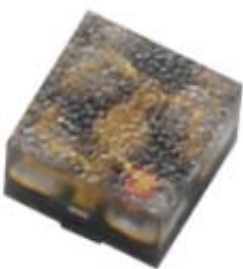


SMD ■ EAST0909RGGBA0



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 1.5 mg
- RoHS compliant

Description

- The EAST0909RGGBA0 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 EAST0909RGGBA0 possess an ideal solution for high-contrast 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	Surface Diffused
InGaN	Brilliant Green	
InGaN	Brilliant Blue	

Absolute Maximum Ratings (Ta=25°C)

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	P _d	R6: 24 GA:37 BD:37	mW
Junction Temperature	T _j	100	°C
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +90	°C
ESD (Classification acc. AEC Q101)	ESD _{HBM}	R:2000 G:1000 B:1000	V
Soldering Temperature	T _{sol}	Reflow Soldering : 260 °C for 10 sec. Hand Soldering : 350 °C for 3 sec.	

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I _v	R6	11.5	-----	28.8	mcd	I _F =5mA
		GA	24	-----	72		
		BD	7.5	-----	22.4		
Viewing Angle	2θ _{1/2}		-----	120	-----	deg	I _F =5mA
Peak Wavelength	λ _p	R6		632		nm	I _F =5mA
		GA	-----	518	-----		
		BD		468			
Dominant Wavelength	λ _d	R6	616.0		631.0	nm	I _F =5mA
		GA	517.0	-----	538.0		
		BD	462.0		480.0		
Spectrum Radiation Bandwidth	Δλ	R6		20		nm	I _F =5mA
		GA	-----	25	-----		
		BD		25			
Forward Voltage	V _F	R6	1.7	2.0	2.35	V	I _F =5mA
		GA	2.7	3.3	3.7		
		BD	2.7	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
RA	11.5	13.8	mcd	$I_F = 5\text{mA}$
RB	13.8	16.7		
RC	16.7	20.0		
RD	20.0	24.0		
RE	24.0	28.8		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
R1	616.0	619.0	nm	$I_F = 5\text{mA}$
R2	619.0	622.0		
R3	622.0	625.0		
R4	625.0	628.0		
R5	628.0	631.0		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
R1	1.7	2.35	v	$I_F = 5\text{mA}$

Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Floating Bin(GA-1) Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
GAA	24.0	28.8	mcd	$I_F = 5\text{mA}$
GAB	28.8	34.6		
GAC	34.6	41.5		
GAD	41.5	50.0		
GAE	50.0	60.0		
GAF	60.0	72.0		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
GA1	517.0	520.0	nm	$I_F = 5\text{mA}$
GA2	520.0	523.0		
GA3	523.0	526.0		
GA4	526.0	529.0		
GA5	529.0	532.0		
GA6	532.0	535.0		
GA7	535.0	538.0		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
GA1	2.7	3.7	v	$I_F = 5\text{mA}$

Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Floating Bin(GA-2) Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
GBA	24.0	28.8	mcd	$I_F = 5\text{mA}$
GBB	28.8	34.6		
GBC	34.6	41.5		
GBD	41.5	50.0		
GBE	50.0	60.0		
GBF	60.0	72.0		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
GB1	517.0	520.0	nm	$I_F = 5\text{mA}$
GB2	520.0	523.0		
GB3	523.0	526.0		
GB4	526.0	529.0		
GB5	529.0	532.0		
GB6	532.0	535.0		
GB7	535.0	538.0		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
GB1	2.7	3.7	v	$I_F = 5\text{mA}$

Note:

1. Tolerance of Luminous Intensity: $\pm 10\%$
2. Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Floating Bin(BD) Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
BA	7.5	9.0	mcd	$I_F = 5\text{mA}$
BB	9.0	10.8		
BC	10.8	13.0		
BD	13.0	15.6		
BE	15.6	18.7		
BF	18.7	22.4		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
B1	462.0	465.0	nm	$I_F = 5\text{mA}$
B2	465.0	468.0		
B3	468.0	471.0		
B4	471.0	474.0		
B5	474.0	477.0		
B6	477.0	480.0		

