

Top View LEDs

61-238R/REGBB7C-A03/ET



Features

- Super-luminosity chip LED.
- White SMT package.
- Built in Red, Green, and Blue chips.
- Lead frame package with individual 6 pins.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm).
- Precondition: Bases on JEDEC J-STD 020D Level 3

Descriptions

- Due to the package design, 61-238 has wide viewing angle, and low power consumption.
The white LED which was fabricated using blue LEDs 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. And makes it ideal for light pipe application.

Applications

- Amusement equipment.
- Information boards.
- Flashlight for digital camera of cellular phone.

Device Selection Guide

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

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	RE	50
		GB	30
		B7	30
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	RE	100
		GB	100
		B7	100
Power Dissipation	P_d	RE	120
		GB	110
		B7	110
Junction Temperature	T_j	115	°C
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
ESD	ESD_{HBM}	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	RE	360	-----	1120	mcd	I _F =20mA
		GB	715	-----	1800		
		B7	180	-----	450		
Viewing Angle	2θ _{1/2}		-----	120	-----	deg	I _F =20mA
Peak Wavelength	λ _p	RE	-----	632	-----	nm	I _F =20mA
		GB	-----	518	-----		
		B7	-----	468	-----		
Dominant Wavelength	λ _d	RE	617.5	-----	629.5	nm	I _F =20mA
		GB	520	-----	535		
		B7	465	-----	475		
Spectrum Radiation Bandwidth	Δλ	RE	-----	20	-----	nm	I _F =20mA
		GB	-----	35	-----		
		B7	-----	25	-----		
Forward Voltage	V _F	RE	1.7	2.0	2.4	V	I _F =20mA
		GB	2.7	3.3	3.7		
		B7	2.7	3.3	3.7		
Reverse Current	I _R	RE	-----	-----	10	μA	V _R =5V
		GB	-----	-----	50		
		B7	-----	-----	50		

Notes:

- 1.Tolerance of Luminous Intensity: ±11%
- 2.Tolerance of Dominant Wavelength: ±1 nm
- 3.Tolerance of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

Chip	Bin Code	Min.	Max.	Unit	Condition
RE	T2	360	450	mcd	I _F =20mA
	U1	450	565		
	U2	565	715		
	V1	715	900		
	V2	900	1120		
GB	V2	900	1120		
	W1	1120	1420		
	W2	1420	1800		
B7	S1	180	225		
	S2	225	285		
	T1	285	360		
	T2	360	450		

