Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Black Surface Diffused
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:31 BD:31	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:2000 G:1000 B:1000	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	11.8		20.0	mcd	I_F=3mA
		GA	61.0		104.0		I_F=5mA
		BD	8.8		25.4		I_F=5mA
Viewing Angle	$2\theta_{1/2}$		-----	120	-----	deg	I_F=3mA I_F=5mA I_F=5mA
Peak Wavelength	Λp	R6	-----	625	-----	nm	I_F=3mA
		GA		525			I_F=5mA
		BD		465			I_F=5mA
Dominant Wavelength	Λd	R6	619		629	nm	I_F=3mA
		GA	525		530		I_F=5mA
		BD	465		470		I_F=5mA
Spectrum Radiation Bandwidth	Δλ	R6	-----	20	-----	nm	I_F=3mA
		GA		25			I_F=5mA
		BD		25			I_F=5mA
Forward Voltage	V_F	R6	1.7	2.0	2.4	V	I_F=3mA
		GA	2.5	2.9	3.2		I_F=5mA
		BD	2.5	2.9	3.2		I_F=5mA
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
RB	11.8	15.4	mcd	I_F =3mA
RD	15.4	20.0		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
R2	619.0	624.0	nm	I_F =3mA
R3	624.0	629.0		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
R1	1.7	2.4	v	I_F =3mA

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
GC	61.0	80.0	mcd	I_F =5mA
GE	80.0	104.0		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
G3	525.0	528.0	nm	I_F =5mA
G4	527.0	530.0		

Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
G1	2.5	3.2	v	I_F =5mA

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
BA	8.8	11.5	mcd	I_F =5mA
BC	11.5	15.0		
BE	15.0	19.5		
BG	19.5	25.4		

Bin Range of Dominant Wavelength

Bin Code	Min.	Max.	Unit	Condition
B3	465.0	468.0	nm	I_F =5mA
B4	467.0	470.0		

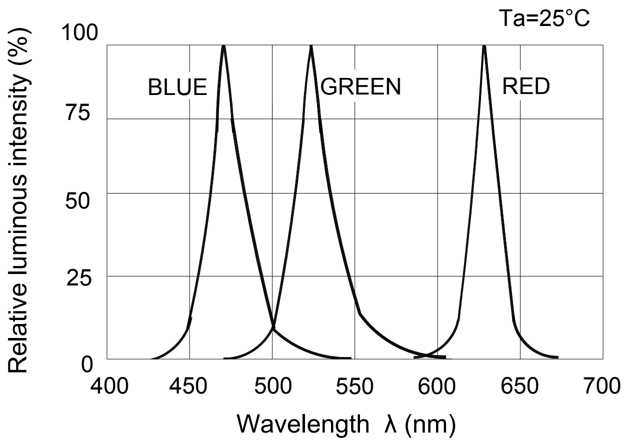
Bin Range of Dominant Voltage

Bin Code	Min.	Max.	Unit	Condition
B1	2.5	3.2	v	I_F =5mA

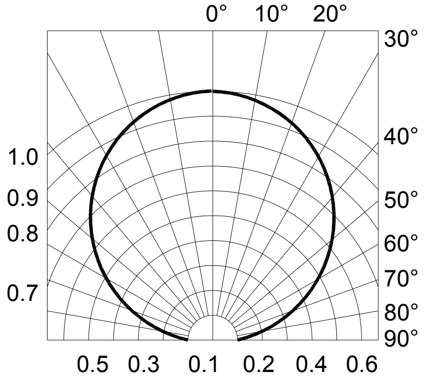
Note:
1.Tolerance of Luminous Intensity: ±10%
2.Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.01V

