EVERLIGHT ELECTRONICS CO., LTD.

Technical Data Sheet

Chip LED with Bi-Color (Multi-Color)

19-223/Y2SGHC-C07/2T

Feature

- 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.
- The product itself will remain within RoHS compliant version.

Descriptions

- The 19-223 SMD LED 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

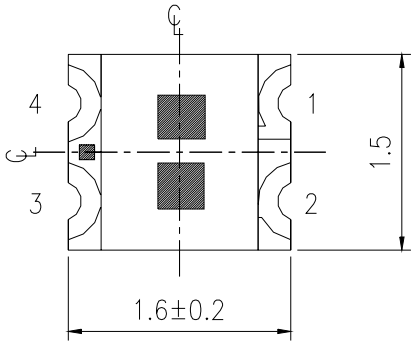
- Backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

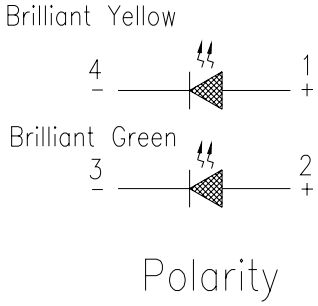
Device Selection Guide

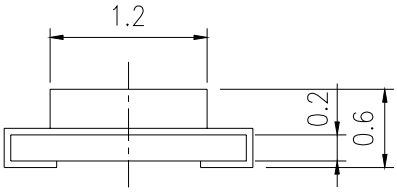
Type	Chip Material	Emitted Color	Resin Color
Y2S	AlGaInP	Brilliant Yellow	Water Clear
GH	InGaN	Brilliant Green	

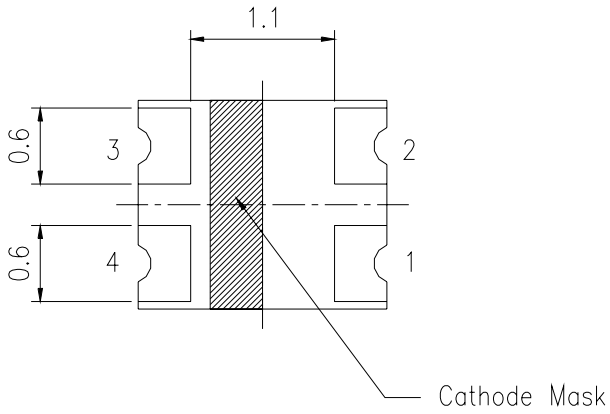
Downloaded from Arrow.com.

Package Outline Dimensions

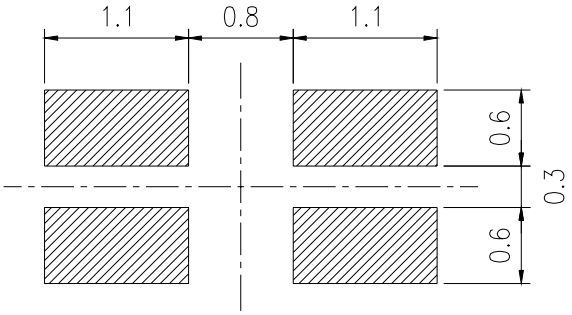








For reflow soldering



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

Downloaded from Arrow.com.

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	Y2S:50 GH:25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	Y2S:100 GH:100	mA
Power Dissipation	Pd	Y2S:120 GH:95	mW
Electrostatic Discharge (HBM)	ESD	Y2S:2000 GH:150	V
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Downloaded from Arrow.com.

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	Y2S	28.5	-----	72.0	mcd	I_F=5mA
		GH	72.0		180		
Viewing Angle	2θ 1/2		-----	130	-----	deg	
Peak Wavelength	λ p	Y2S	-----	591	-----	nm	
		GH		518			
Dominant Wavelength	λ d	Y2S	585.5	-----	594.5	nm	
		GH	517.5		535.5		
Spectrum Radiation Bandwidth	△ λ	Y2S	-----	15	-----	nm	
		GH		35			
Forward Voltage	V_F	Y2S	1.75	-----	2.35	V	
		GH	2.75		3.65		
Reverse Current	I_R	Y2S	-----	-----	10	μA	V_R=5V
		GH			50		

Notes:

1.Tolerance of Luminous Intensity ±11%

2.Tolerance of Dominant Wavelength ±1nm

3.Tolerance of Forward Voltage ±0.1V

Downloaded from Arrow.com.