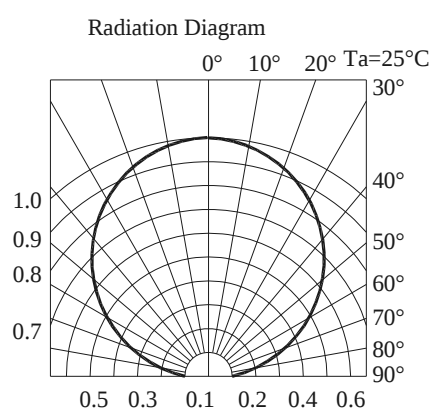
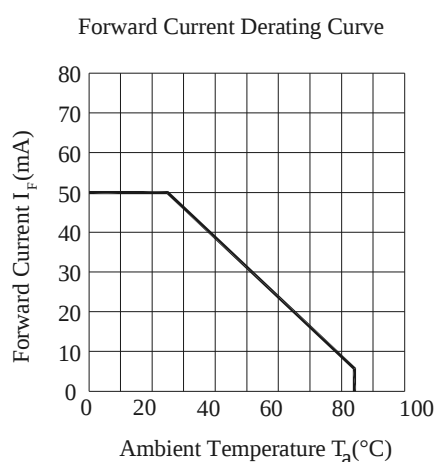
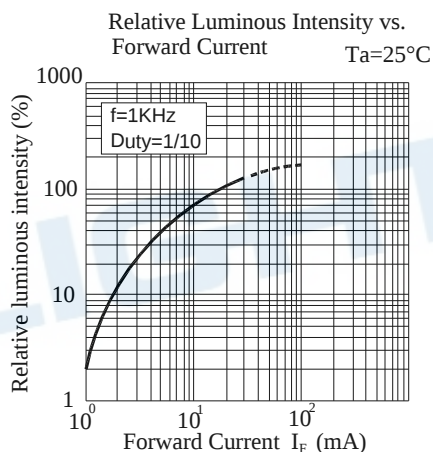
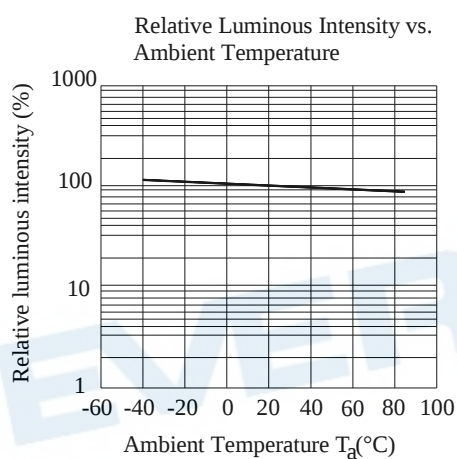
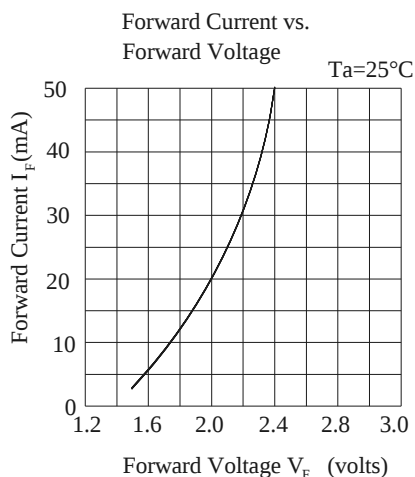
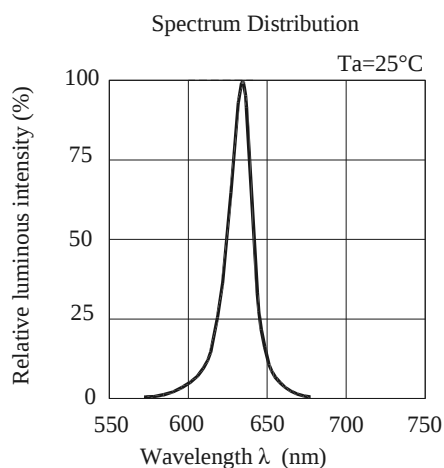
Note:
Tolerance of Luminous Intensity: ±11%

