DATASHEET

SMD- Full Color Top View LEDs
67-23/R6GHBHC-B41/2T

Features

- P-LCC-4 package.
- White package.
- Optical indicator.
- Colorless clear window.
- Ideal for backlight and light pipe application.
- Inter reflector.
- Wide viewing angle.
- Suitable for vapor-phase reflow.
- Computable with automatic placement equipment.
- Available on tape and reel (8mm Tape).
- Pb-free.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).
- Precondition: Bases on JEDEC J-STD 020D Level 3

Applications

- Switches, symbol, mobile phone, digital camera and illuminated advertising.
- Display for indoor and outdoor application.
- Ideal for coupling into light guides.
- Substitution of traditional light.
- Amusement equipment.
- General applications.
- Optical indicator.

Device Selection Guide

Chip Code	Chip Materials	Emitted Color	Resin Color
R6	AlGaInP	Brilliant Red	Water Clear
GH	InGaN	Brilliant Green	Water Clear
BH	InGaN	Blue	Water Clear

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Code	Rating	Unit
Reverse Voltage	V_R	R6	5	V
		GH/BH		
Forward Current	I_F	R6	25	mA
		GH	25	
		BH	25	
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	R6	60	mA
		GH	100	
		BH	100	
Power Dissipation	Pd	R6	120	mW
		GH	110	
		BH	110	
Junction Temperature	T_j	115		℃
Operating Temperature	T_{opr}	-40 ~ +85		℃
Storage Temperature	Tstg	-40~ +100		℃
ESD	ESD	R6	2000	V
		GH / BH	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	112	-----	285	mcd	IF=20mA
		GH	180	-----	715		
		BH	72	-----	285		
Peak Wavelength	λp	R6	-----	632	-----	nm	IF=20mA
		GH	-----	518	-----		
		BH	-----	468	-----		
Dominant Wavelength	λd	R6	621	-----	631	nm	IF=20mA
		GH	520	-----	530		
		BH	465	-----	475		
Spectrum Radiation Bandwidth	△λ	R6	-----	20	-----	nm	IF=20mA
		GH	-----	35	-----		
		BH	-----	35	-----		
Forward Voltage	VF	R6	1.75	-----	2.35	V	IF=20mA
		GH	2.75	-----	3.65		
		BH	2.75	-----	3.65		
Viewing Angle	2θ1/2		-----	120	-----	deg	IF=20mA
Reverse Current	IR	R6	-----	-----	10	μA	VR=5V
		GH	-----	-----	50		
		BH	-----	-----	50		

Notes:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Chromaticity Coordinates: ±0.01
4. Tolerance of Forward Voltage: ±0.1V
5. All reliability item are tested under good thermal management. Dynamic reliability are tested at 20mA.
6. LED components are not supposed to be reverse operated.

Bin Range of Luminous Intensity

Chip	Bin	Min	Max	Unit	Condition
R6	R	112	180	mcd	I_F=20mA
	S	180	285		
GH	S	180	285		
	T	285	450		
	U	450	715		
BH	Q	72	112		
	R	112	180		
	S	180	285		

Note:
Tolerance of Luminous Intensity: ±11%

Bin Range of Dominant Wavelength

Chip	Bin	Min	Max	Unit	Condition
R6	FF1	621	626	nm	I_F=20mA
	FF2	626	631		
GH	X	520	525		
	Y	525	530		
BH	X	465	470		
	Y	470	475		

