EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet

Mini TOP View LEDs

65-21UTC/S728/TR8

Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: reflow soldering
- Available on tape and reel
- Pb-free
- The product itself will remain within RoHS compliant version.

Descriptions

- The 65-21 series is available in soft orange, green, blue, and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the SMT TOP LED ideal for light pipe application.

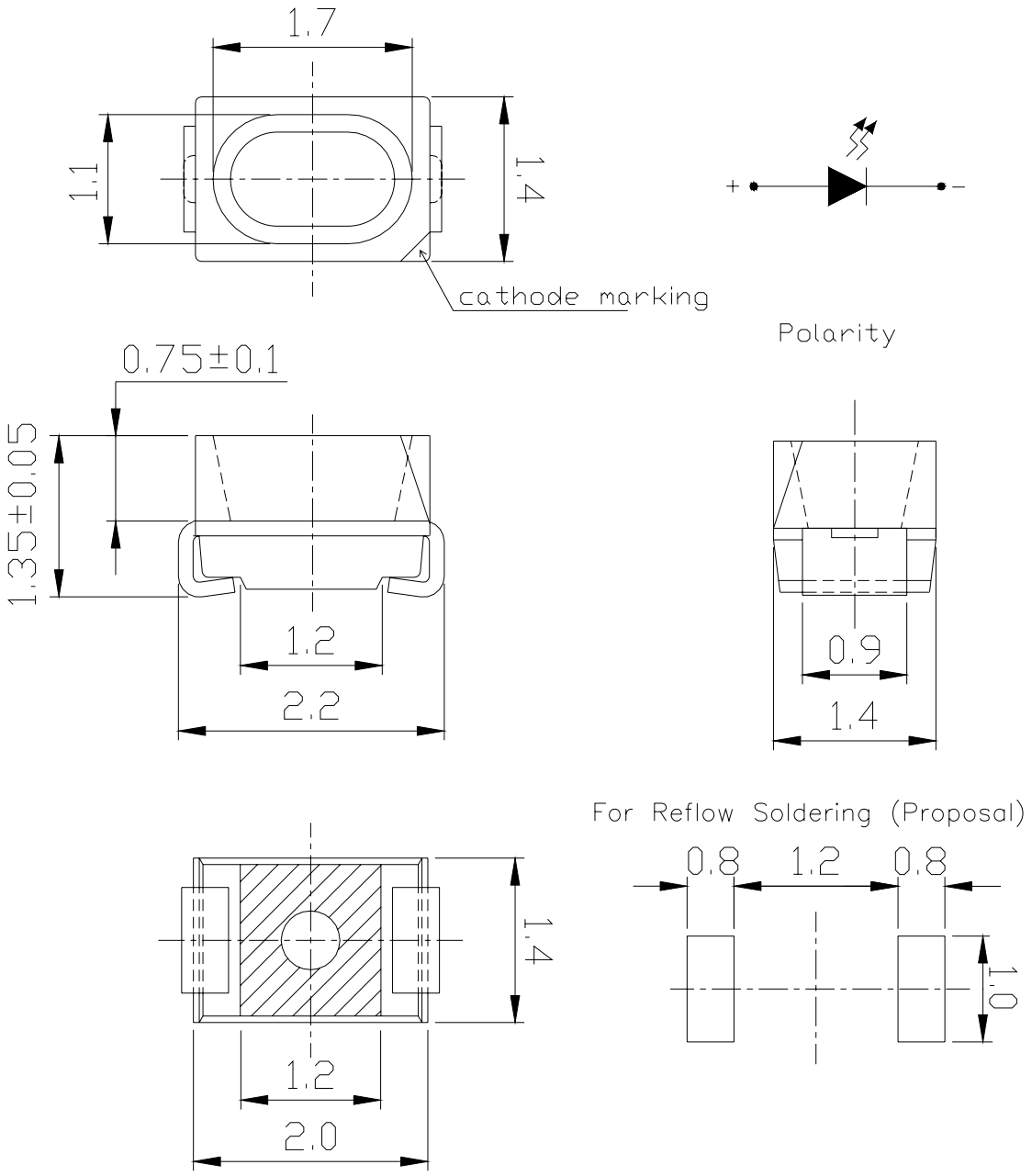
Applications

- Optical indicators.
- Coupling into light guides.
- Backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting).
- Coupling into light guides; Interior automotive lighting (e.g. dashboard backlighting, etc.).