Bin Range of Dominant Wavelength

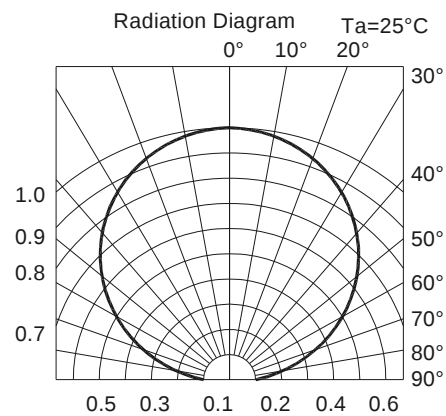
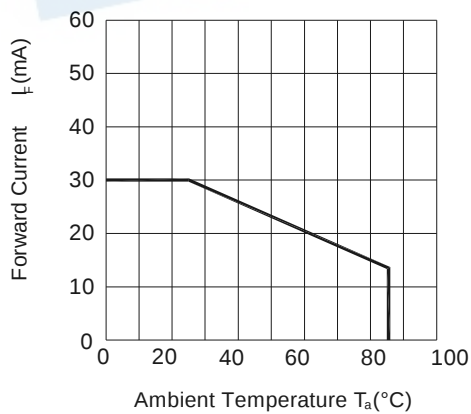
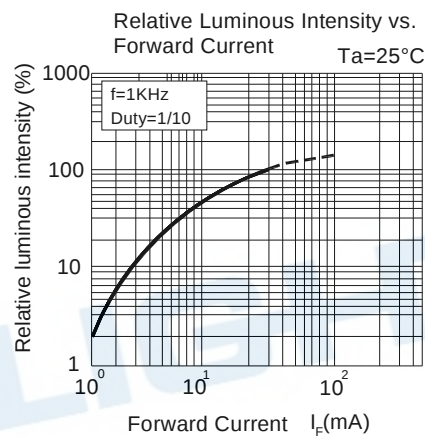
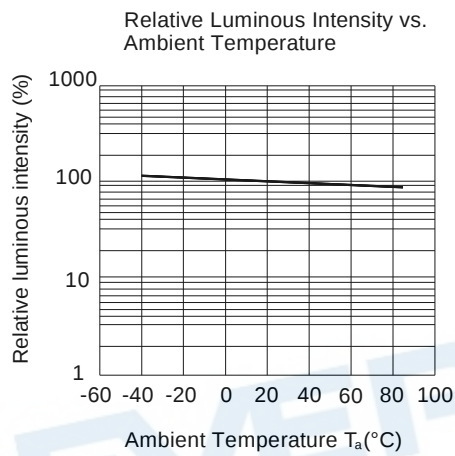
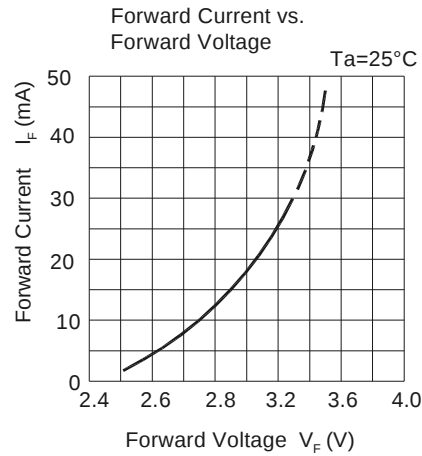
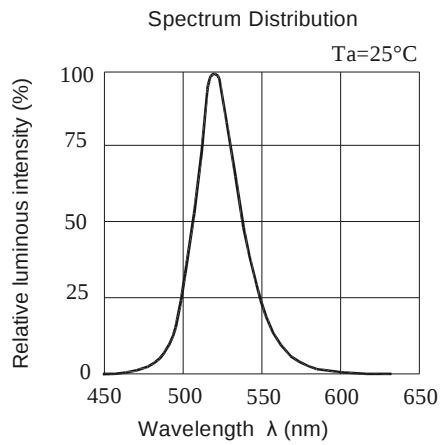
Chip	Bin Code	Min.	Max.	Unit	Condition
RE	E4	617.5	621.5	nm	I _F =20mA
	E5	621.5	625.5		
	E6	625.5	629.5		
GB	X	520	525		
	Y	525	530		
	Z	530	535		
B7	X	465	470		
	Y	470	475		