Bin Range Of Luminous Intensity

Group	Bin	Min	Max	Unit	Condition
Y2S	N	28.5	45.0	mcd	I_F =5mA
	P	45.0	72.0		
GH	Q	72.0	112		
	R	112	180		

Bin Range Of Dom. Wavelength

Group	Bin	Min	Max	Unit	Condition
Y2S	D3	585.5	588.5	nm	I_F=5mA
	D4	588.5	591.5		
	D5	591.5	594.5		
GH	1	517.5	523.5		
	2	523.5	529.5		
	3	529.5	535.5		

Bin Range Of Forward Voltage

Group	Bin	Min	Max	Unit	Condition
Y2S	1	1.75	2.35	V	I_F=5mA
GH	1	2.75	3.20		
	2	3.20	3.65		

Notes:

1.Tolerance of Luminous Intensity ±11%

2.Tolerance of Dominant Wavelength ±1nm

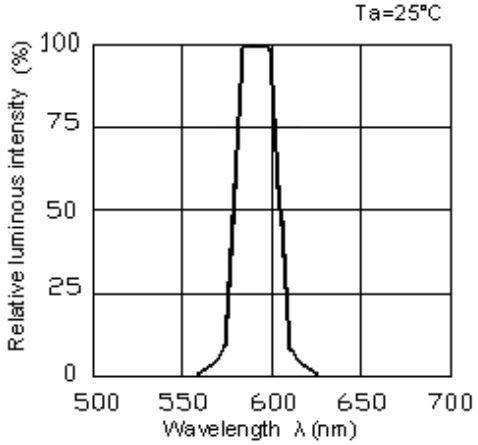
3.Tolerance of Forward Voltage ±0.1V

Downloaded from Arrow.com.

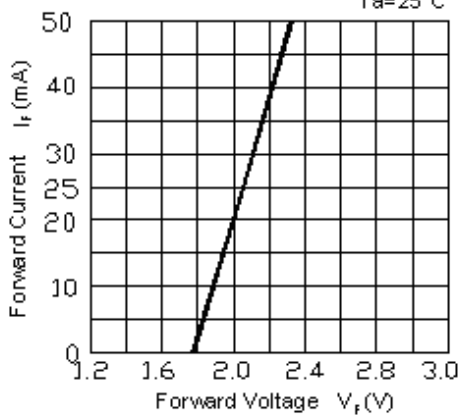
Typical Electro-Optical Characteristics Curves

