

Full Color Side View LEDs (Height 0.8mm) 99-235-RSHBOGSC-A20-2H-CS



Features

- Inner reflector and white package.
- Built in 3 LED chips.
- Colorless clear resin.
- Wide viewing angle 120°.
- Ideal for backlight and light pipe application.
- White SMT package.
- Soldering methods: IR reflow soldering.
- 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

Type	Chip Materials	Emitted Color	Resin Color
RSH	AlGaInP	Brilliant Red	Water Clear
GS	InGaN	Brilliant Green	Water Clear
BO	InGaN	Brilliant Blue	Water Clear

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	RSH	30
		GS	30
		BO	30
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	RSH	60
		GS	60
		BO	60
Power Dissipation	P_d	RSH	81
		GS	111
		BO	111
Junction Temperature	T_j	115	°C
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
ESD	ESD_{HBM}	RSH	2000
		GS	500
		BO	500
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	RSH	560	-----	1400	mcd	R:I _F =20mA G:I _F =20mA B:I _F =20mA
		GS	1120	-----	2800		
		BO	224	-----	560		
Viewing Angle	2θ _{1/2}		-----	120	-----	deg	R:I _F =20mA G:I _F =20mA B:I _F =20mA
Peak Wavelength	λ _p	RSH	-----	630	-----	nm	R:I _F =20mA G:I _F =20mA B:I _F =20mA
		GS	-----	515	-----		
		BO	-----	465	-----		
Dominant Wavelength	λ _d	RSH	617.5	-----	629.5	nm	R:I _F =20mA G:I _F =20mA B:I _F =20mA
		GS	515	-----	530		
		BO	464.5	-----	473.5		
Spectrum Radiation Bandwidth	Δλ	RSH	-----	20	-----	nm	R:I _F =20mA G:I _F =20mA B:I _F =20mA
		GS	-----	31	-----		
		BO	-----	20	-----		
Forward Voltage	V _F	RSH	1.70	-----	2.70	V	R:I _F =20mA G:I _F =20mA B:I _F =20mA
		GS	2.70	-----	3.70		
		BO	2.70	-----	3.70		
Reverse Current	I _R		-----	-----	10	μA	V _R =5V

Notes:

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

Bin Range of Luminous Intensity

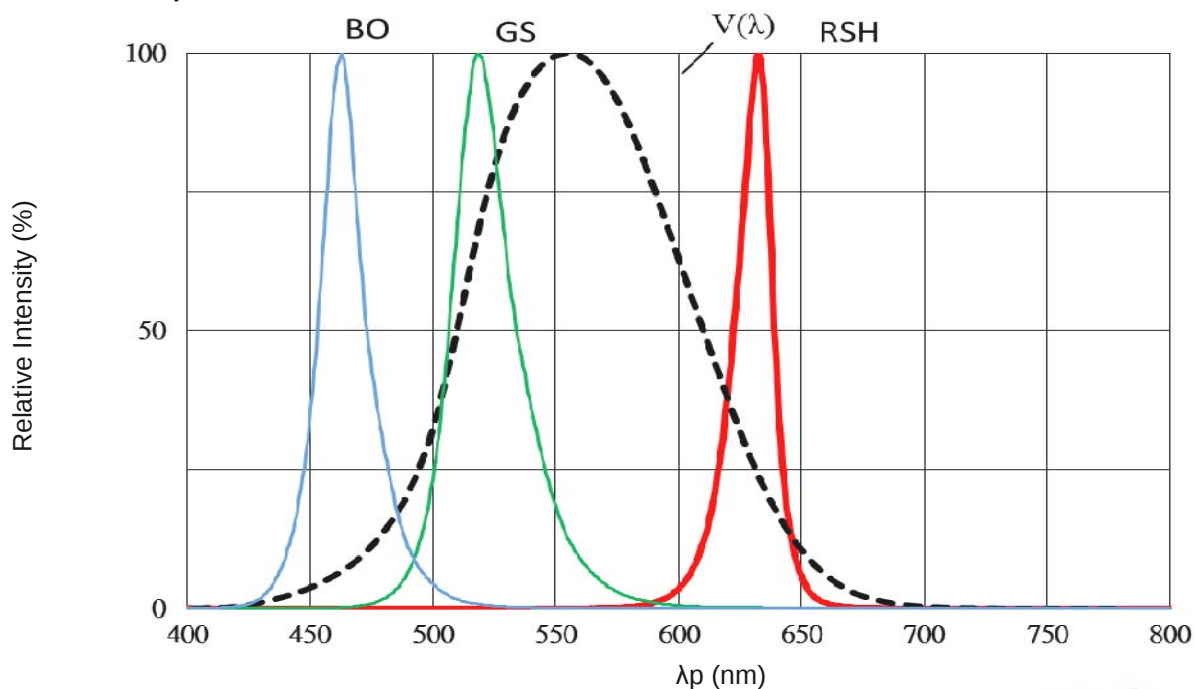
Chip	Bin Code	Min.	Max.	Unit	Condition
RSH	U2	560	710	mcd	R:IF=20mA G:IF=20mA B:IF=20mA
	V1	710	900		
	V2	900	1120		
	AA	1120	1400		
GS	AA	1120	1400		
	AB	1400	1800		
	BA	1800	2240		
	BB	2240	2800		
BO	S2	224	280		
	T1	280	355		
	T2	355	450		
	U1	450	560		