Bin Range of Dominant Voltage

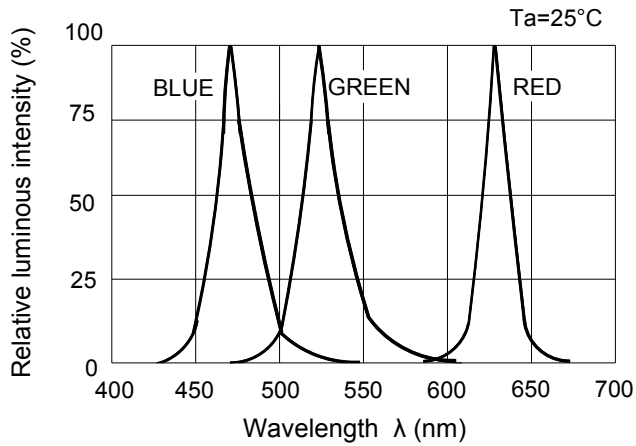
Bin Code	Min.	Max.	Unit	Condition
B1	2.7	3.7	v	$I_F = 5\text{mA}$

Note:

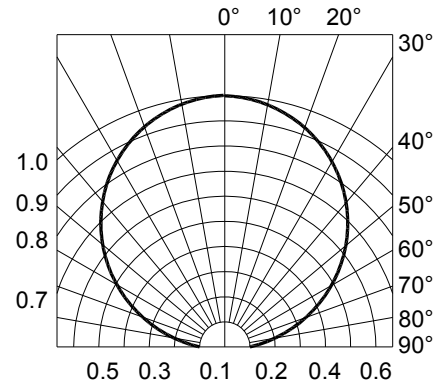
- 1.Tolerance of Luminous Intensity: $\pm 10\%$
- 2.Tolerance of Dominant Wavelength: $\pm 1\text{nm}$
3. Tolerance of Forward Voltage: $\pm 0.1\text{V}$