Typical Electro-Optical Characteristics Curves

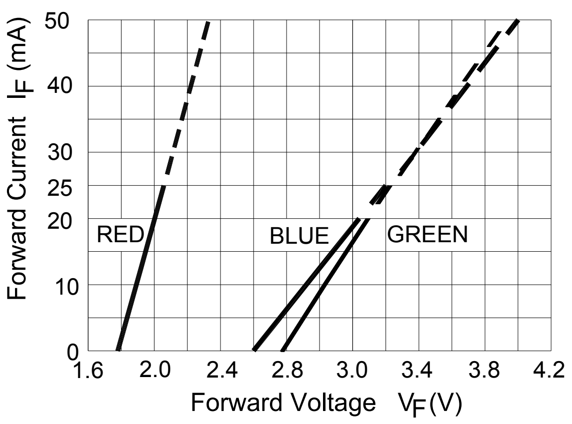
Spectrum Distribution



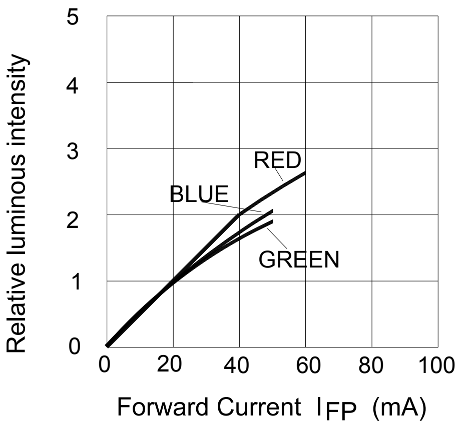
Radiation Diagram Ta=25°C



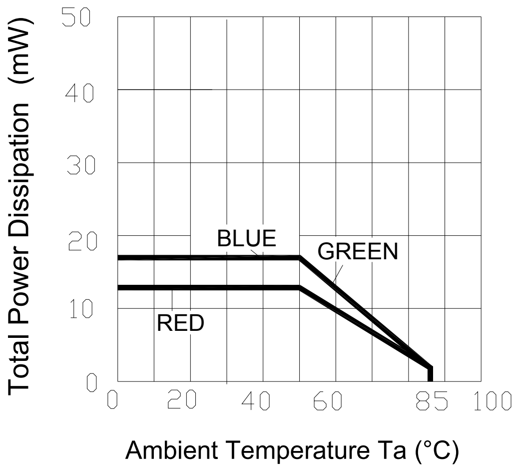
Forward Current vs.
Forward Voltage



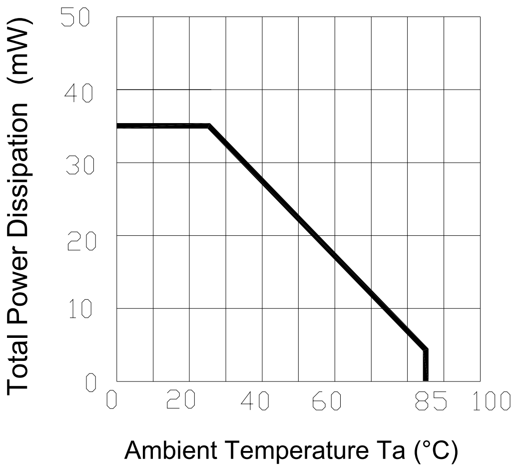
Forward Current Derating Curve



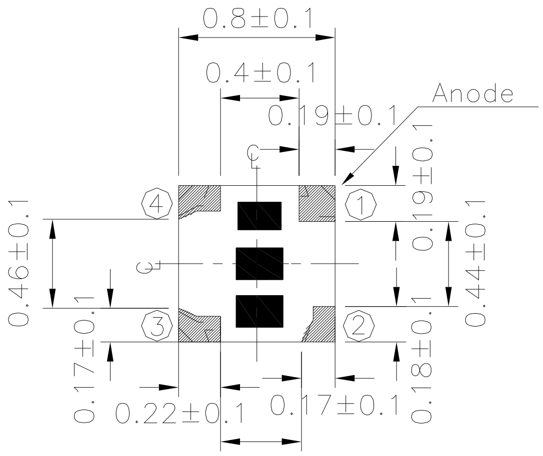
Ambient Temperature vs.
Power Dissipation



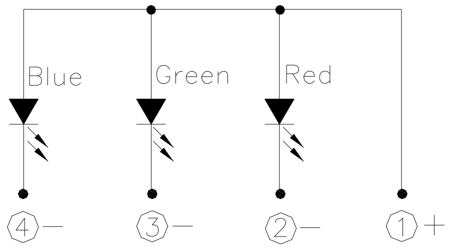
Ambient Temperature vs.
Power Dissipation



