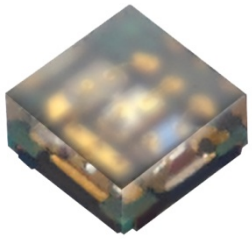
EVERLIGHT AMERICAS

DATASHEET

SMD ▪ B
EAST0808RGBA0



Features

- Package in 8mm tape on 7″ diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow
- Solder process
- Full-color type
- Pb-free
- Component solderable surface finish is Gold
- Component weight is 1.0 mg
- RoHS compliant

Description

- The 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.
- Moreover, with its black PCB, the possess an ideal solution for high-contract and high-resolution indoor signage display.

Applications

- Indoor signage display applications
- Indoor decorating and entertainment design
- Flat backlight for LCD, switch and symbol
- Indicator and backlighting for all consumer electronics

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear
InGaN	Brilliant Green	
InGaN	Brilliant Blue	

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	R6:10 GA:10 BD:10	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	R6:20 GA:20 BD:20	mA
Power Dissipation	Pd	R6:24 GA:35 BD:35	mW
Junction Temperature	T_j	100	℃
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
ESD (Classification acc. AEC Q101)	ESD_{HBM}	R:150 G:150 B:150	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	R6	40		150	mcd	I_F=10mA
		GA	91		336		
		BD	24		100		
Viewing Angle	$2\theta_{1/2}$		-----	120	-----	deg	I_F=10mA
Peak Wavelength	Λp	R6	-----	632	-----	nm	I_F=10mA
		GA		520			
		BD		461			
Dominant Wavelength	Λd	R6	617		629	nm	I_F=10mA
		GA	512		533		
		BD	459		477		
Spectrum Radiation Bandwidth	Δλ	R6	-----	20	-----	nm	I_F=10mA
		GA		25			
		BD		25			
Forward Voltage	V_F	R6	1.7	2.0	2.4	V	I_F=10mA
		GA	2.6	3.3	3.7		
		BD	2.6	3.3	3.7		
Reverse Current	I_R		-----	-----	10	μA	V_R=5V

Note:
1. Tolerance of Luminous Intensity: ±10%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Floating Bin(R6)
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
R0	40	55	mcd	I_F =10mA
RA	55	80		
RB	80	110		
RC	110	150		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
R1	617	620	nm	I_F =10mA
R2	620	623		
R3	623	626		
R4	626	629		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
R1	1.7	2.4	v	I_F =10mA

Note:
1.Tolerance of Luminous Intensity: ±10%
2.Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.01V

Floating Bin(GA)
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
GA	91	133	mcd	I_F =10mA
GB	133	194		
GC	194	280		
GD	280	336		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
G1	512	515	nm	I_F =10mA
G2	515	518		
G3	518	521		
G4	521	524		
G5	524	527		
G6	527	530		
G7	530	533		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
G1	2.6	3.7	v	I_F =10mA

Note:
1.Tolerance of Luminous Intensity: ±10%
2.Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.01V

Floating Bin(BD)
Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
B0	24	34	mcd	I_F =10mA
BA	34	48		
BB	48	70		
BC	70	100		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
B0	459	462	nm	I_F =10mA
B1	462	465		
B2	465	468		
B3	468	471		
B4	471	474		
B5	474	477		

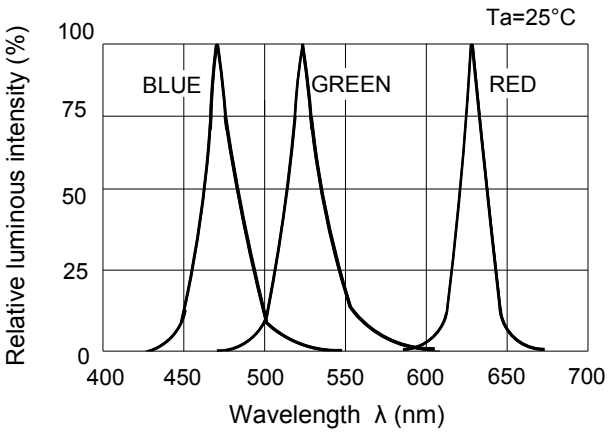
Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
B1	2.6	3.7	v	I_F =10mA

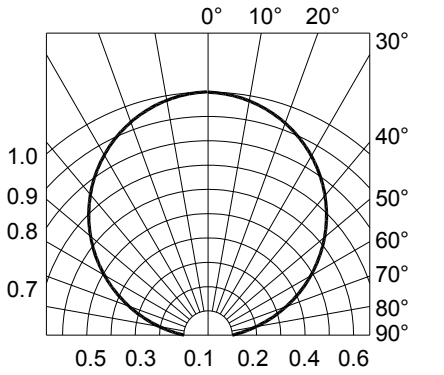
Note:
1.Tolerance of Luminous Intensity: ±10%
2.Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.01V