Note:
Tolerance of Luminous Intensity: $\pm 11\%$

EVERLIGHT

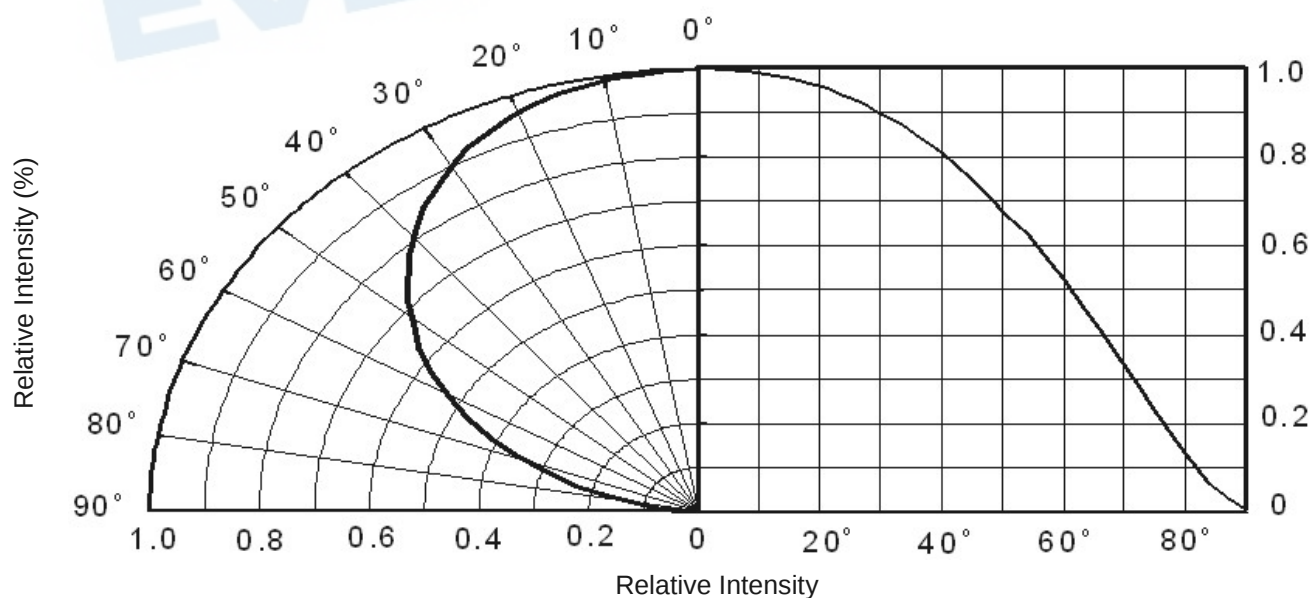
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



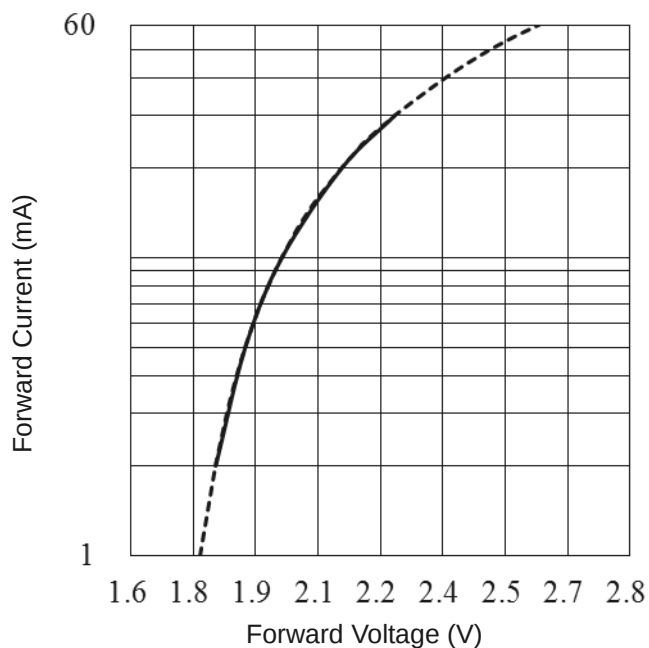
Note: $V(\lambda)$ =Standard eye response curve;