Device Selection Guide

Chip Material	Emitted Color	Resin Color
InGaN	White	Water Clear

Package Outline Dimensions



Notes: All dimensions are in millimeters. Tolerances unspecified are ±0.1mm.

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	Pd	110	mW
Electrostatic Discharge(HBM)	ESD	150	V
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +100	℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Rank	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_V	1	630	-----	680	mcd	I_F=20mA
		2	680	-----	730		
		3	730	-----	780		
		4	780	-----	830		
		5	830	-----	880		
		6	880	-----	930		
		7	930	-----	980		
Viewing Angle	2θ 1/2	-----	-----	110	-----	deg	
Forward Voltage	V_F	V1	3.20	-----	3.40	V	
		V2	3.40		3.60		
Reverse Current	I_R	-----	-----	-----	50	μA	V_R=5V

*The luminous intensity data did not including ±10% testing tolerance.
*Tolerance of forward voltage ±0.1V.

The products are sensitive to static electricity and care must be fully taken when handling products.

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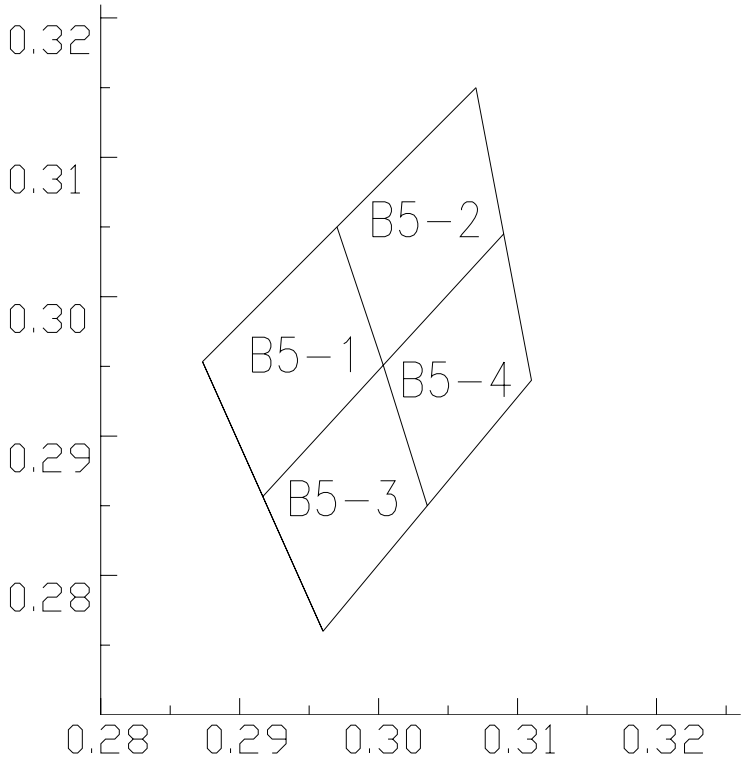
Chromaticity Coordinates Specifications for Bin Grading **I_F=20mA**

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
B5-1	0.291	0.286	B5-3	0.296	0.276
	0.287	0.295		0.291	0.286
	0.297	0.305		0.300	0.295
	0.300	0.295		0.304	0.285
B5-2	0.300	0.295	B5-4	0.304	0.285
	0.297	0.305		0.300	0.295
	0.307	0.315		0.309	0.305
	0.309	0.305		0.311	0.294

Notes:

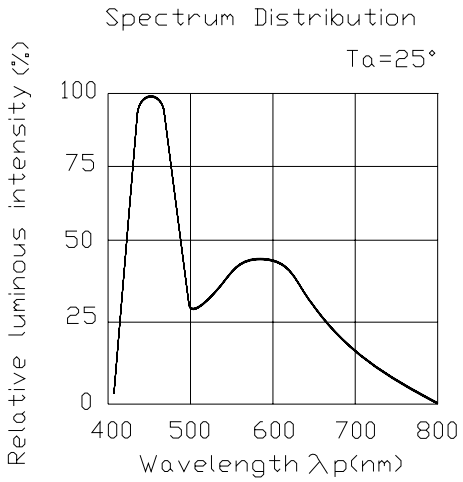
1. **The C.I.E. 1931 chromaticity diagram (Tolerance ±0.01).**
2. **The products are sensitive to static electricity and care must be fully taken when handling products.**