Typical Electro-Optical Characteristics Curves

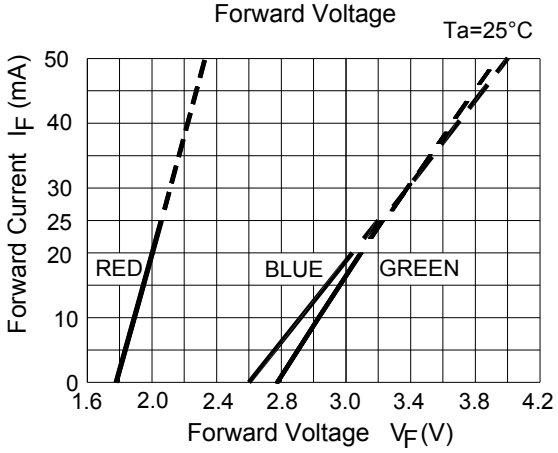
Spectrum Distribution



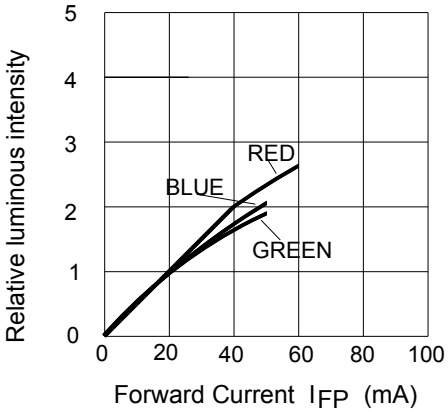
Radiation Diagram Ta=25°C



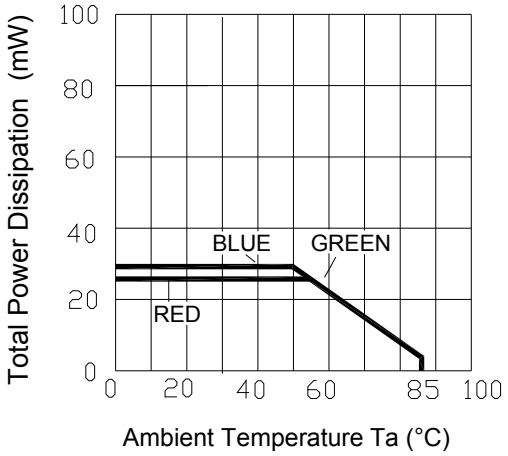
Forward Current vs. Forward Voltage



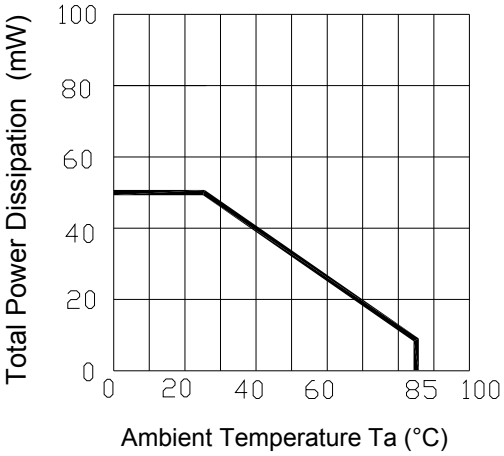
Forward Current Derating Curve



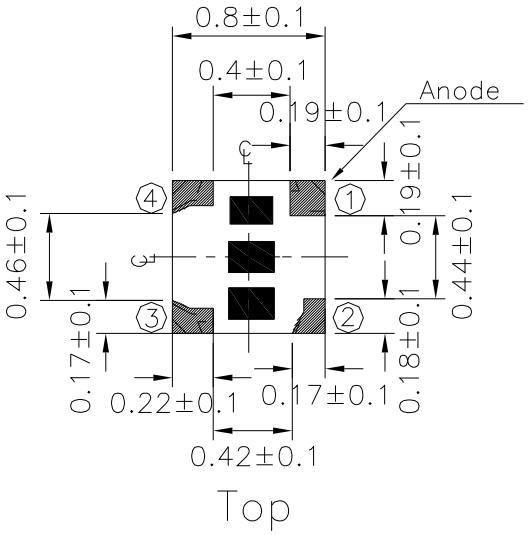
Ambient Temperature vs. Power Dissipation



