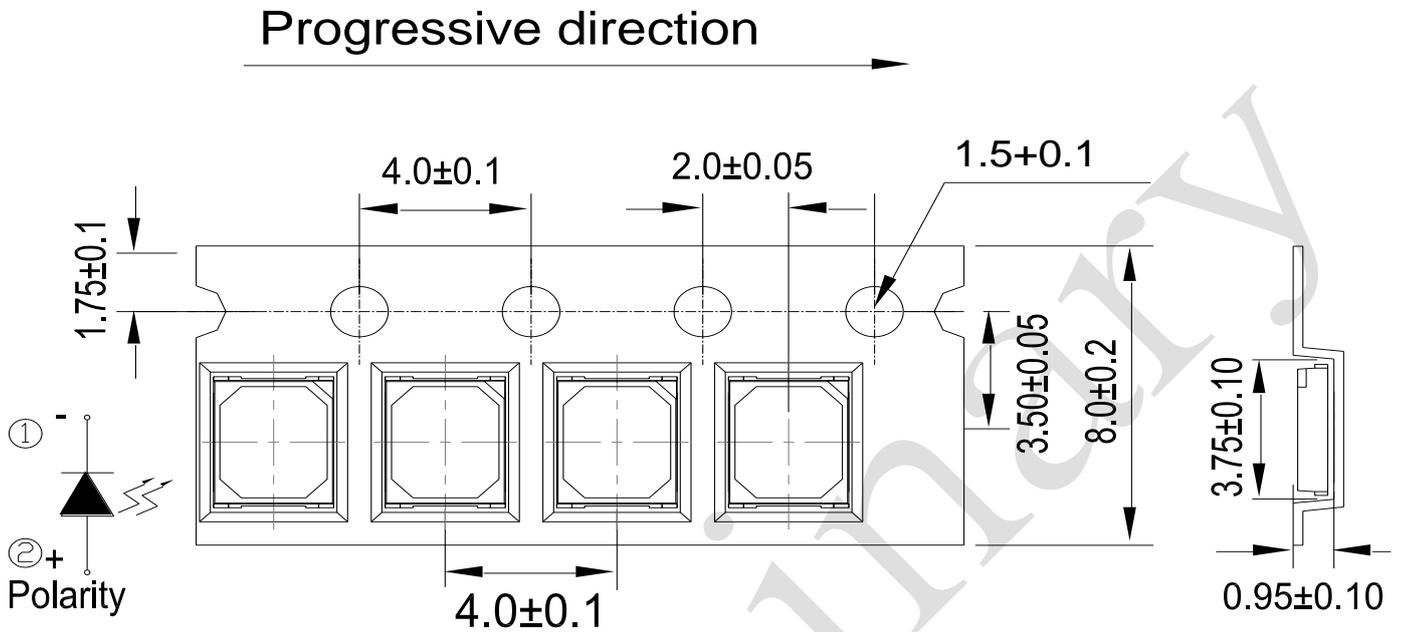
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Chromaticity Coordinates
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



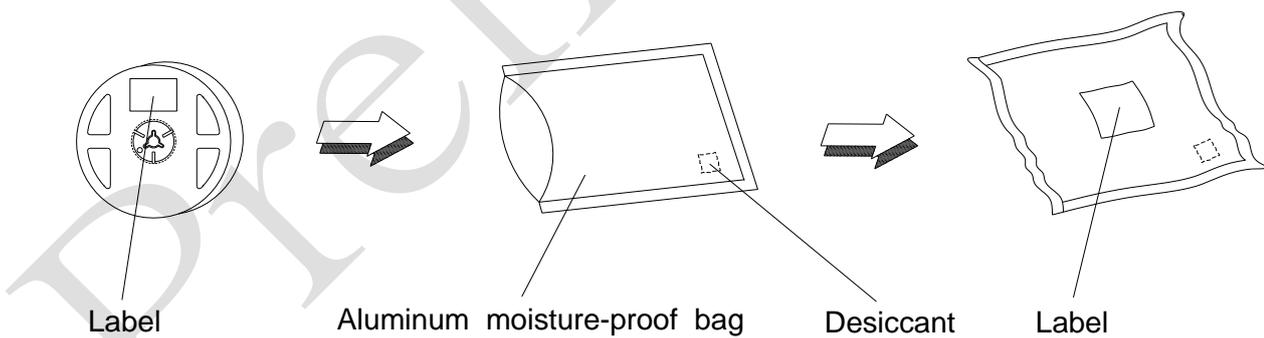
Note:
 Tolerances unless mentioned ± 0.1 mm. Unit = mm