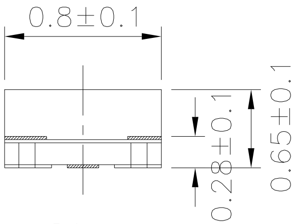
Package Dimension



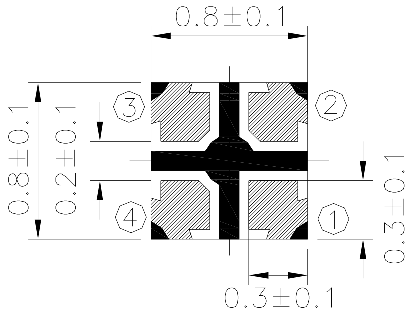
Top



Polarity

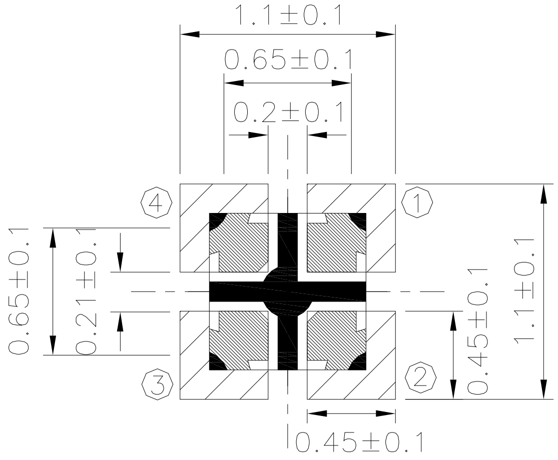


Side



Bottom

Recommend soldering pad

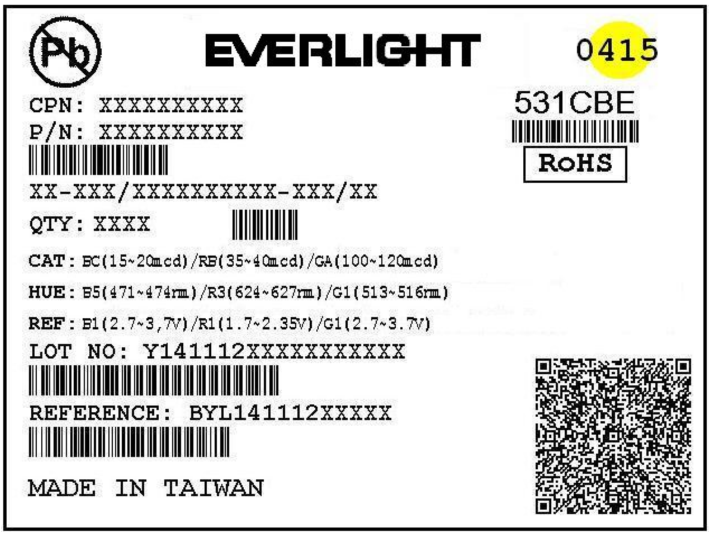


Suggested pad dimension is just for reference only.
Please modify the pad dimension based on individual need.

