Technical Data Sheet
White SMD Surface Mount Device

67-22/M2C-CDX2Y2N/2T

Features

- Fluorescence Type
- High Luminous Intensity
- High Efficiency
- Pb-free
- The product itself will remain within RoHS compliant version.

Descriptions

- The white LED which was fabricated using a blue LED and a phosphor, and the phosphor is excited by blue light and emits yellow fluorescence. The mixture of blue light and yellow light results in a white emission.

Applications

- OA Equipment
- Backlighting of Full Color LCD
- Automotive Equipment

Device Selection Guide

Chip Material	Emitted Color	Resin Color
InGaN	White	Water Clear

Ver.:2 Release Date:03/08/2017 狀態:Approved(正式發行)

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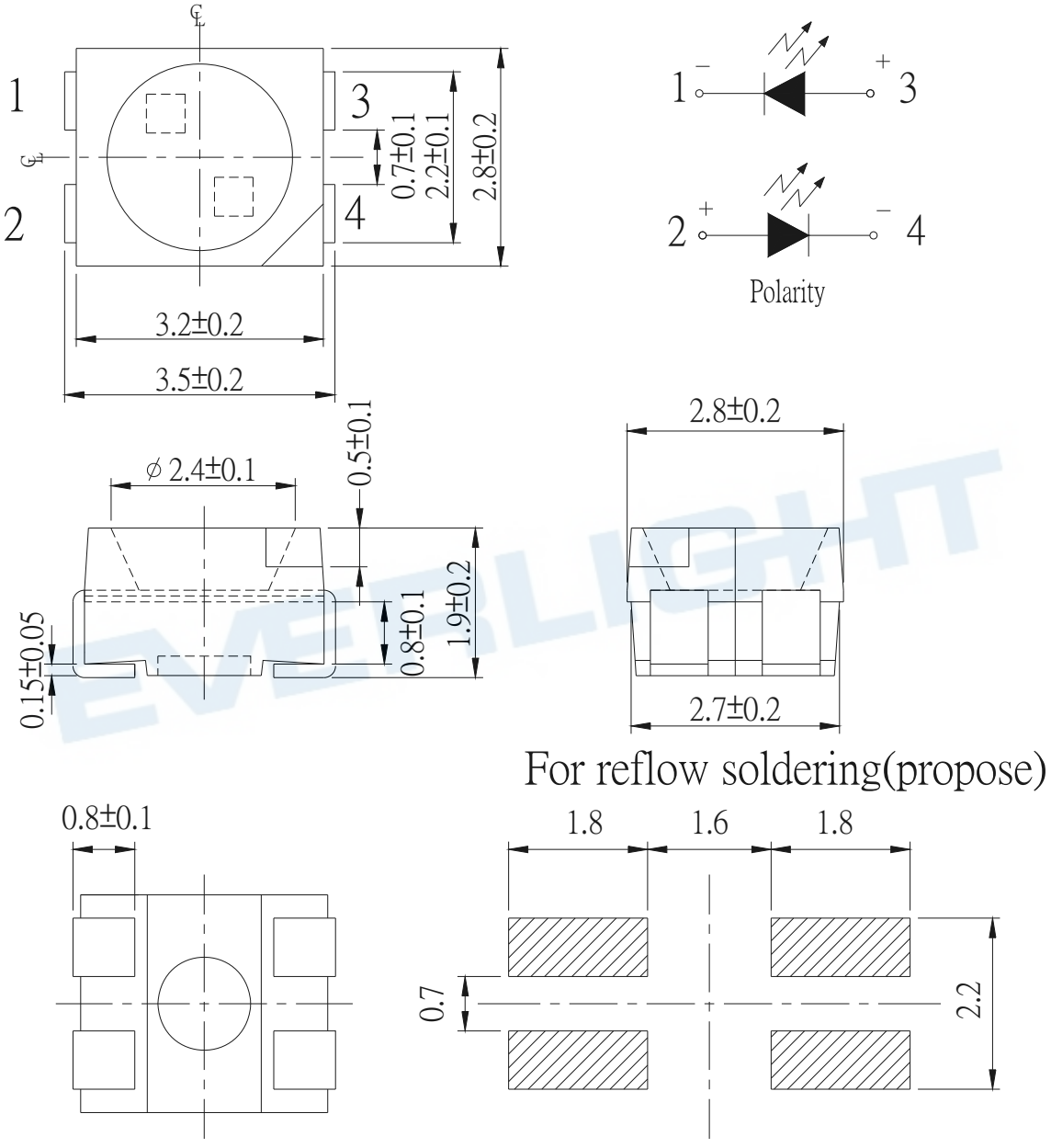
Package Outline Dimensions