Note:
Tolerance of Dominant Wavelength: ±1nm

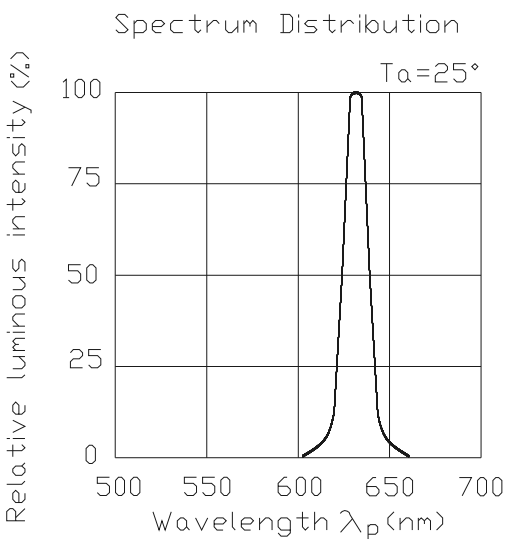
Bin Range of Forward Voltage

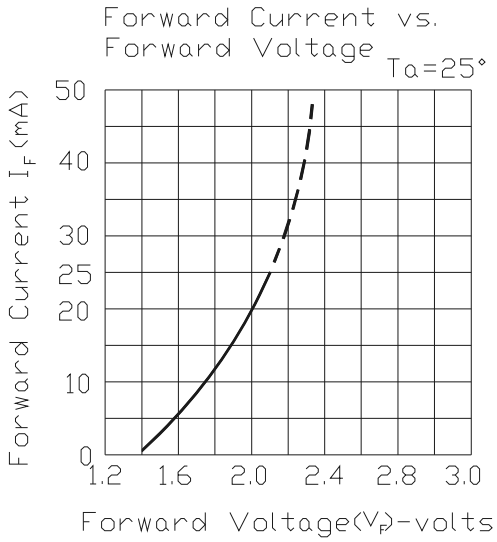
Group	Bin Code	Min.	Max.	Unit	Condition
R6	0	1.75	1.95	V	I_F=20mA
	1	1.95	2.15		
	2	2.15	2.35		
GH	5	2.75	3.05		
	6	3.05	3.35		
	7	3.35	3.65		
BH	5	2.75	3.05		
	6	3.05	3.35		
	7	3.35	3.65		

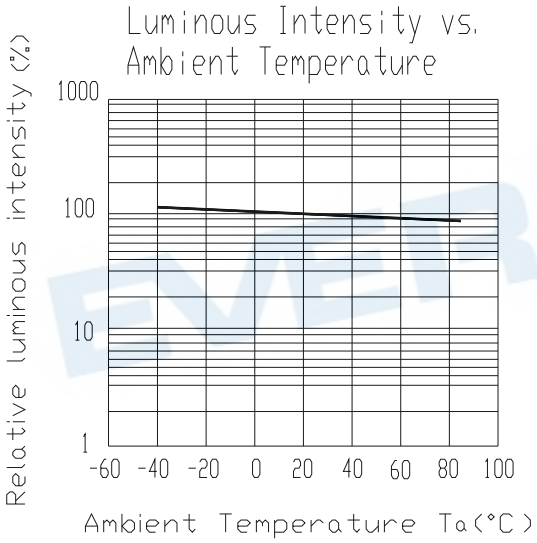
Note:

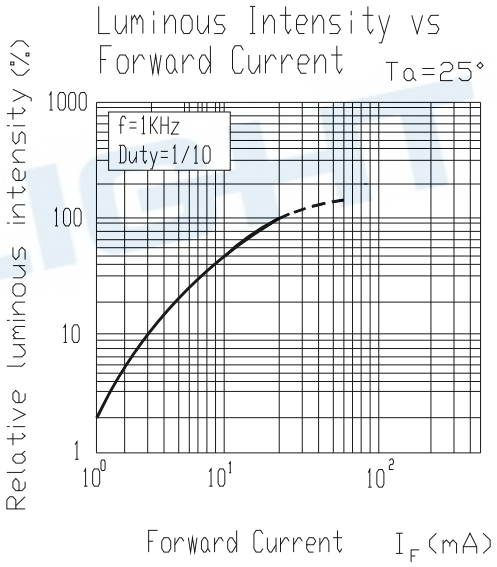
Tolerance of Forward Voltage: ±0.1V

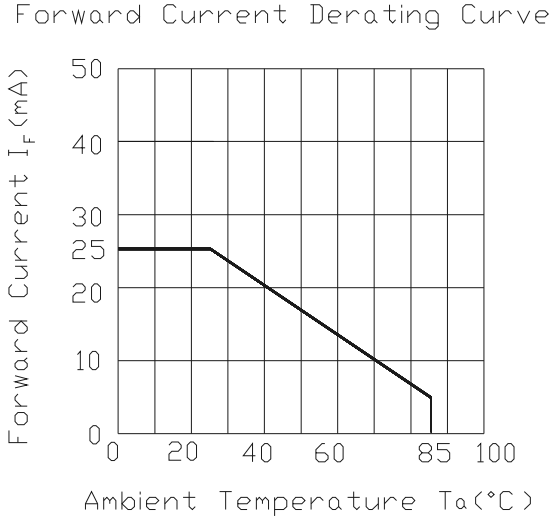
Typical Electro-Optical Characteristics Curves (R6)