Y2S

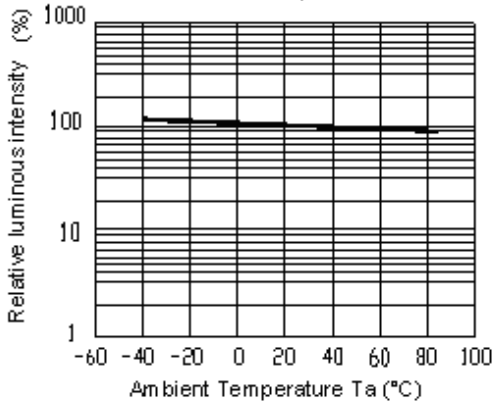
Spectrum Distribution



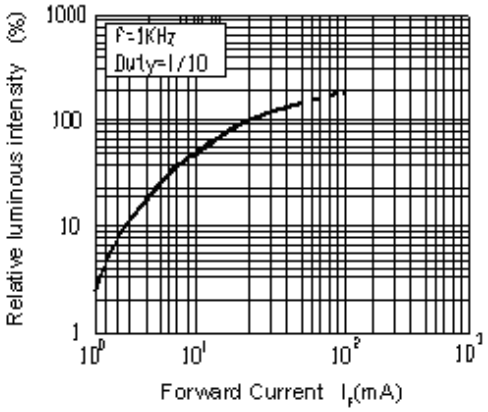
Forward Current vs. Forward Voltage



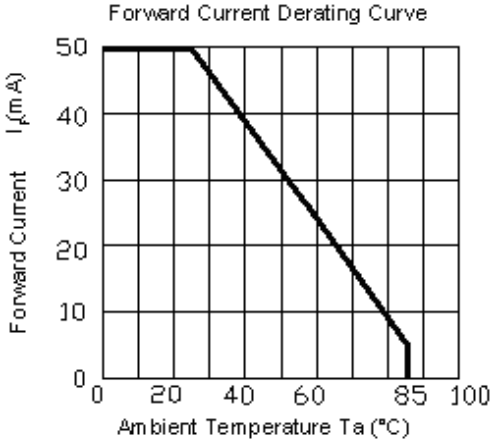
Luminous Intensity vs. Ambient Temperature



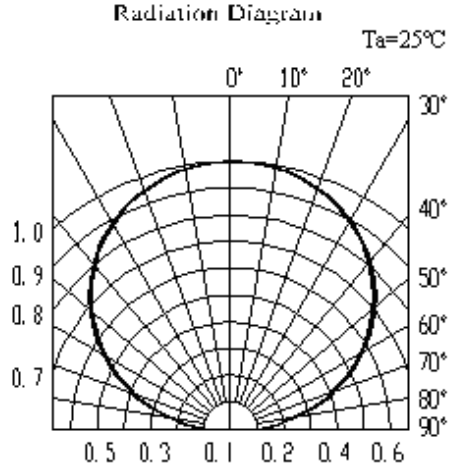
Luminous Intensity vs Forward Current



Forward Current Derating Curve



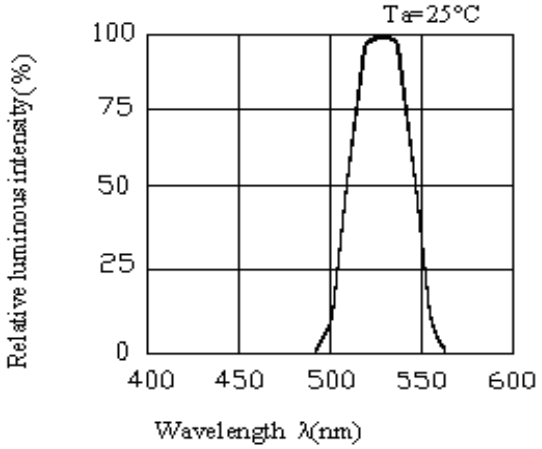
Radiation Diagram



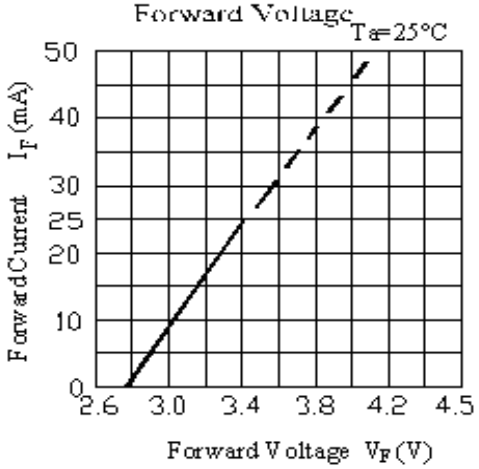
Downloaded from Arrow.com.