Note: The tolerance unless mentioned is ±0.1mm; Unit = mm

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Absolute Maximum Ratings (Ta=25℃) *1

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	Pd	110	mW
Electrostatic Discharge(HBM)	ESD	1000	V
Operating Temperature*2	Topr	-40 ~ +85	℃
Storage Temperature*2	Tstg	-40 ~ +90	℃
Soldering Temperature*2	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

* 1. The value are based on 1 die performance

* 2. Each Led

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Units	Condition
Luminous Intensity*1	Iv	2250	-----	4500	mcd	I_F=20mA*2
Viewing Angle*2	2θ1/2	-----	120	-----	deg	I_F=20mA*2
Forward Voltage*2	V_F	2.70	-----	3.70	V	I_F=20mA*2
Reverse Current	I_R	-----	-----	50	μA	V_R=5V*2

*1 When two LED dies are operated simultaneously.
*2 For each die.

Note:

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

Ver.:2 Release Date:03/08/2017 狀態:Approved(正式發行)

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Bin Range of Luminous Intensity[*1]

Bin Code	Min.	Max.	Unit	Condition
X2	2250	2850	mcd	I_F[*2]=20mA
Y1	2850	3600		
Y2	3600	4500		

Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
N	10	2.70	2.90	V	I_F[*2]=20mA
	11	2.90	3.10		
	12	3.10	3.30		
	13	3.30	3.50		
	14	3.50	3.70		

[*1]When two LED dies are operated simultaneously.
[*2]For each die.

Note:

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

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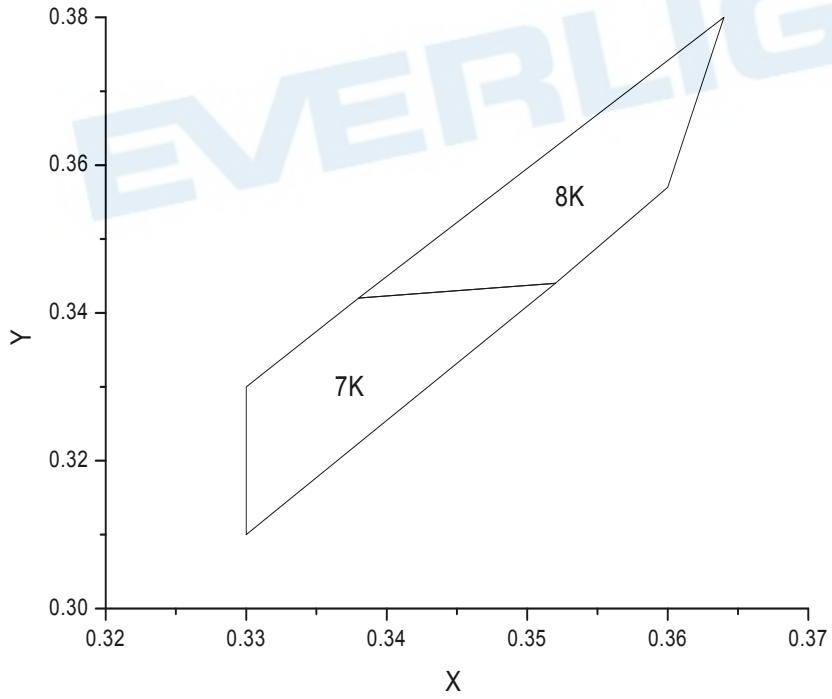
Bin Range of Chromaticity Coordinates[*1] (I_F=20mA[*2])

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
7K	0.3300	0.3100	8K	0.3520	0.3440
	0.3300	0.3300		0.3380	0.3420
	0.3380	0.3420		0.3640	0.3800
	0.3520	0.3440		0.3600	0.3570

[*1]When two LED dies are operated simultaneously.
[*2]For each die.