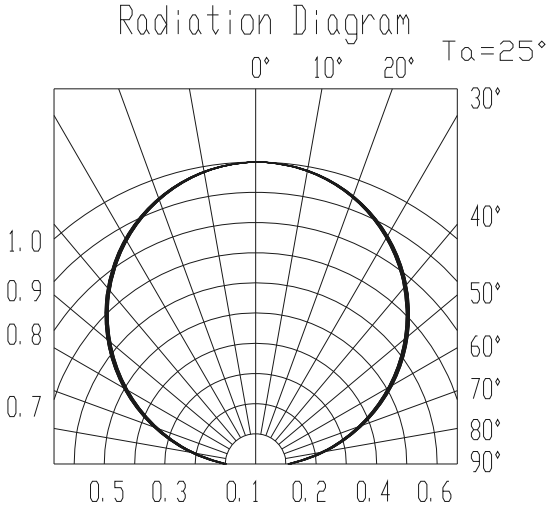




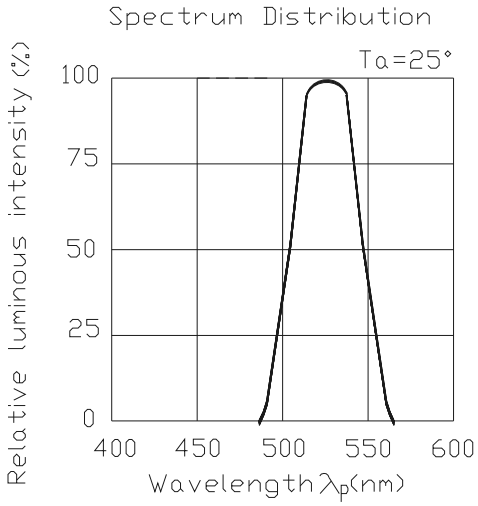


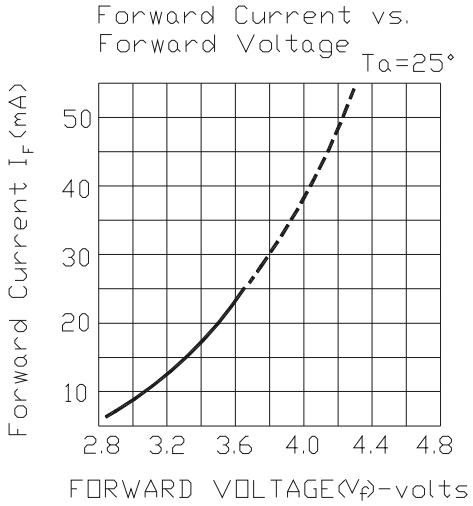


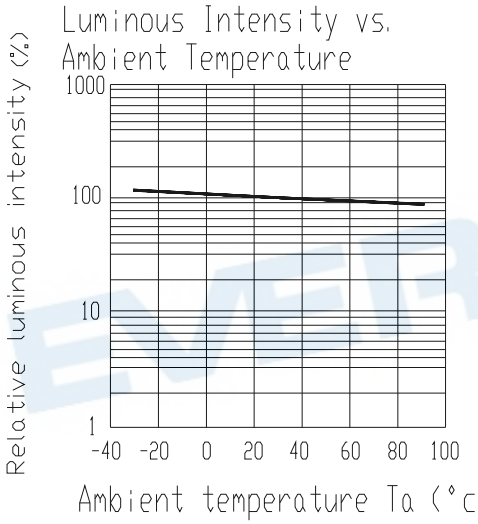


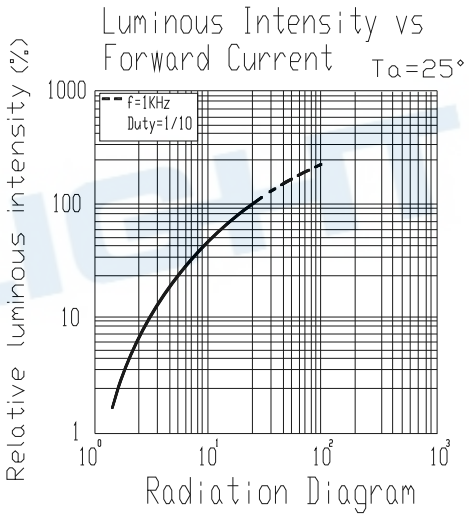


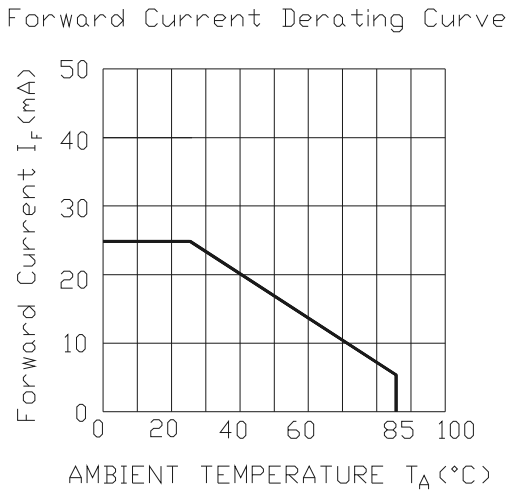
Typical Electro-Optical Characteristics Curves (GH)