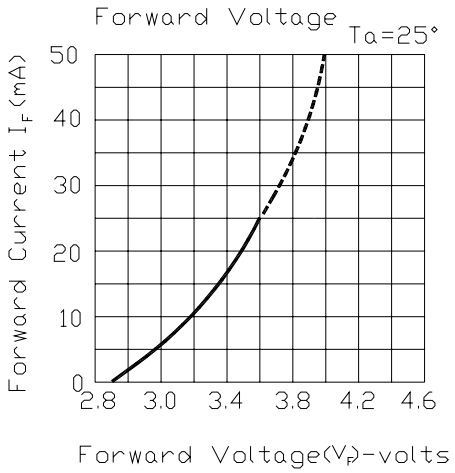
CIE Chromaticity Diagram(1931)

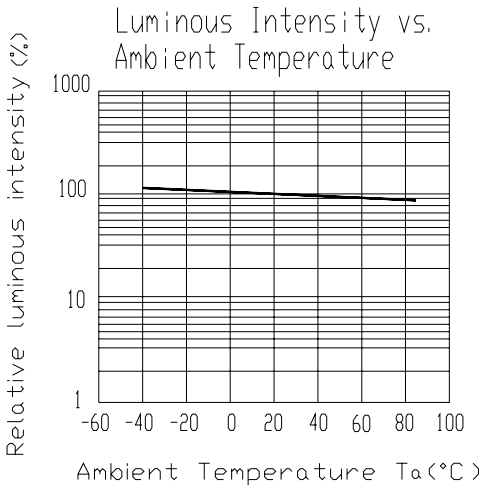


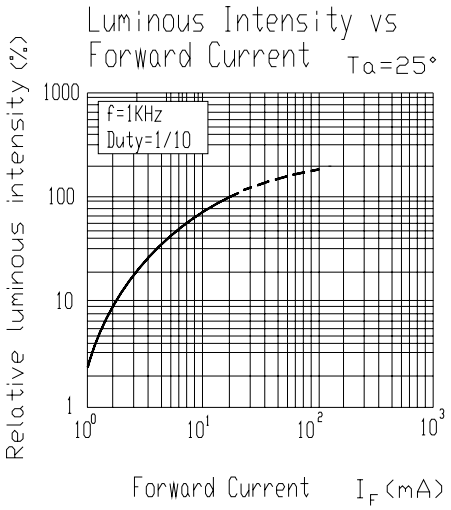
*The C.I.E. 1931 chromaticity diagram (Tolerance ±0.01).

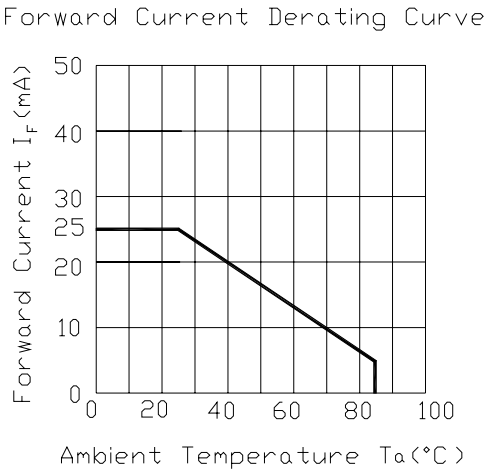
Typical Electro-Optical Characteristics Curves