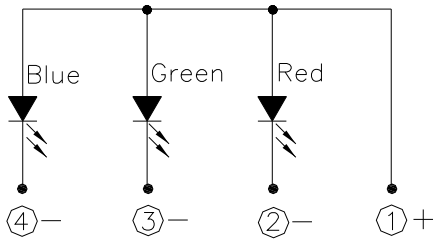
Ambient Temperature vs. Power Dissipation



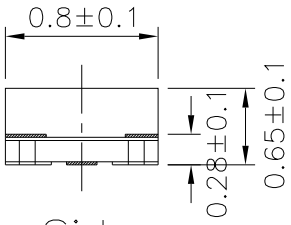
Package Dimension



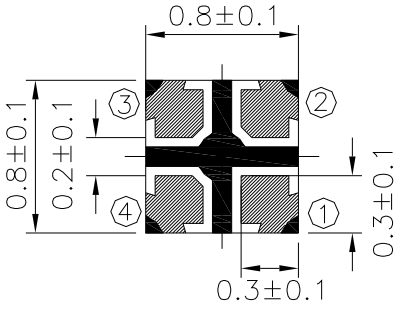
Top



Polarity

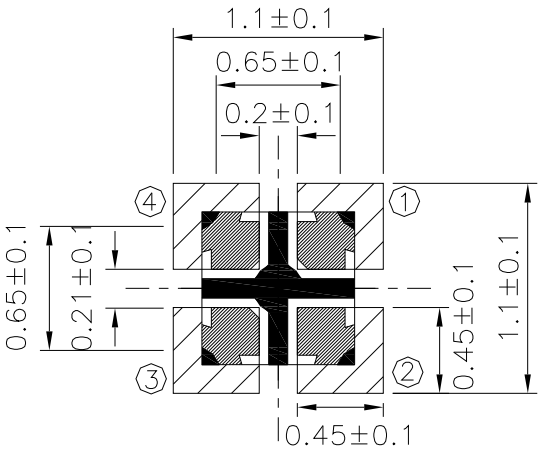


Side



Bottom

Recommend soldering pad

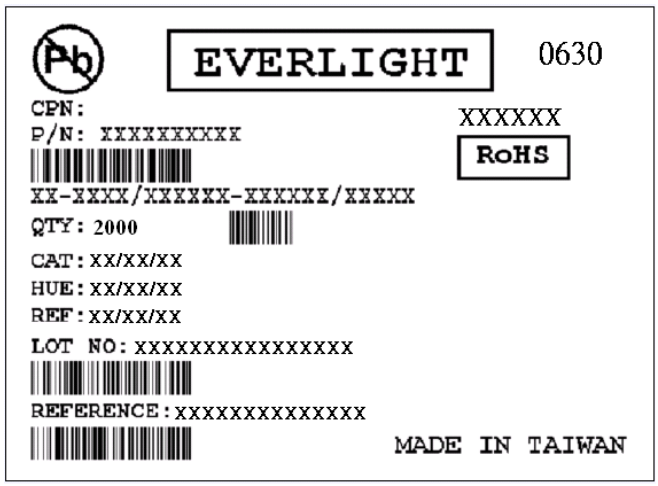


Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

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

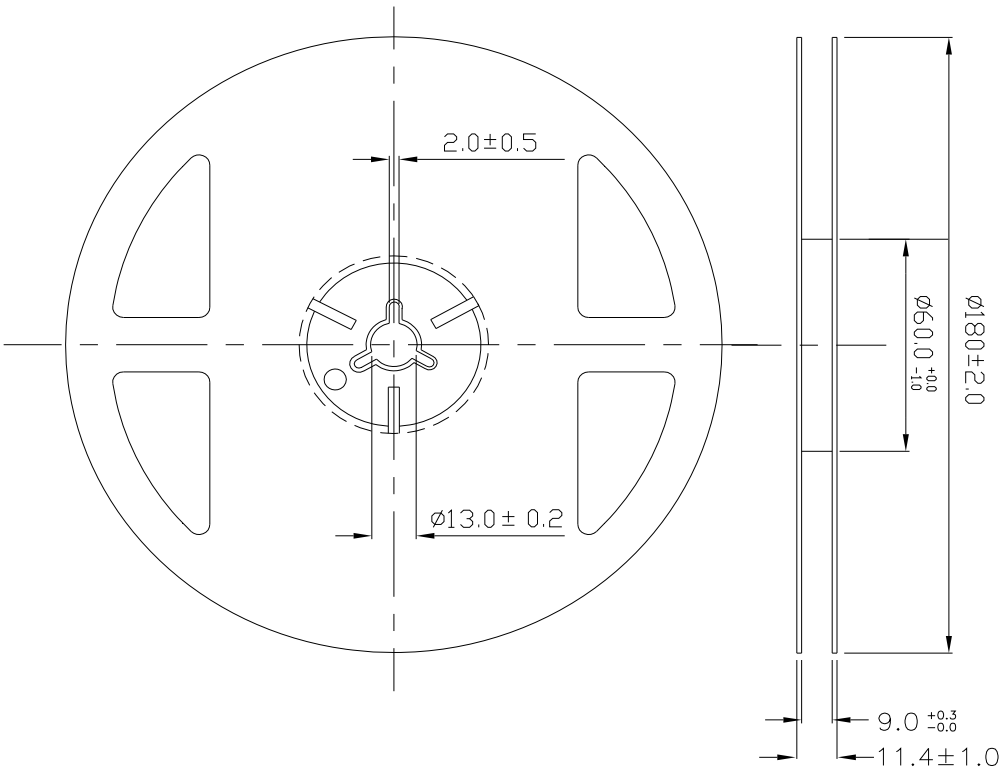
Moisture Resistant Packing Materials

Label Explanation



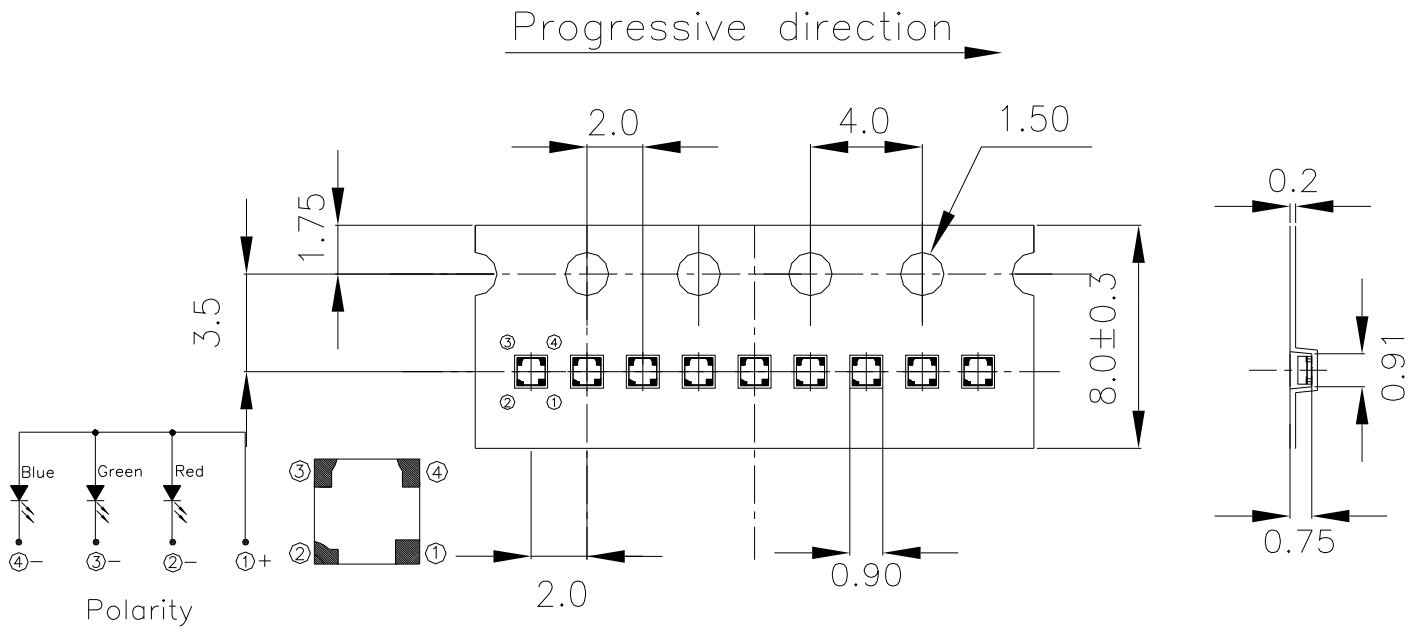
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