Typical Electro-Optical Characteristics Curves

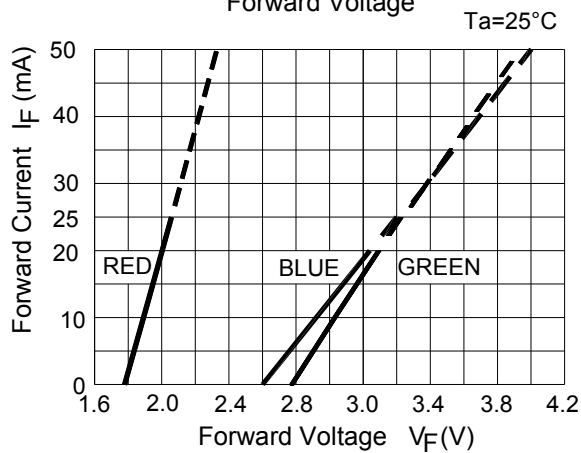
Spectrum Distribution



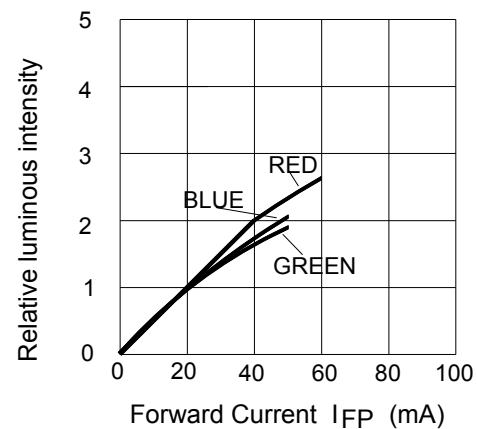
Radiation Diagram Ta=25°C



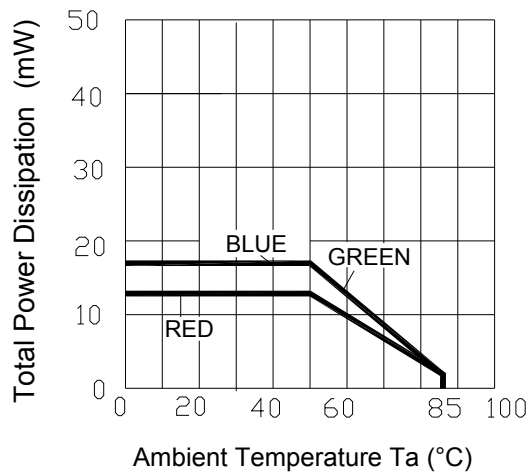
Forward Current vs.
Forward Voltage



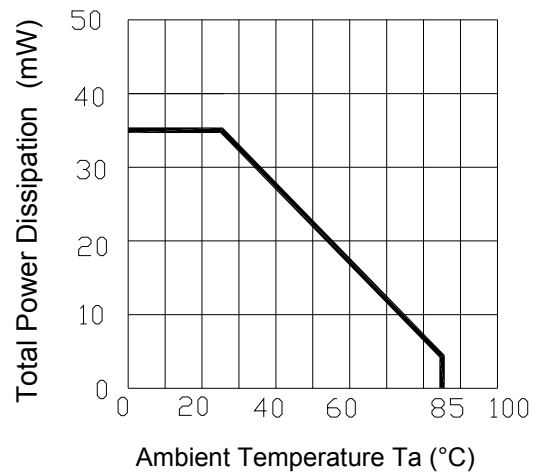
Forward Current Derating Curve



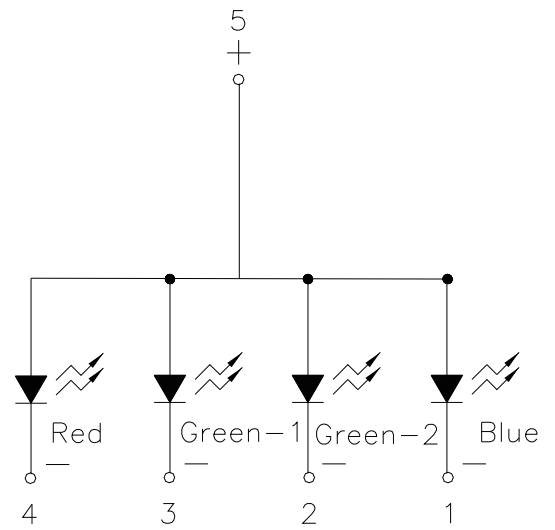
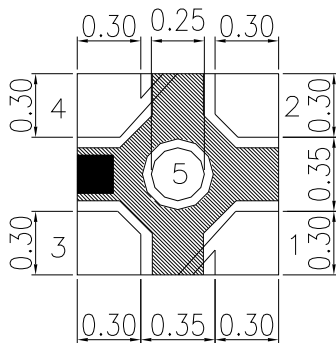
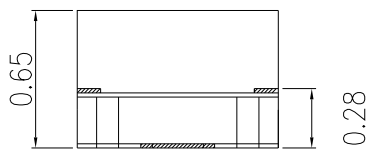
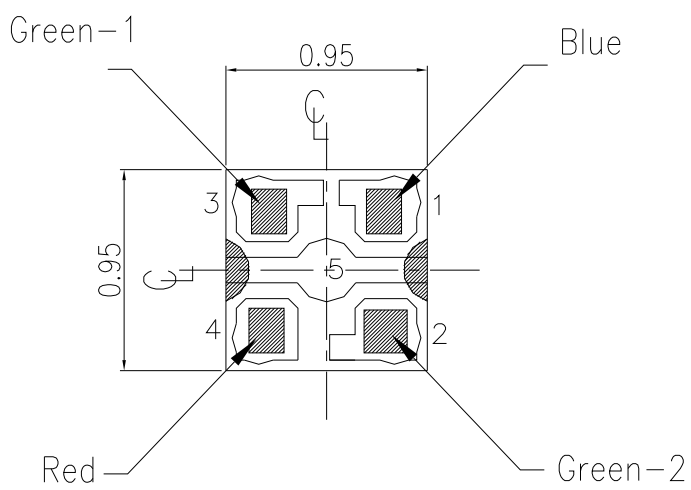
Ambient Temperature vs.
Power Dissipation