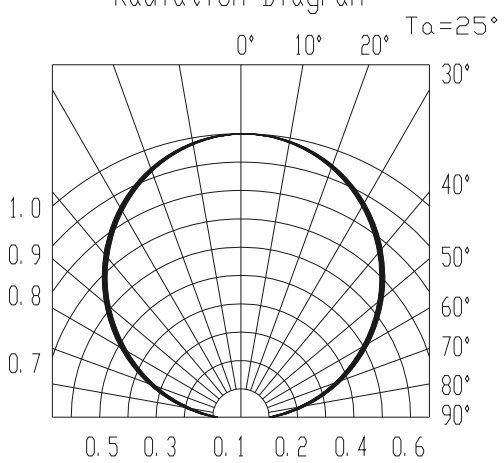




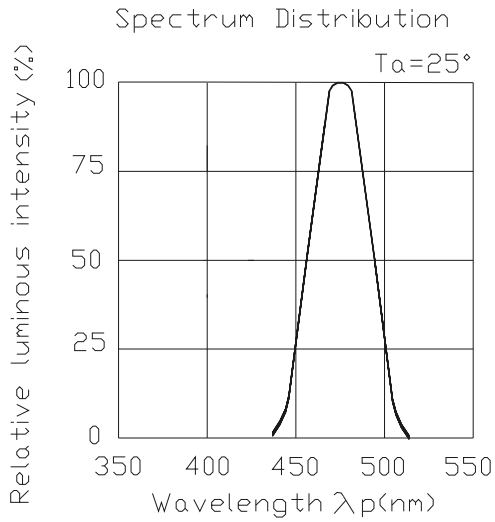


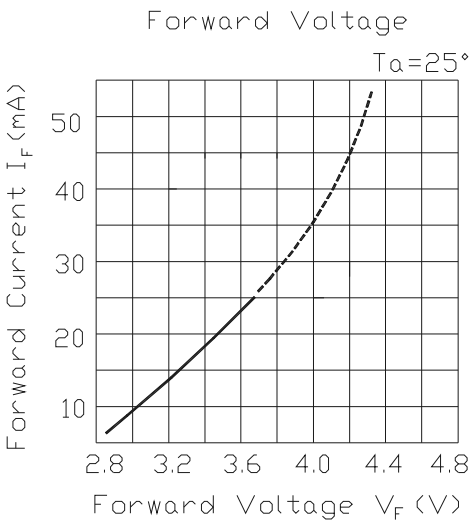


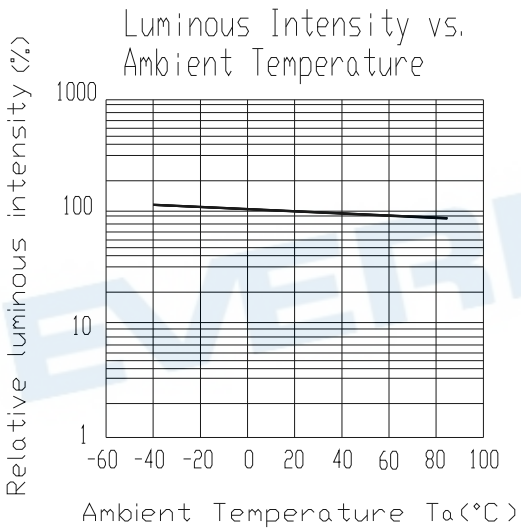


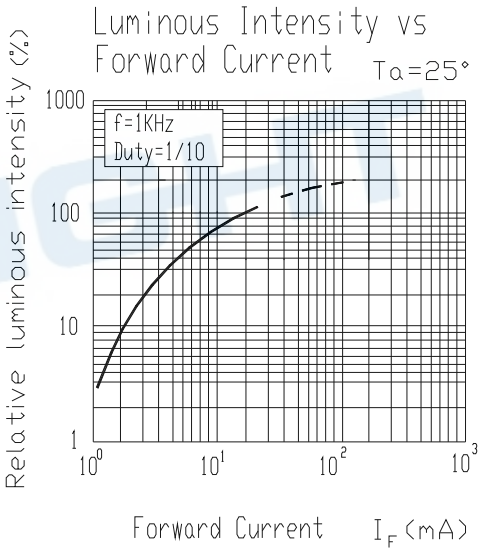


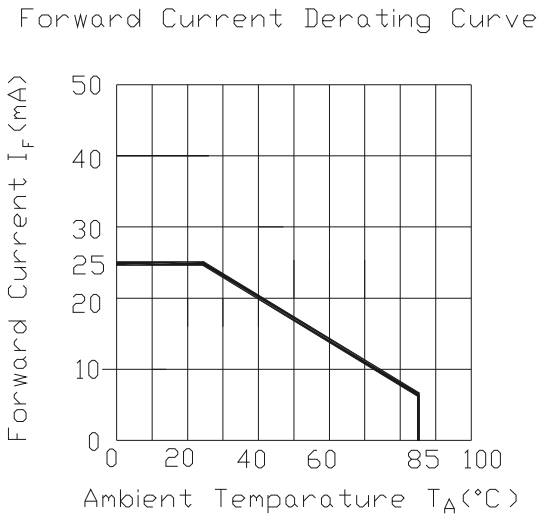
Typical Electro-Optical Characteristics Curves (BH)