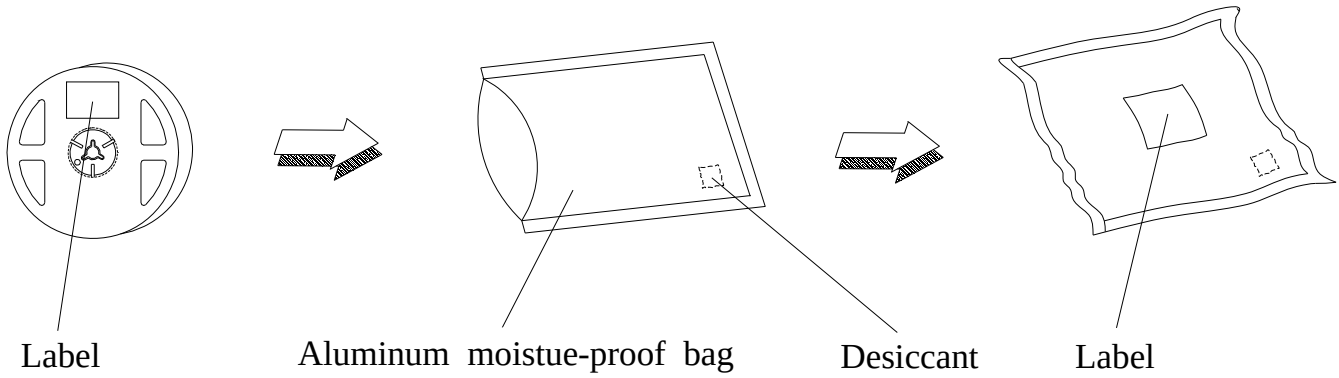
Carrier Tape Dimensions:

Minimum packing amount is 2000 pcs per reel



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

Moisture Resistant Packing Process



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

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 168Hrs under 30℃ or less and 60% RH or less.If unused LEDs remain, it should be stored in moisture proof packages.

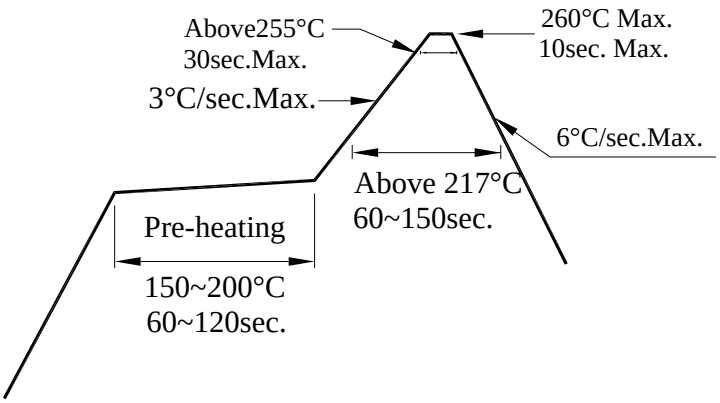
   2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

   Baking treatment : 60±5℃ for 24 hours.

   2.5 Before using LEDs, baking treatment should be implemented based on the following conditions: pre-curing at 60±5℃ for 24 hours or 125±5℃ for 3 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.

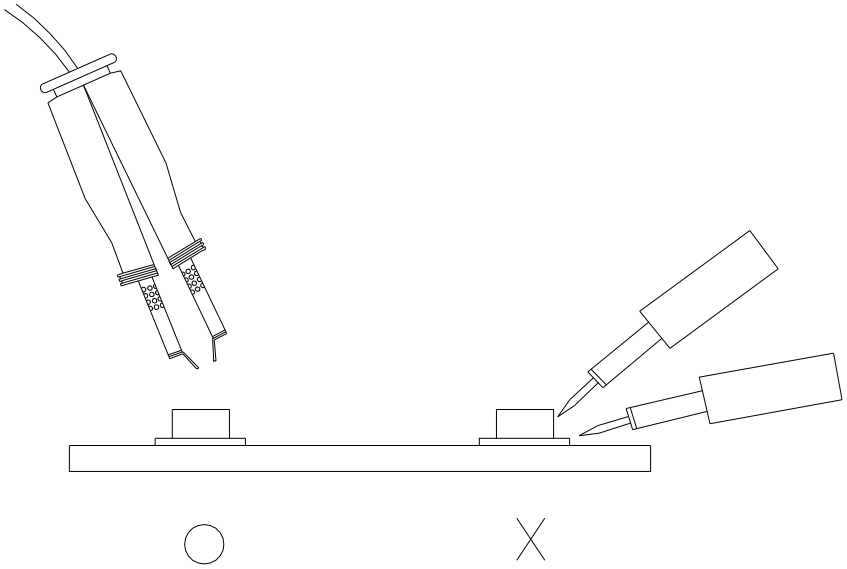
   3.4 After soldering, do not warp the circuit board.

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.



6.Directions for use

The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, It may cause migration resulting in LED damage.

Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight Americas before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.