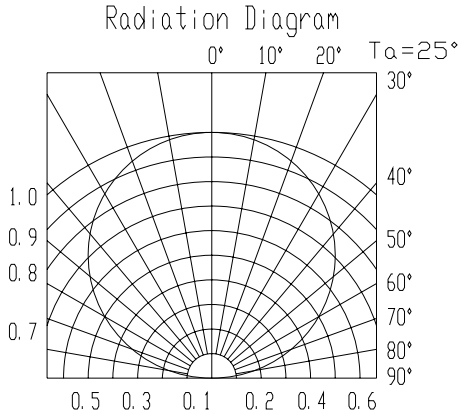










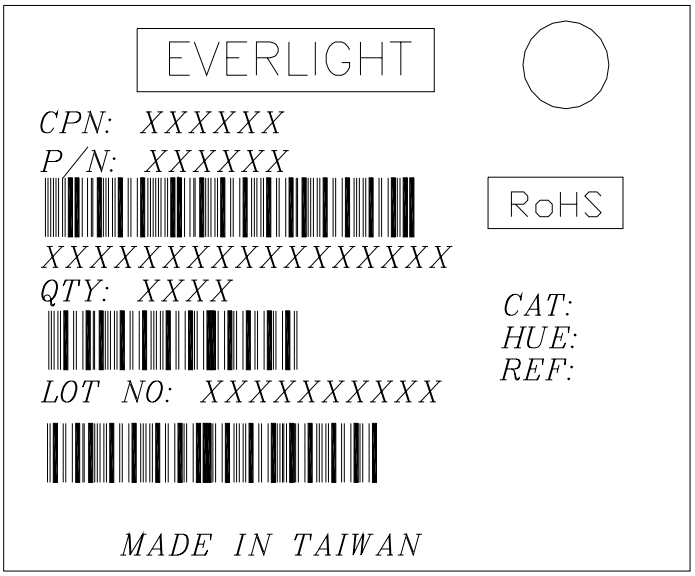


Label explanation

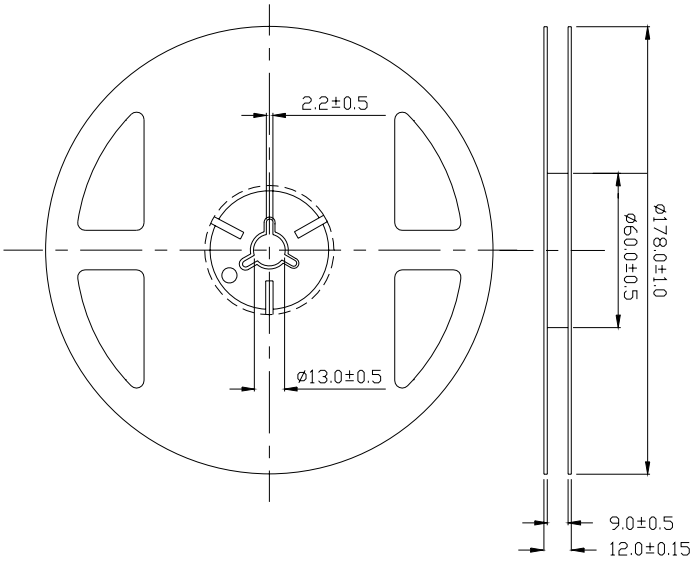
CAT: Luminous Intensity Rank

HUE: Chromaticity Coordinates

REF: Forward Voltage Rank



Reel Dimensions



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

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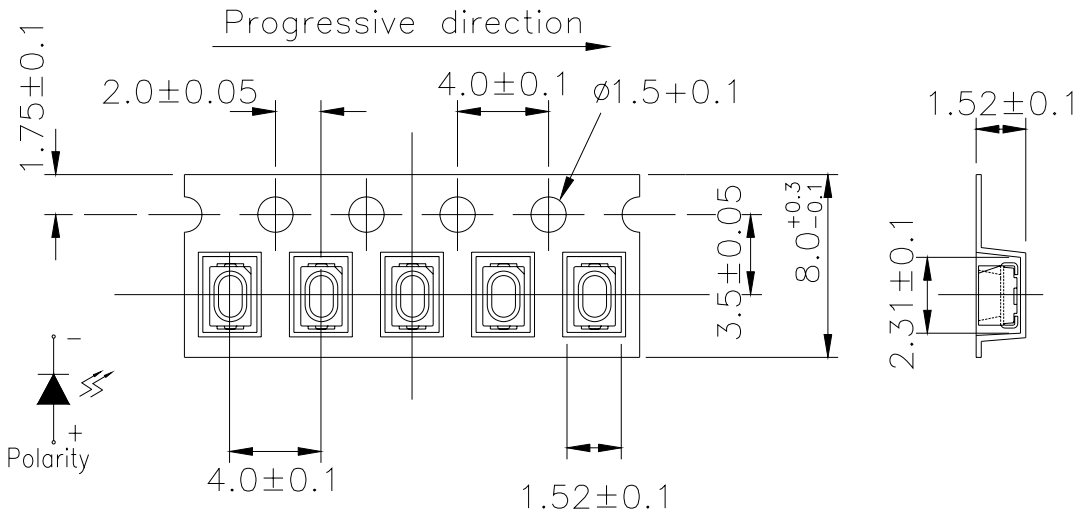
Carrier Tape Dimensions: Loaded quantity 3000 PCS per reel.