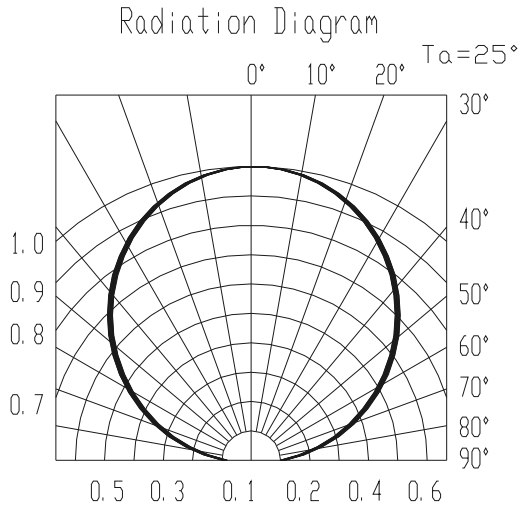




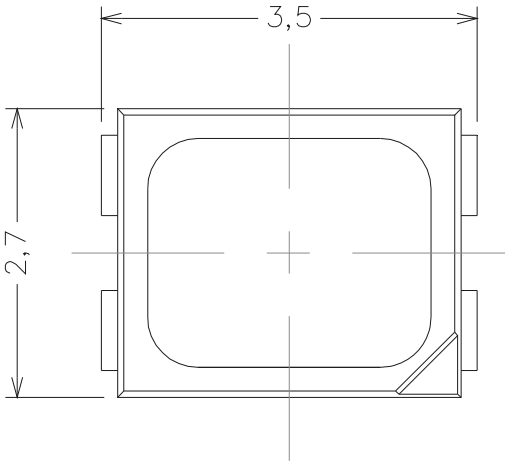


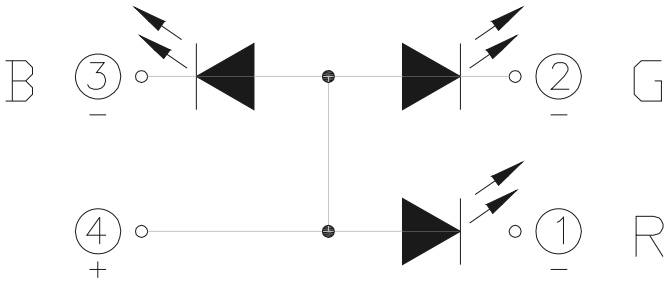


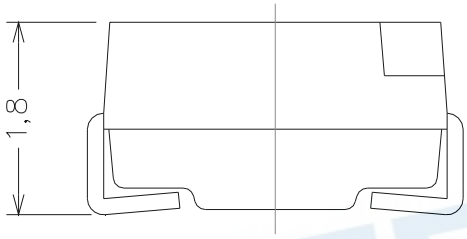


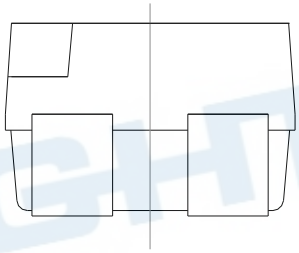


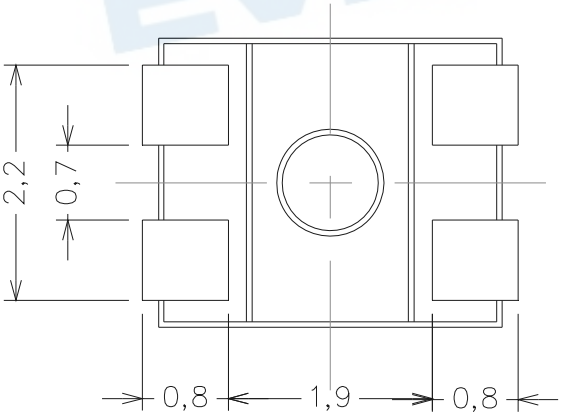
Package Dimension



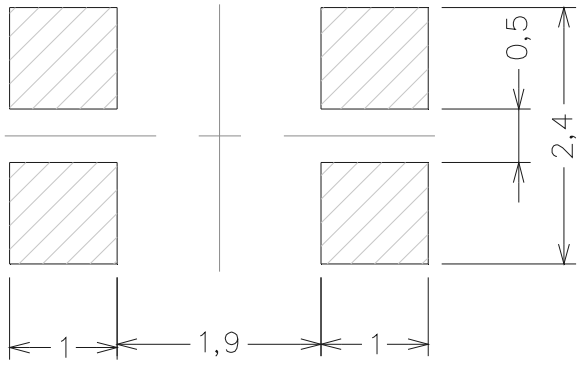








Bot. view



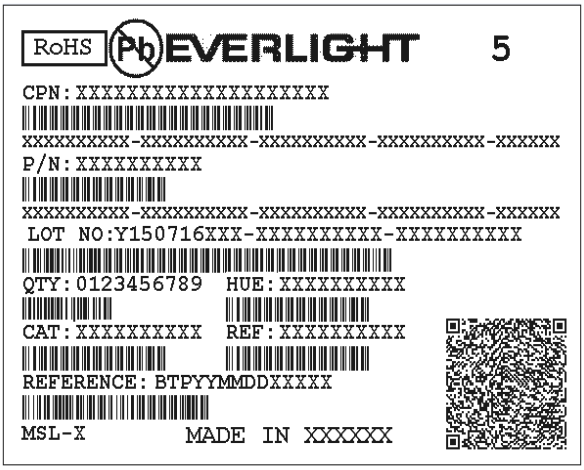
Soldering patterns

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