Ambient Temperature vs.
Power Dissipation

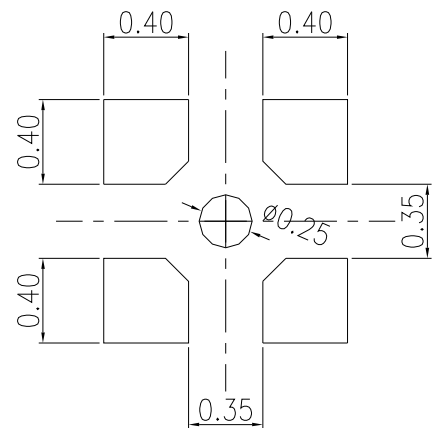


Package Dimension



Polarity

Recommend Soldering Pad



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

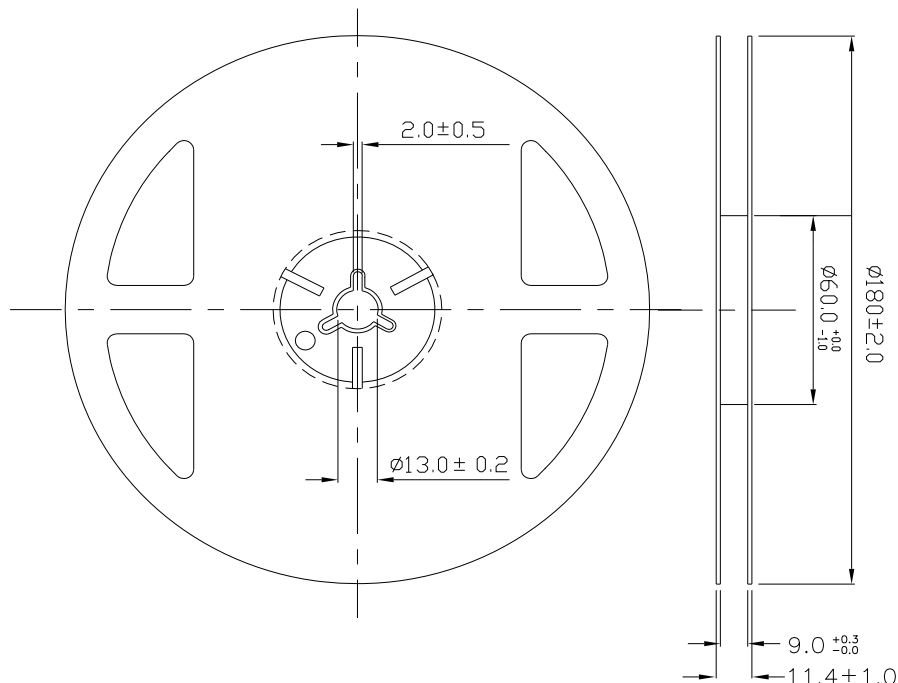
Moisture Resistant Packing Materials

Label Explanation

	EVERLIGHT	0415
CPN: XXXXXXXXXXXX	1531ECBE	
P/N: XXXXXXXXXXXX		
	RoHS	
XX-XXX/XXXXXXXXXX-XXX/XX		
QTY: XXXX		
CAT: GAF(100~120mcd)/BC(15~20mcd)/RB(35~40mcd)/GAF(100~120mcd)		
HUE: GAF(513~516nm)/B5(471~474nm)/R3(624~627nm)/GB1(513~516nm)		
REF: GAF(2.7~3.7V)/B1(2.7~3.7V)/R1(1.7~2.35V)/GB1(2.7~3.7V)		
LOT NO: XXXXXXXXXXXXXXXXXXXX		
		