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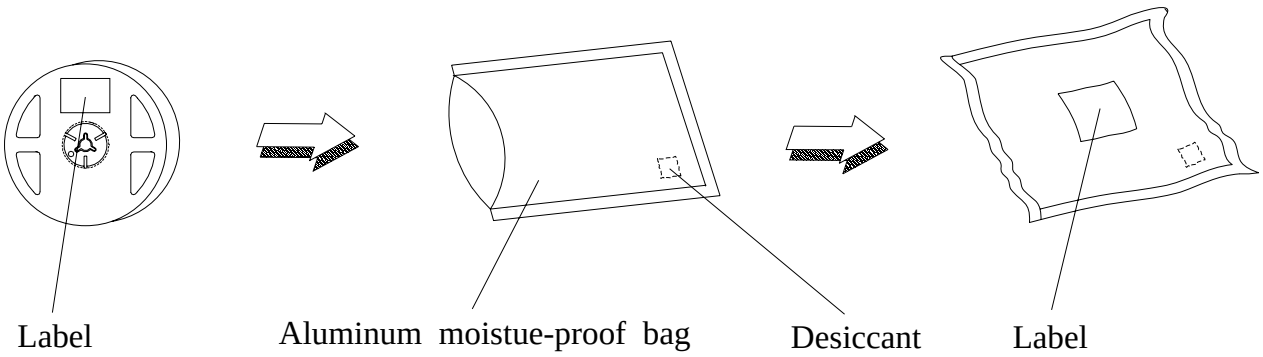
Moisture Resistant Packaging



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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℃ Min. 5sec.	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	I_F = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85℃/ 85%RH	1000 Hrs.	22 PCS.	0/1

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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.

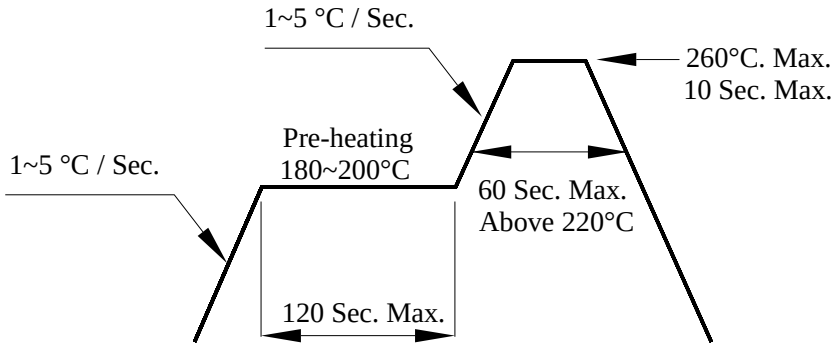
   2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

   2.5 The LEDs should be used within 168 hours (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℃ 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.

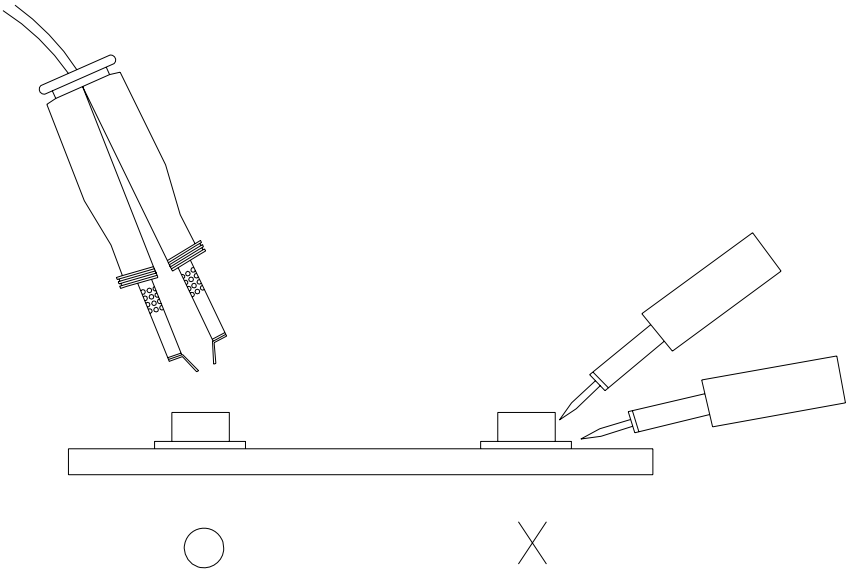
   3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

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