Notes:
Tolerance of Dominant Wavelength: ±1 nm

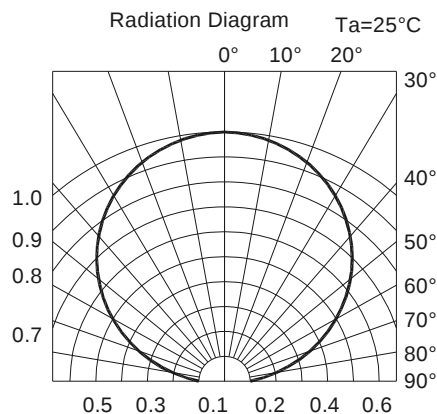
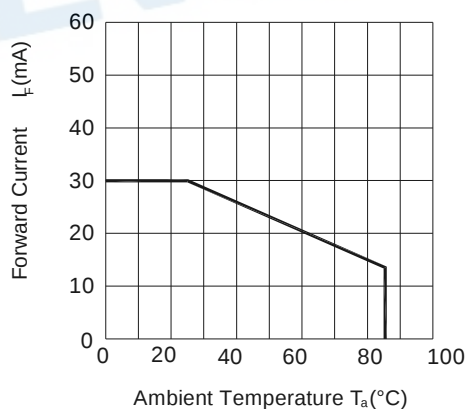
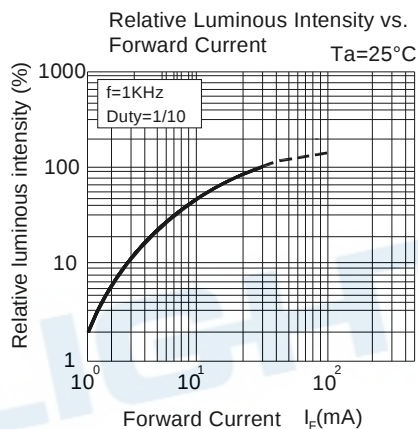
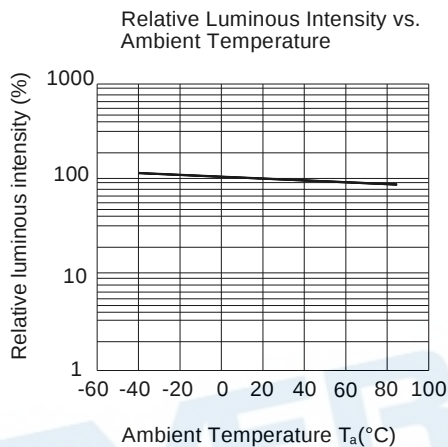
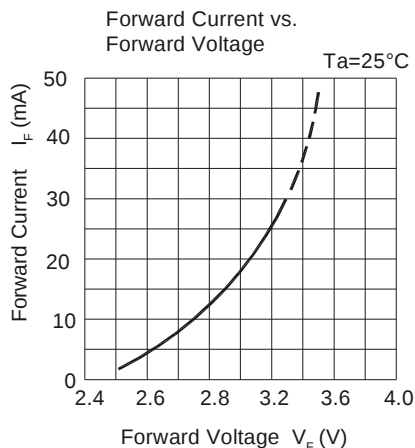
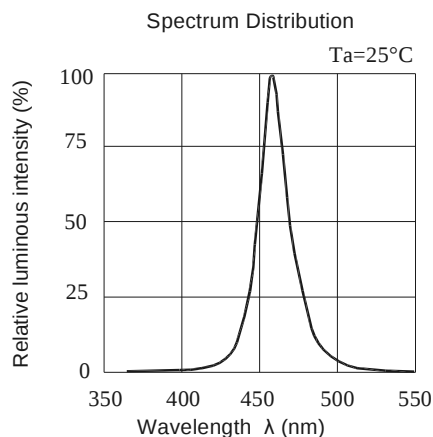
Typical Electro-Optical Characteristics Curves (RE)



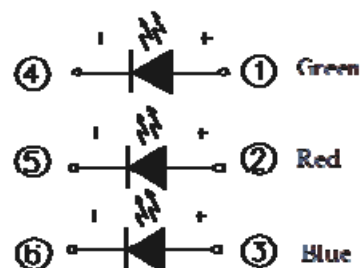
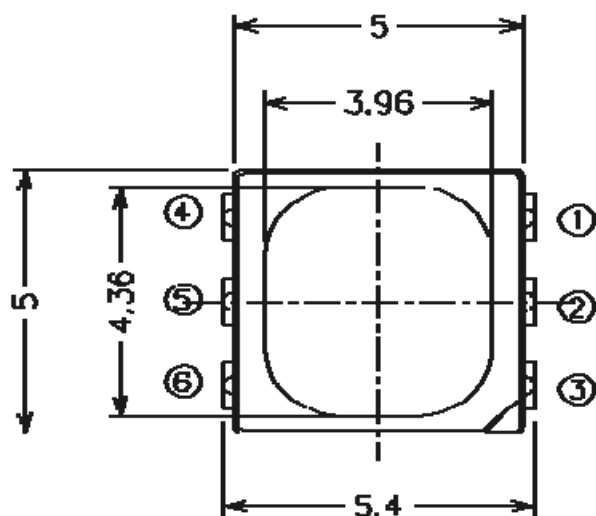
Typical Electro-Optical Characteristics Curves (GB)