REFERENCE: XXXXXXXXXXXXXXXX		
		
MADE IN TAIWAN		

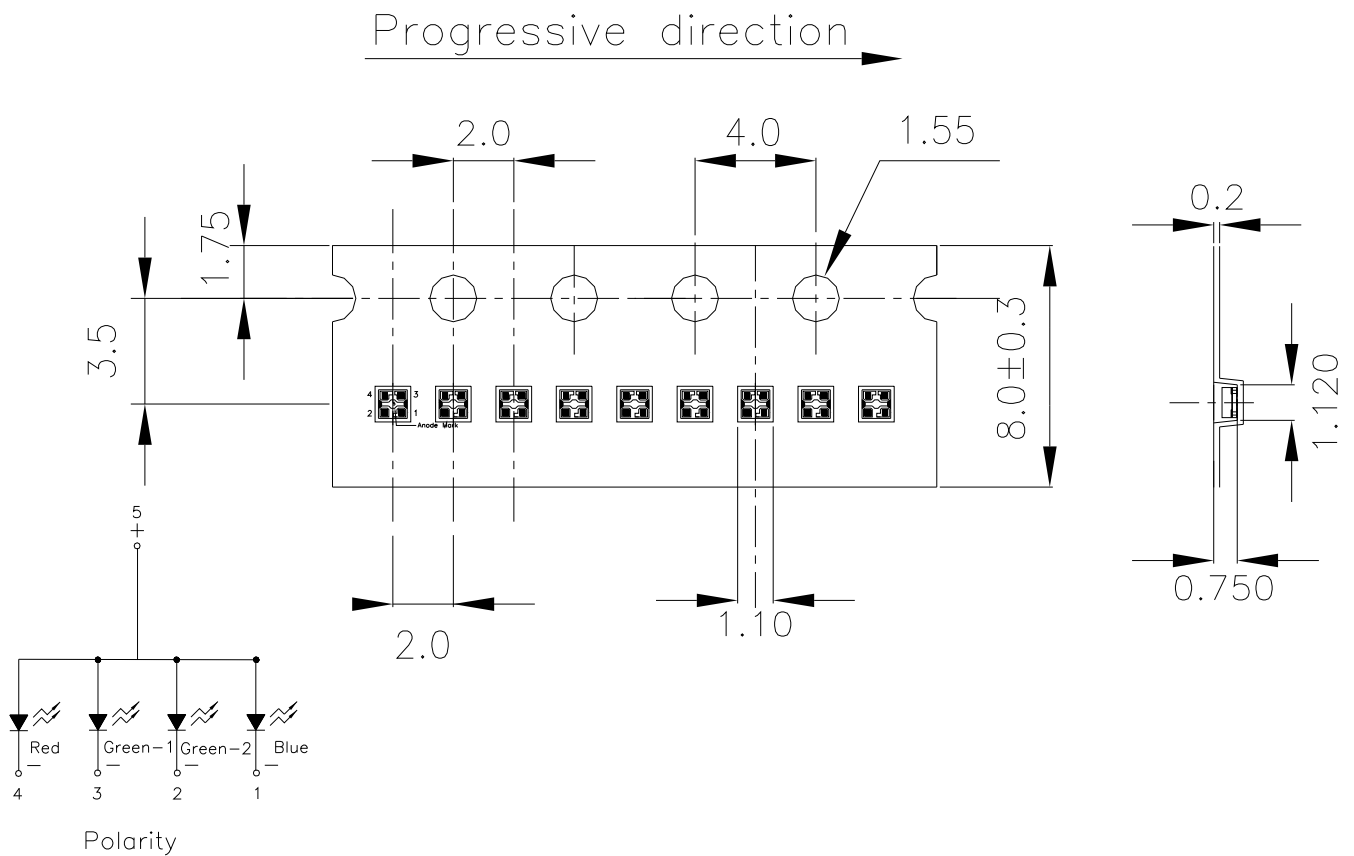
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