Note:
1. Tolerance of Chromaticity Coordinates: ±0.01

The C.I.E. 1931 Chromaticity Diagram



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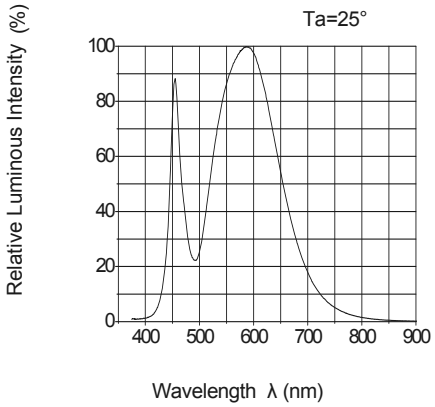
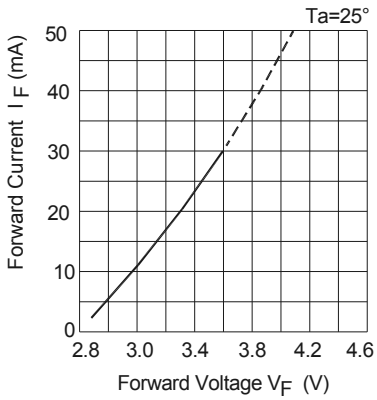
Typical Electro-Optical Characteristics Curves

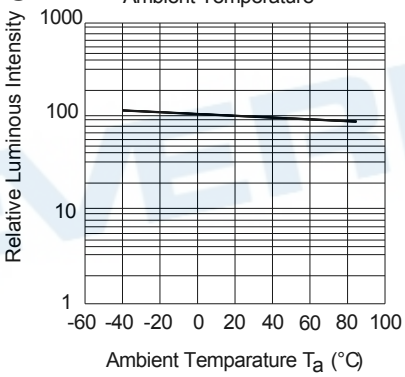
Spectrum Distribution



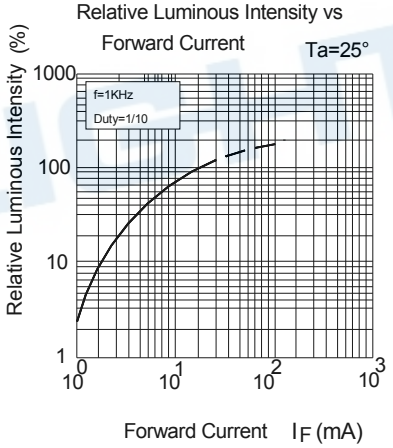
Forward Voltage



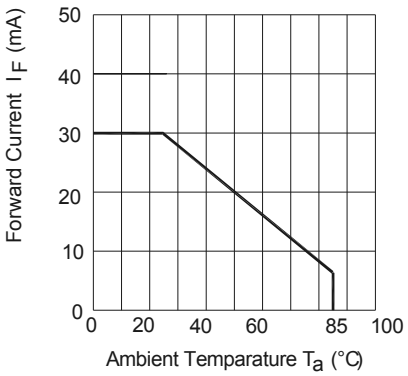
Relative Luminous Intensity vs. Ambient Temperature



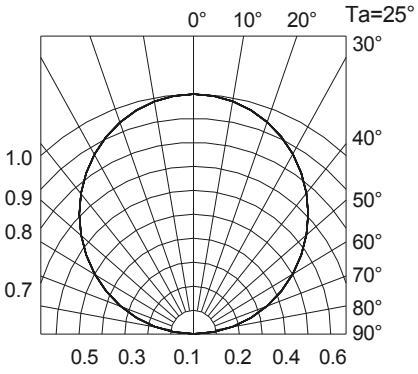
Relative Luminous Intensity vs Forward Current