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

Moisture Resistant Packing Materials

Label Explanation



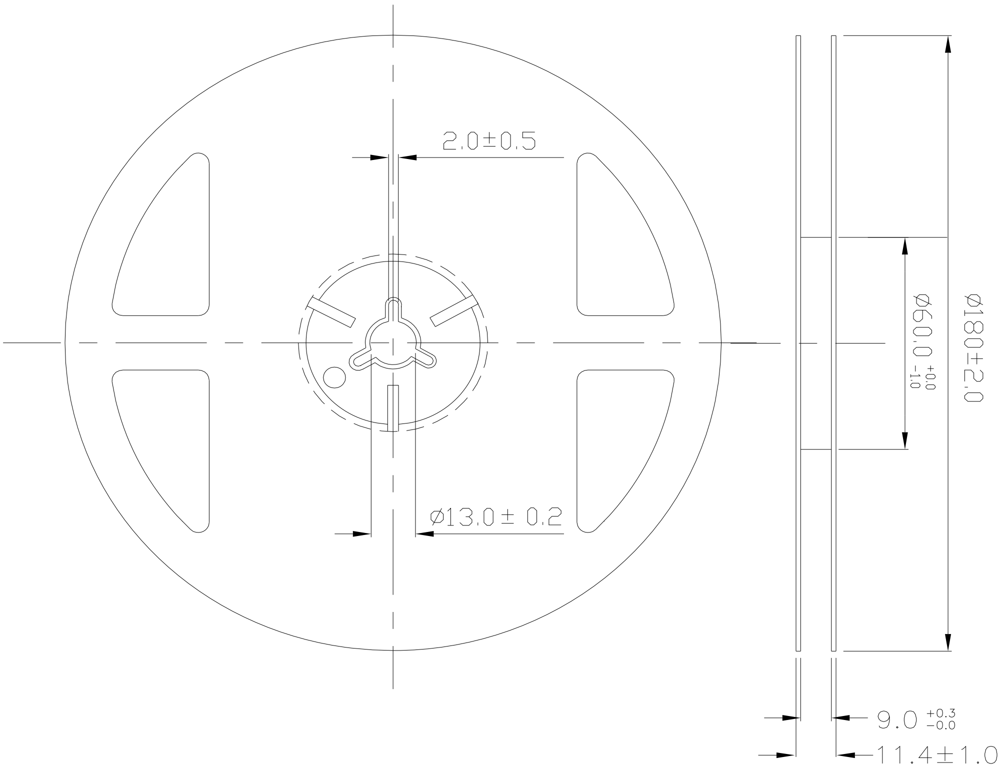
EVERLIGHT 0415

CPN: XXXXXXXXXX
P/N: XXXXXXXXXX
XX-XXX/XXXXXXXXXX-XXX/XX
QTY: XXXX
CAT: BC(15~20mcd)/RB(35~40mcd)/GA(100~120mcd)
HUE: B5(471~474nm)/R3(624~627nm)/G1(513~516nm)
REF: B1(2.7~3,7V)/R1(1.7~2.35V)/G1(2.7~3.7V)
LOT NO: Y141112XXXXXXXXXXX
REFERENCE: BYL141112XXXXX
MADE IN TAIWAN

531CBE
RoHS

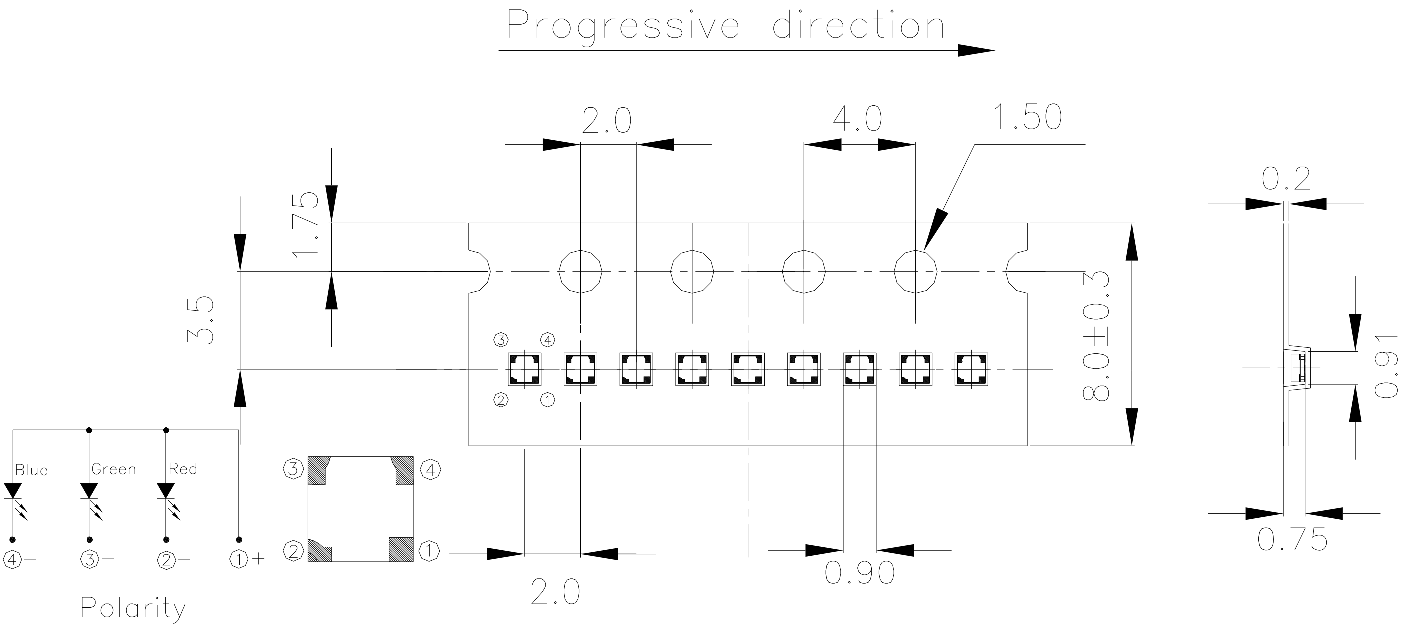
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