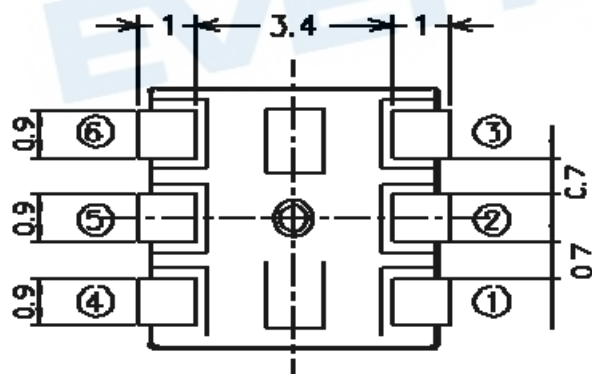
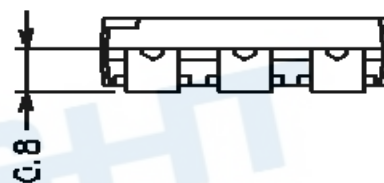
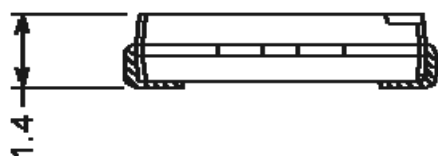
Typical Electro-Optical Characteristics Curves (B7)