Typical Electro-Optical Characteristics Curves
GH

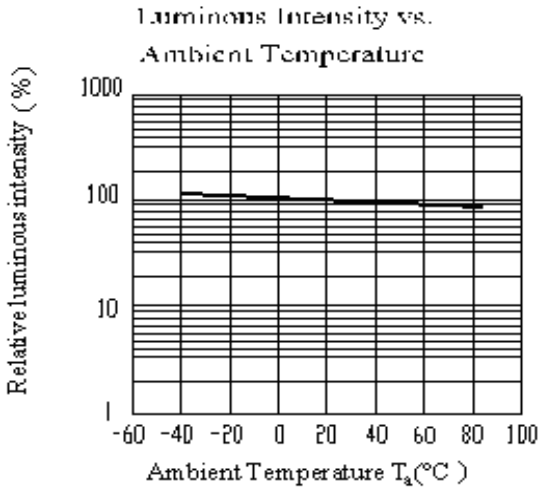
Spectrum Distribution



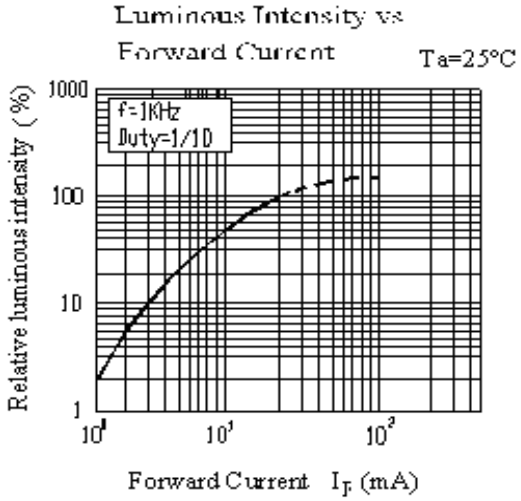
Forward Current vs. Forward Voltage



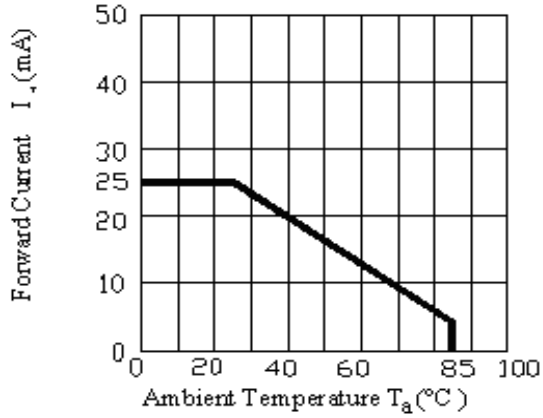
Luminous Intensity vs. Ambient Temperature



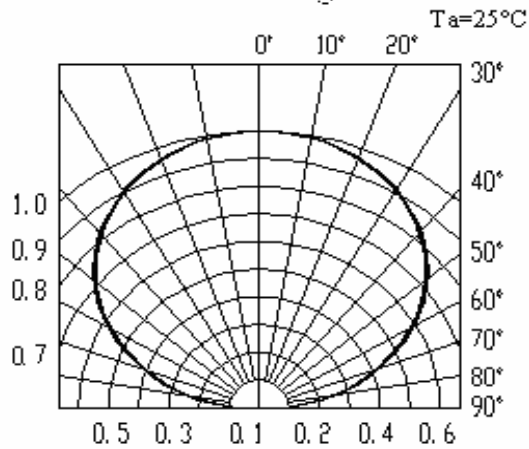
Luminous Intensity vs. Forward Current



Forward Current Derating Curve



Radiation Diagram



Downloaded from Arrow.com.