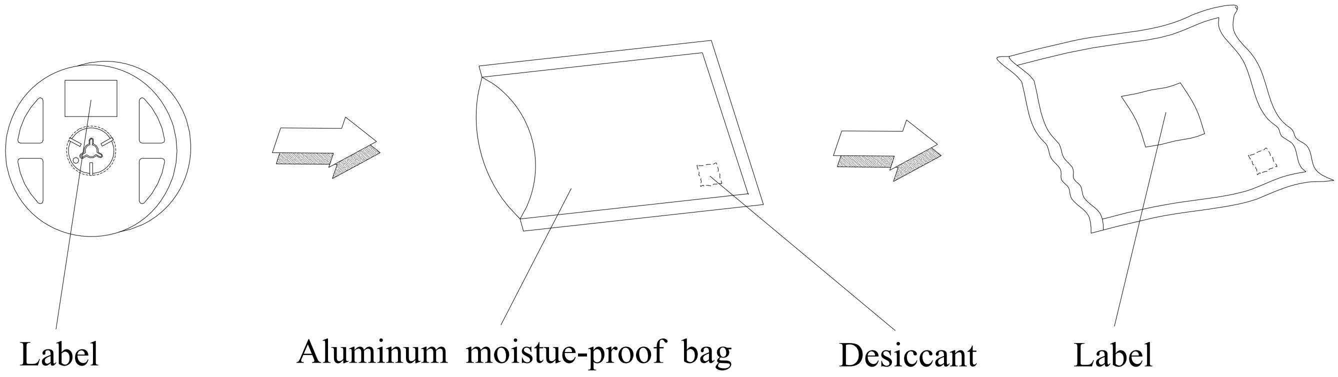
Carrier Tape Dimensions:

The minimum quantity of packing is 10000 pcs per reel. The rest quantity which could not reach 4000 pcs per reel will goes to 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.

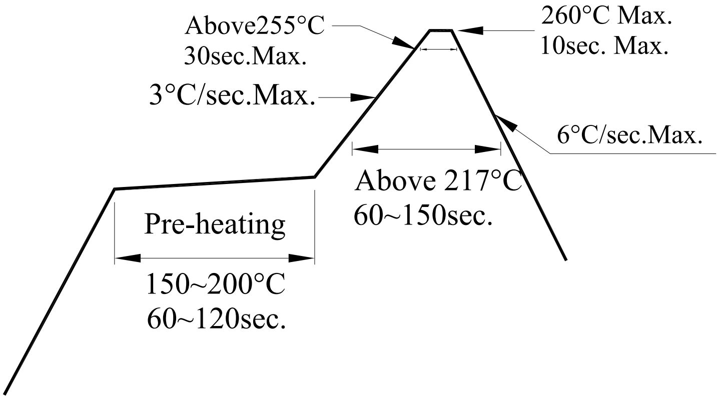
2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

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.

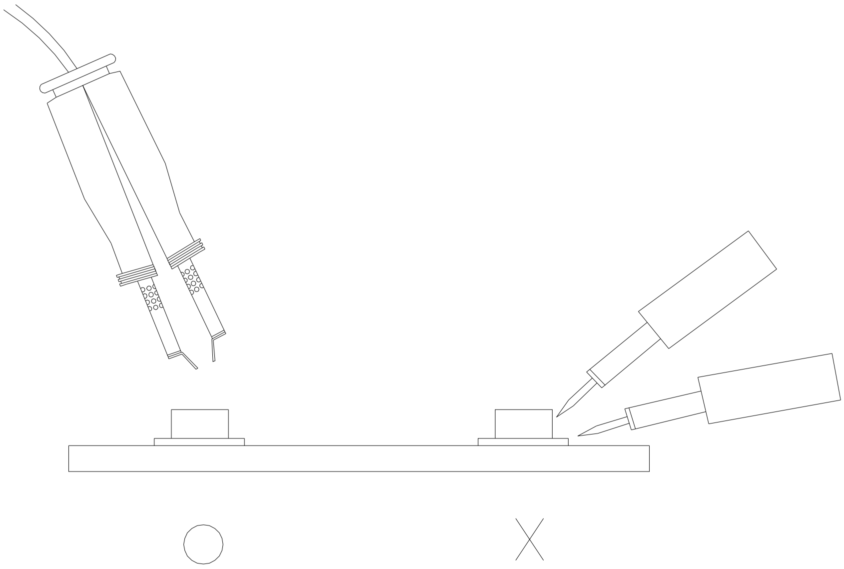
3.4 After soldering, do not warp the circuit board.

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.

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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