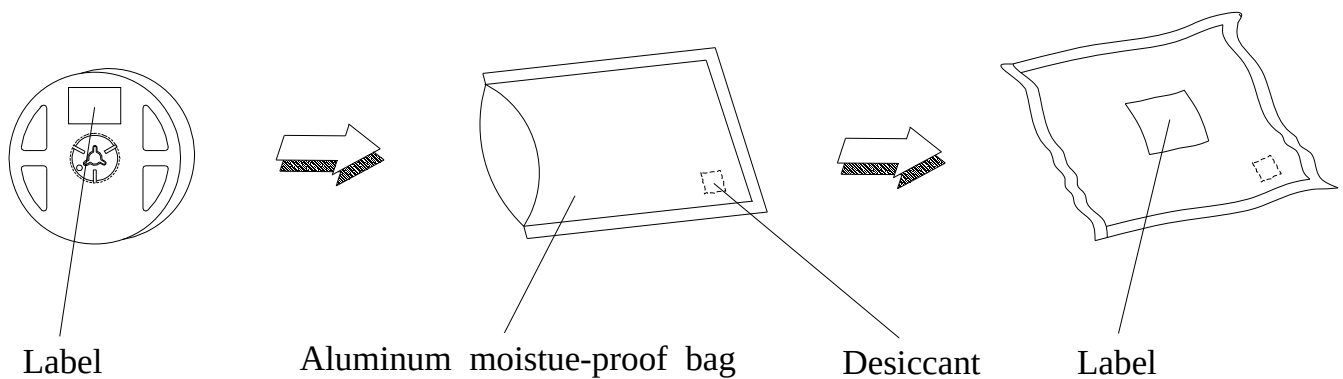
Carrier Tape Dimensions:

Minimum packing amount is 4000 pcs per reel



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

Moisture Resistant Packing Process



Note: Tolerances unless mentioned ± 0.1 mm. 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°C or less and 90%RH or less.

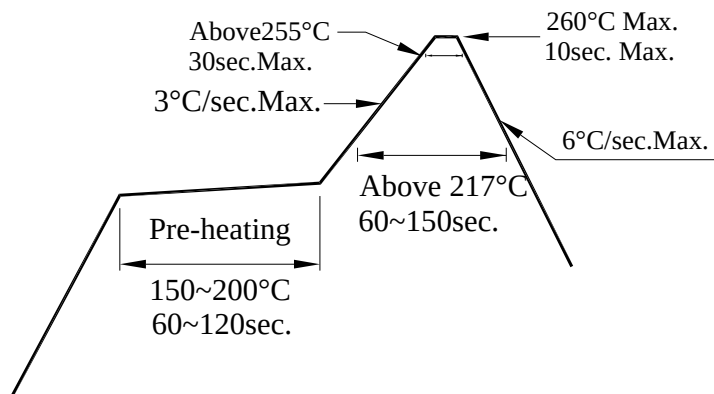
2.3 After opening the package: The LED's floor life is 168Hrs under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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.

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.

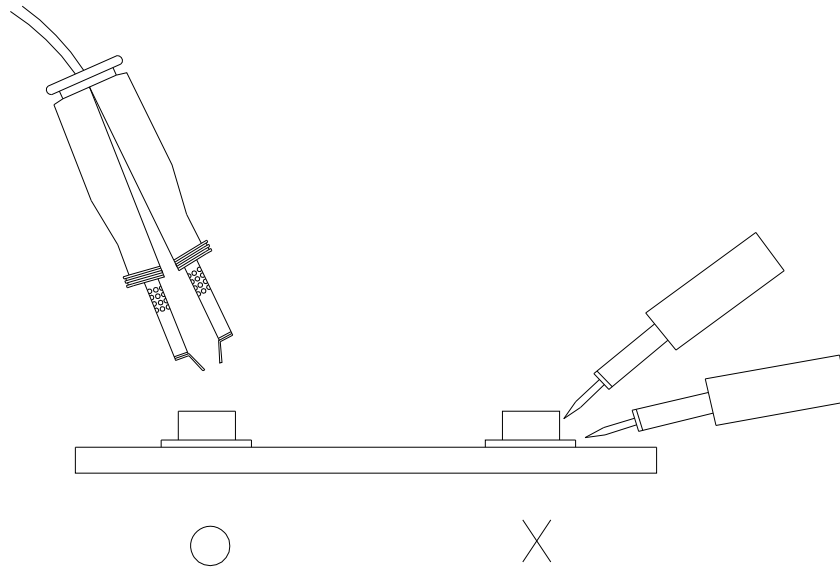
3.4 After soldering, do not warp the circuit board.

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.



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.