Forward Current Derating Curve



Radiation Diagram



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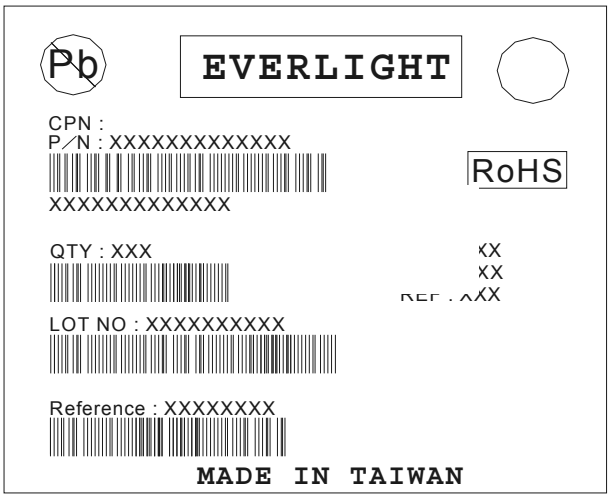
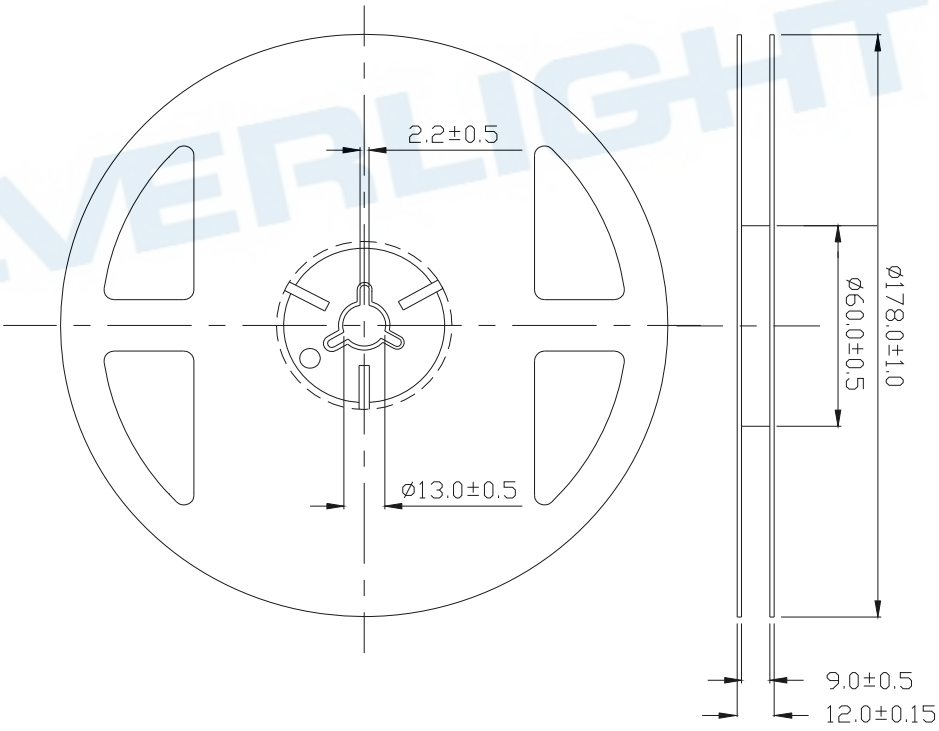
Label Explanation

CAT: Luminous Intensity Rank
HUE: Chromaticity Coordinates
REF: Forward Voltage Rank



Reel Dimensions



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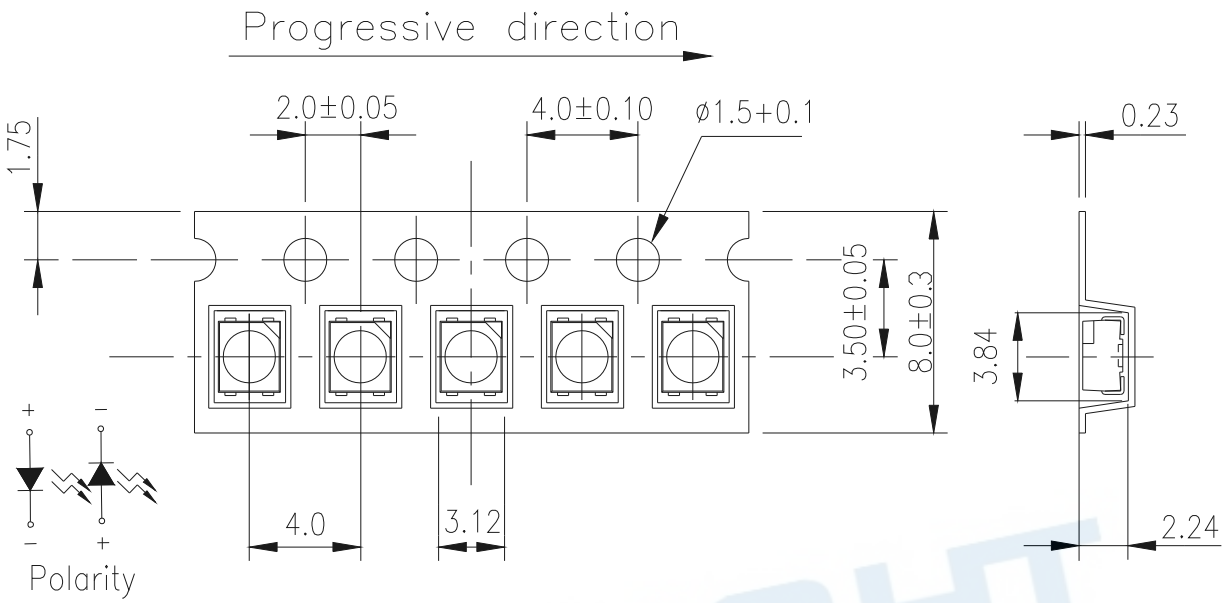
Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.