Carrier Tape Dimensions: Loaded Quantity 250 up/500/1000/2000 pcs. Per Reel



Note:
Tolerance unless mentioned is $\pm 0.1\text{mm}$; Unit = mm

Moisture Resistant Packing Process



Reliability Test Items and Conditions

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

Confidence level : 90%

LTPD : 10%

No.	Item	Test Conition		Test Hours/ Times	Criteria (at std. IF)
		Temp./ Humidity	IF (mA)		
1	Reflow Soldering	Temp.: 260°C ±5°C Max. 10 sec.		2 times	ΔIv < ±15% ΔVF < ±15%
2	Thermal Cycle	-40°C ~ 100°C 30min. (5min.) 30min.		100 cycles	Iv > 70%, VF ±10%,
3	Thermal Shock	-40°C ~ 100°C 20min. (<15sec.) 20min.		100 cycles	
4	Low Temp. Storage	TA=-40°C	--	1000 hrs	
5	High Temp. Storage	TA=100°C	--	1000 hrs	
6	Temp. Humidity Storage	TA=60°C / 90%RH	--	1000 hrs	
7	Steady State Operating Life of Low Temp.	TA=-40°C	std.	1000 hrs	
8	Steady State Operating Life Condition 1	TA=25°C / Room Hum.	std.	1000 hrs	
9	Steady State Operating Life Condition 2	TA=60°C	std.	1000 hrs	
10	Steady State Operating Life of High Temp.	TA=85°C	Depend on De-rating Curve	1000 hrs	
11	Steady State Operating Life of High Humidity Heat	TA=60°C / 90%RH	std.	1000 hrs	

Notes:

1. Sampling for each test item: 22 (pcs.)
2. Test board: MCPCB board thickness=1.6mm, copper layer thickness=0.07mm, Rth_{j-a}= 50°C/W.
3. Measurements are performed after allowing the LEDs to return to room temperature.

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 used within one year and kept at 30°C or less and 70%RH or less.

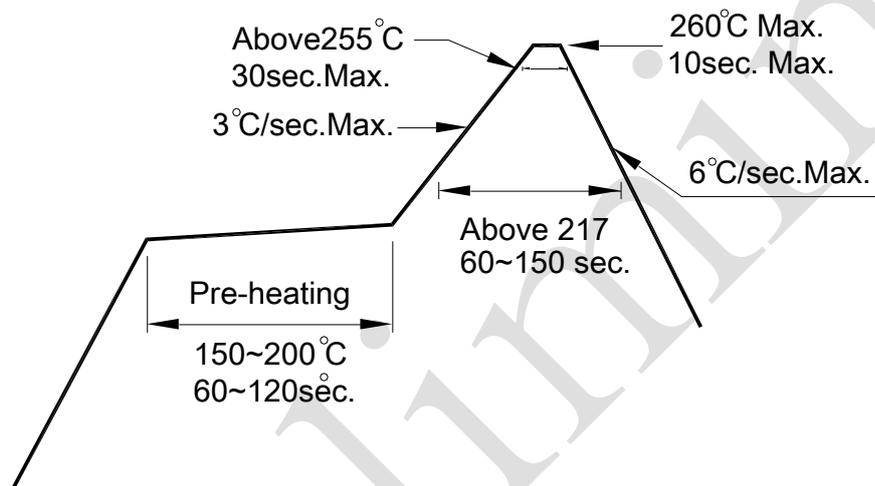
2.3 After opening the package: We recommend that the LED should be soldered quickly (within 3 days). The soldering condition is 30°C or less and 60%RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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°C for 24 hours. (One time only)

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.

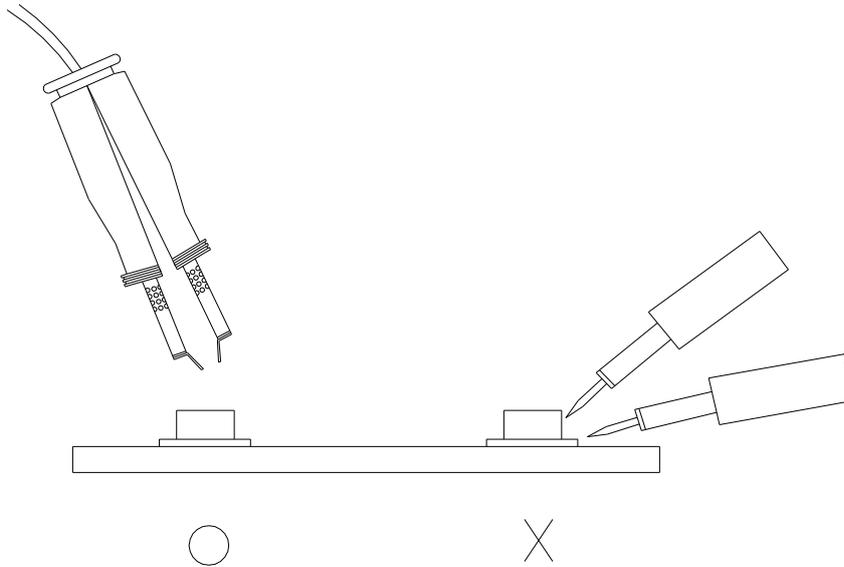
3.4 After soldering, do not warp the circuit board.

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.



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