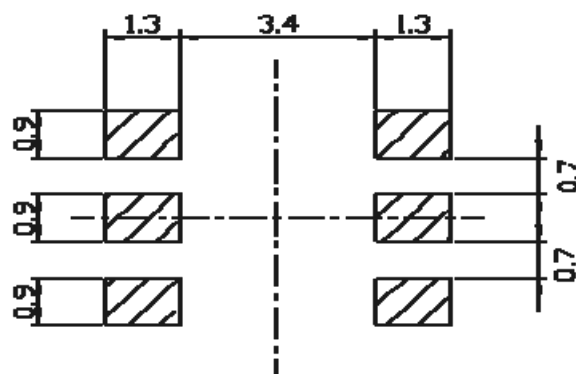
Package Dimension



Polarity



Bot. view

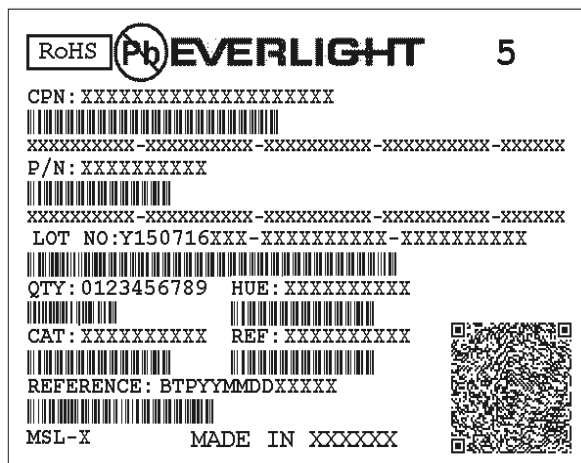


Soldering patterns

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

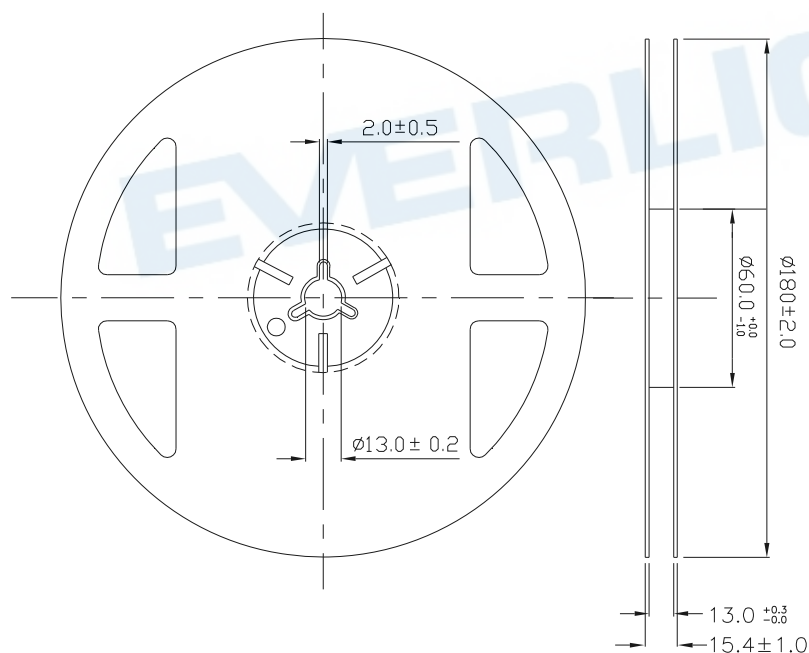
Moisture Resistant Packing Materials

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



Note:

Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

Technical drawing of a 6-pin connector. The drawing includes a top view, a side view, and a polarity diagram.

Top View Dimensions:

- Pin pitch: 2.0 ± 0.05
- Pin diameter: $\phi 1.5 + 1.0$
- Pin spacing: 4.0
- Overall width: $12.0^{+0.3}_{-0.1}$
- Port width: 5.5
- Port spacing: 5.50
- Port depth: 5.5

Side View Dimensions:

- Height: 5.5
- Total thickness: 1.950
- Pin thickness: 0.23

Polarity Diagram:

- Pin 1: Triangle with wavy line
- Pin 2: Triangle with solid line
- Pin 3: Triangle with dashed line

Progressive direction

1. Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm
2. Amount less than 800pcs can accept in bulk packing .

Diagram illustrating the packaging process for the sample. The process involves placing the sample (represented by a circular container with a label and a desiccant) inside an aluminum moisture-proof bag, which also contains a desiccant and a label.

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°C±5°C Max. 10sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	H : +100°C 15min ∫ 5 min L : -40°C 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°C	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°C / 85%RH	1000 Hrs.	22 PCS.	0/1

Precautions for Use

1. Over-current-proof

1.1 Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Moisture proof bag should only be opened immediately prior to usage.

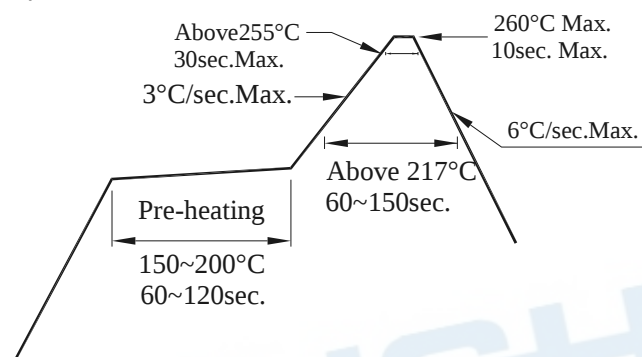
2.2 Environment should be less than 30°C and 60% RH when moisture proof bag is opened.

2.3 After opening the package MSL Conditions stated on page 1 of this spec should not be exceeded.

2.4 If the moisture sensitivity card indicates higher than acceptable moisture, the component should be baked at min. 60deg +/-5deg 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.

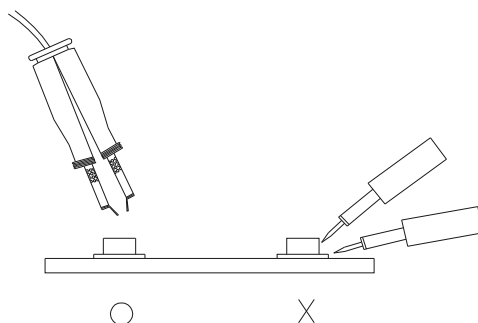
3.4 After soldering, do not warp the circuit board.

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.



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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