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

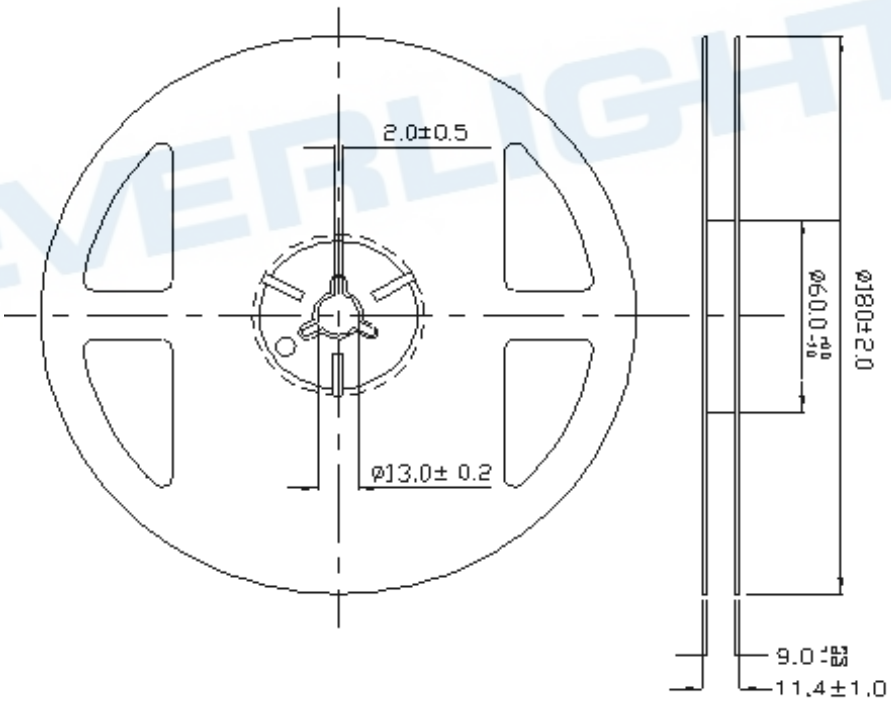
Moisture Resistant Packing Materials

Label Explanation

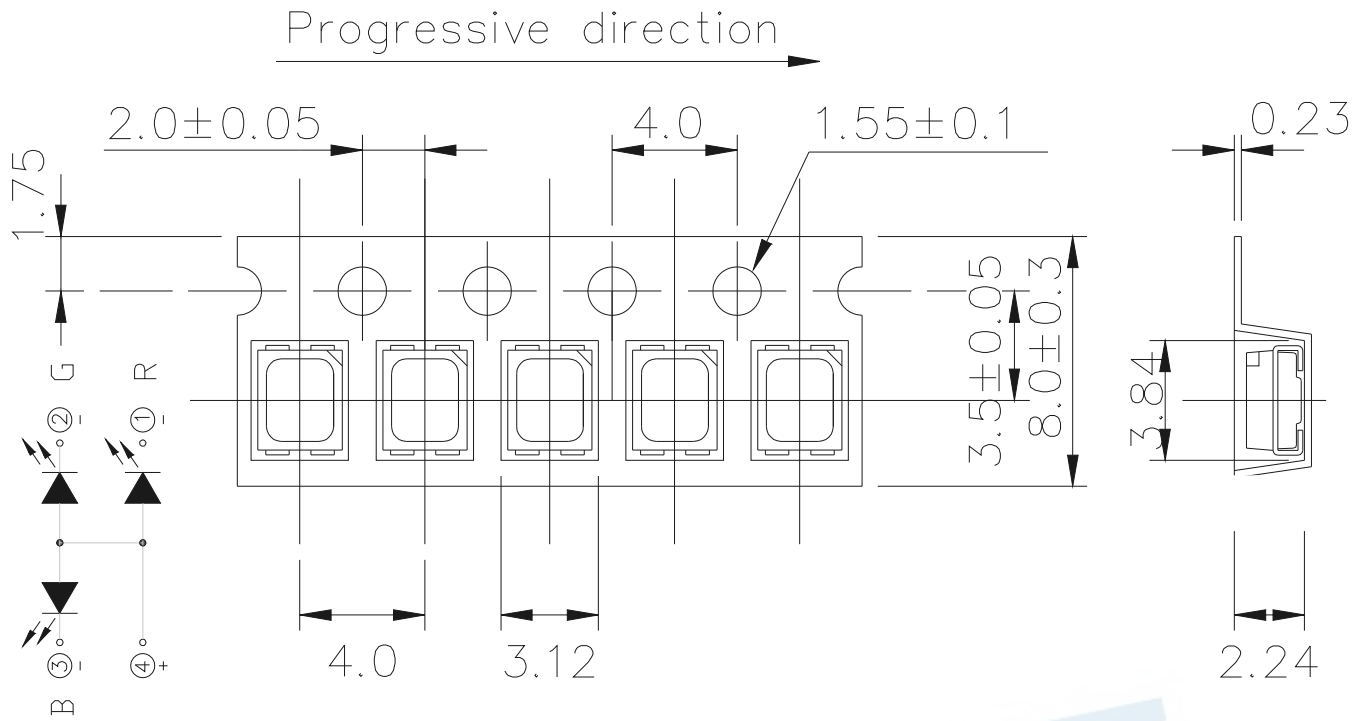


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

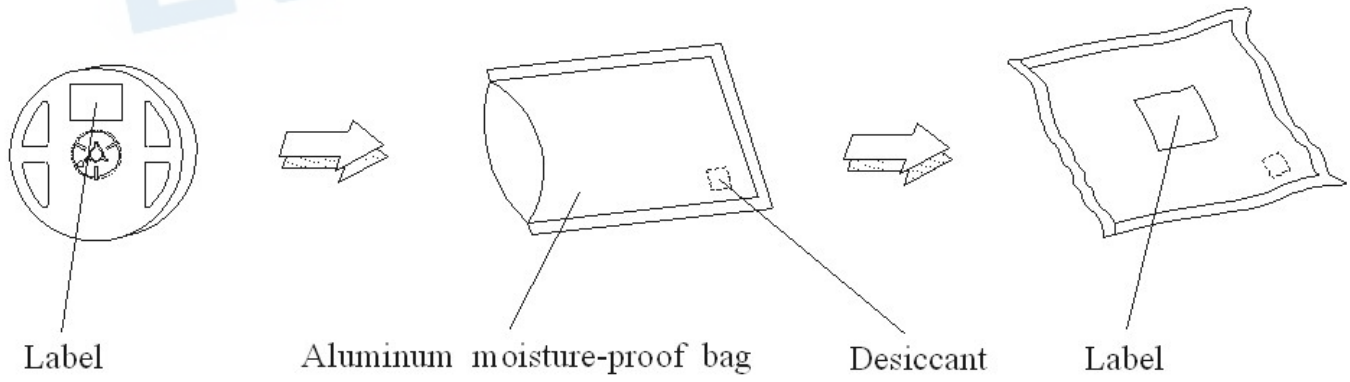


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

Moisture Resistant Packing Process

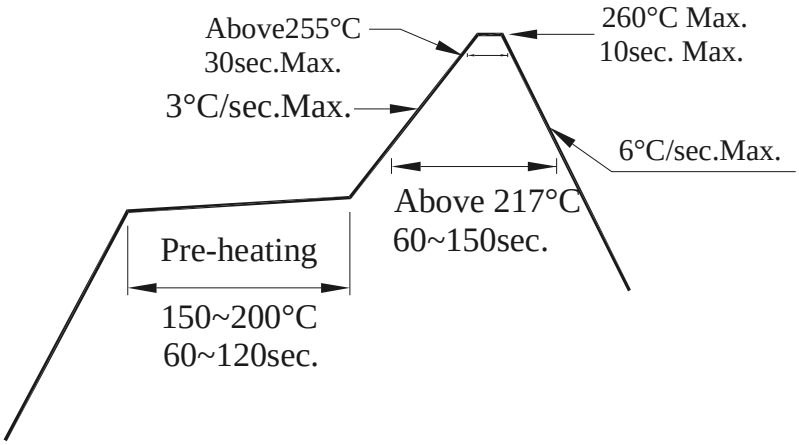


Note: Tolerances unless mentioned ±0.1mm. Unit = mm

Precautions for Use

1. Over-current-proof

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℃ 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

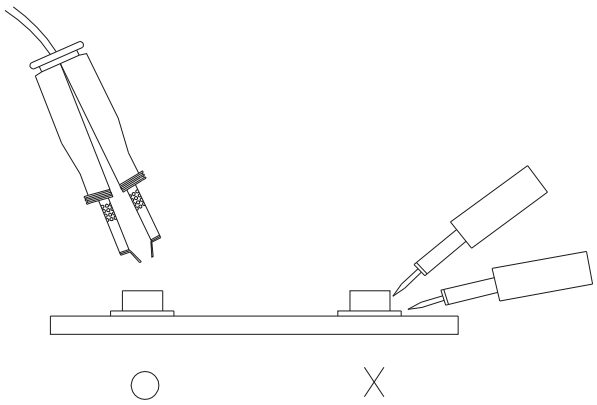
3.1 Pb-free solder temperature profile
3.2 Reflow soldering should not be done more than two times.
3.3 When soldering, do not put stress on the LEDs during heating.
3.4 After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350℃ 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.



ESD Precaution

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the Anti-static bag. Electro-Static Sensitive Devices warning labels are on the packing.

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 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.

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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6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.