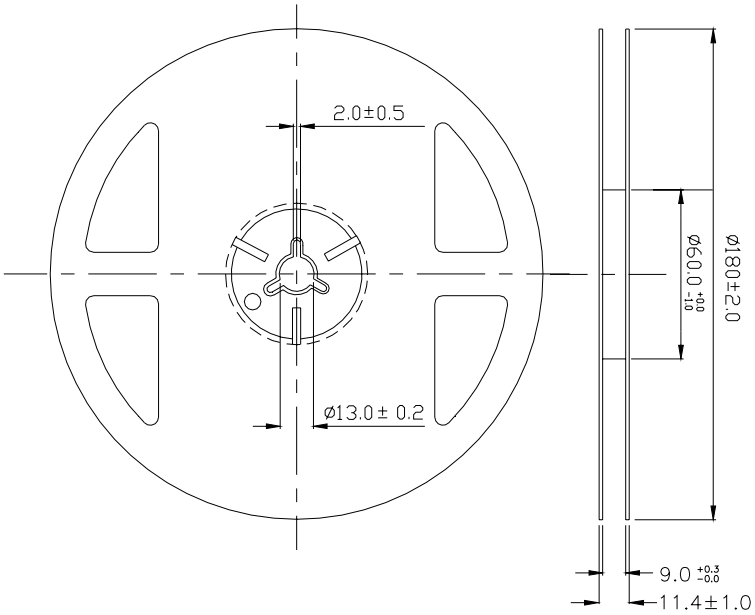
Label explanation

CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

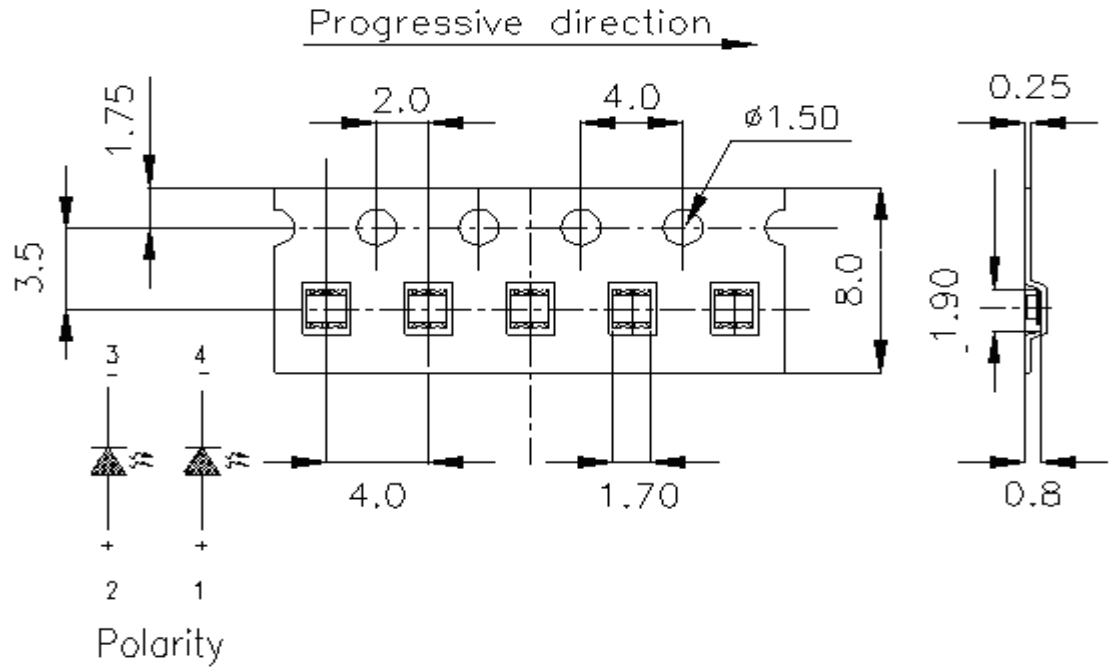
Reel Dimensions



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

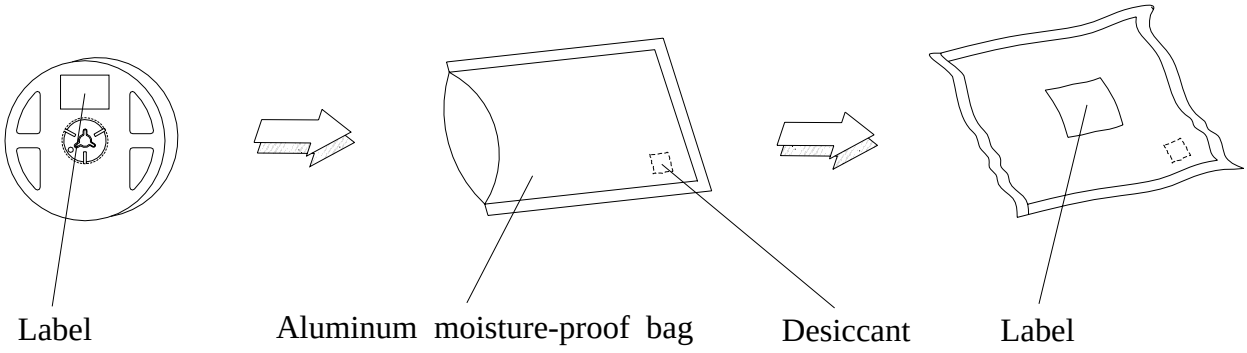
Downloaded from Arrow.com.

Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel



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

Moisture Resistant Packaging



Downloaded from Arrow.com.

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

Downloaded from Arrow.com.