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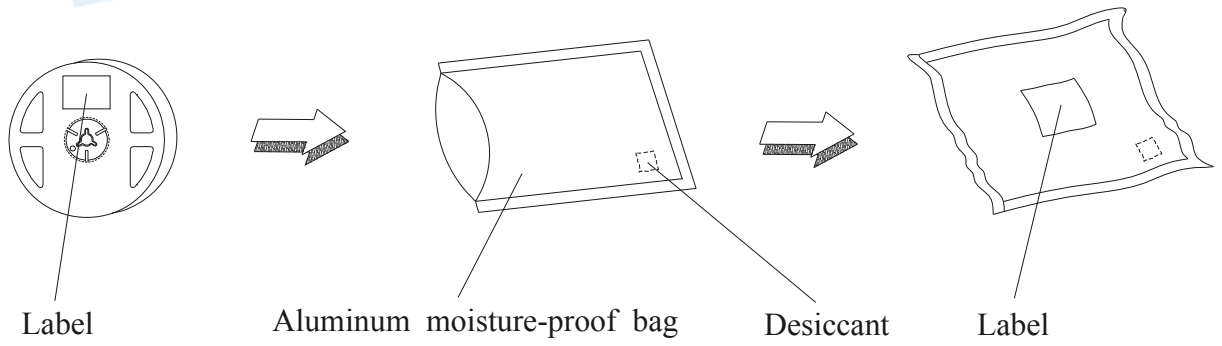
Moisture Resistant Packaging



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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℃±5℃ Max. 10 sec.	6 Min.	22 Pcs.	0/1
2	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100℃	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40℃	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life[*1]	I_F = 20 mA[*2]	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85℃/85%RH	1000 Hrs.	22 PCS.	0/1

[*1] When two LED dies are operated simultaneously.
[*2] For each die.

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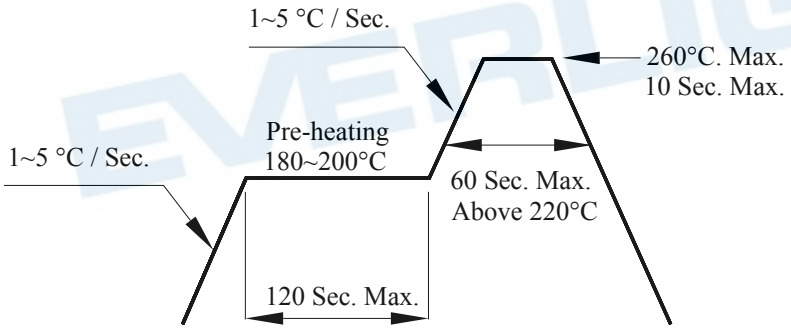
Precautions for Use

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 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℃ for 24 hours.

3. Soldering Condition
   3.1 Pb-free solder temperature profile

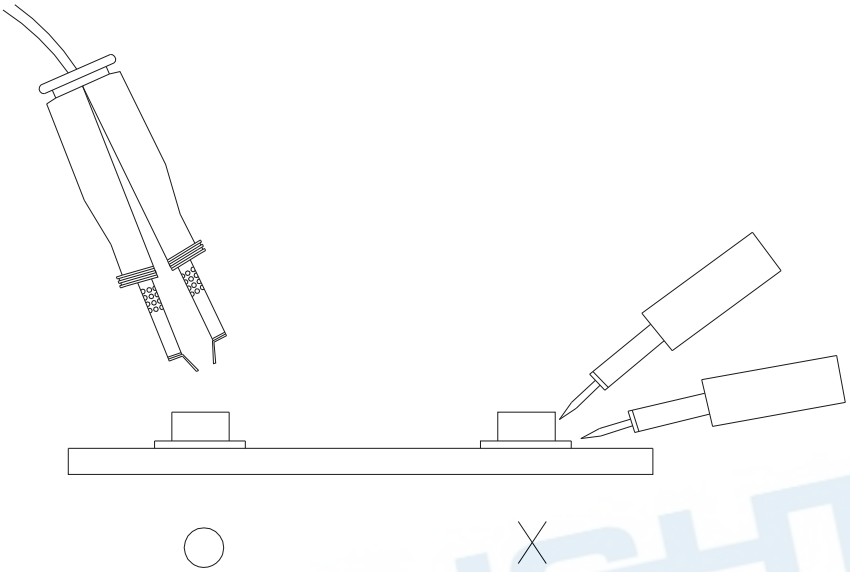


   3.2 Reflow soldering should not be done more than two times.
   3.3 When soldering, do not put stress on the LEDs during heating.
   3.4 After soldering, do not warp the circuit board.

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.



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DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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 the 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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