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.

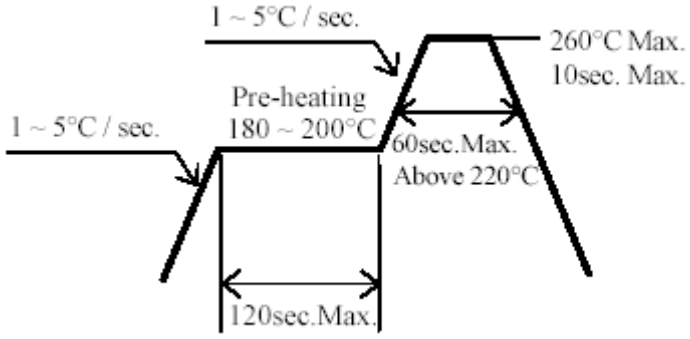
   2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

   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.

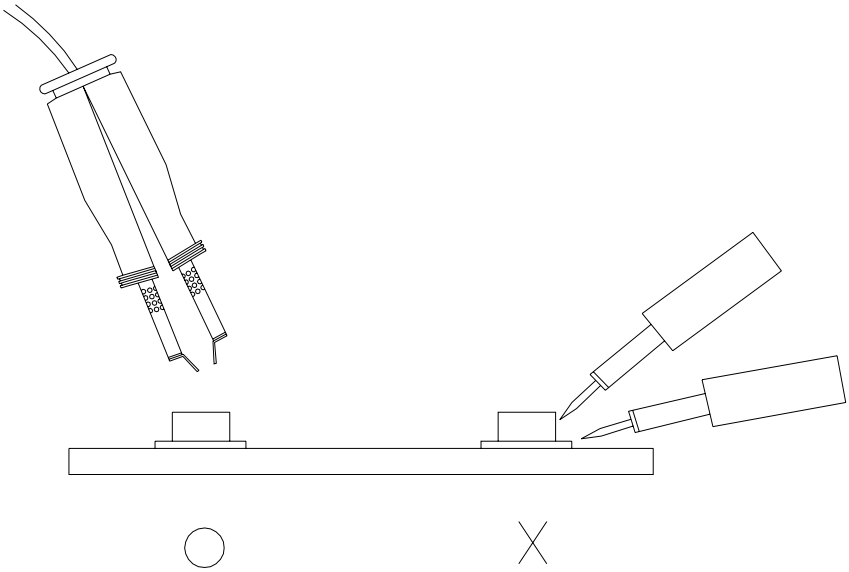
Downloaded from Arrow.com.

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.



EVERLIGHT ELECTRONICS CO., LTD.
Office: No 25, Lane 76, Sec 3, Chung Yang Rd,
Tucheng, Taipei 236, Taiwan, R.O.C

Tel: 886-2-2267-2000, 2267-9936
Fax: 886-2267-6244, 2267-6189, 2267-6306
http://www.everlight.com

Downloaded from Arrow.com.