Diagram Characteristics of Radiation

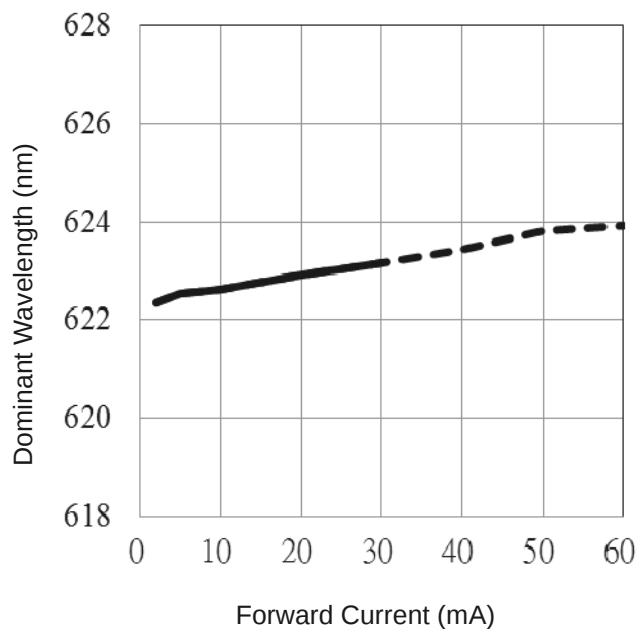


Typical Electro-Optical Characteristics Curves (RQH)

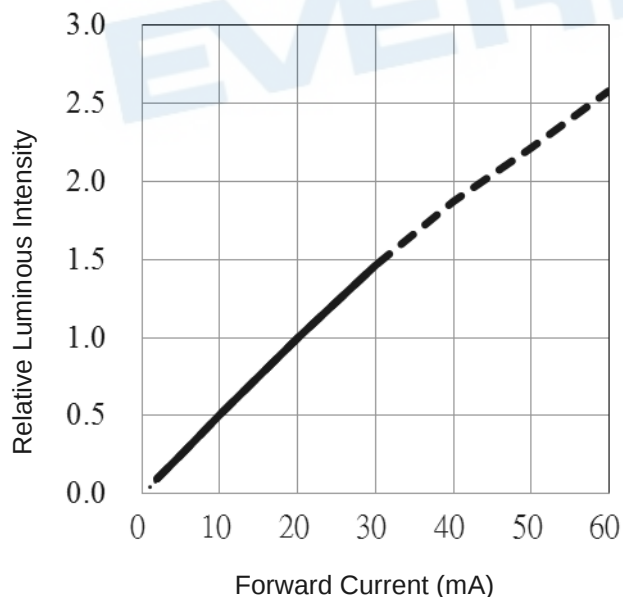
Forward Current vs. Forward Voltage (Ta=25°C)



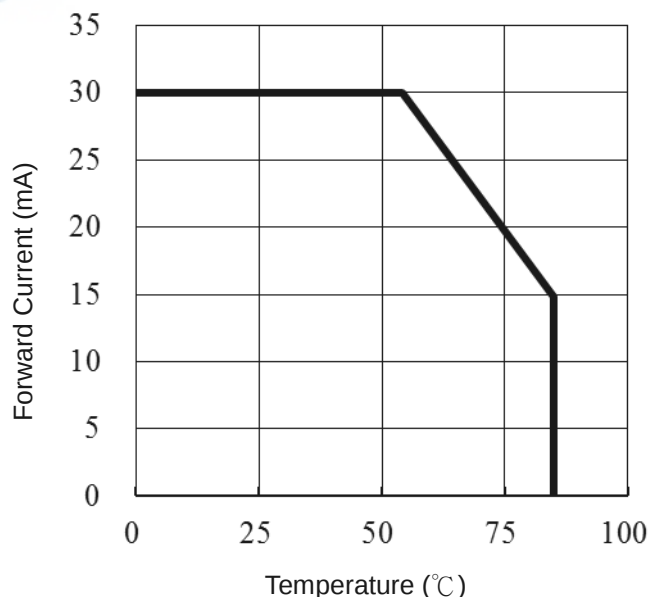
Dominant Wavelength vs. Forward Current (Ta=25°C)



Relative Luminous Intensity vs. Forward Current (Ta=25°C)

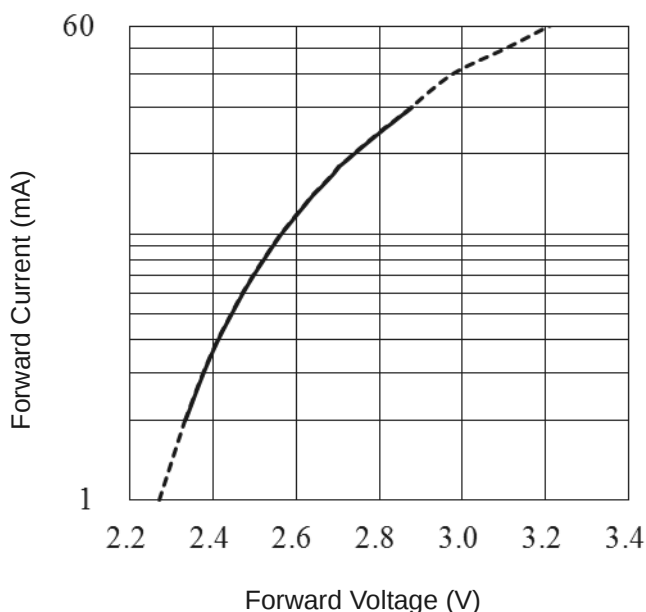


Max. Permissible Forwarded Current (Ta=25°C)

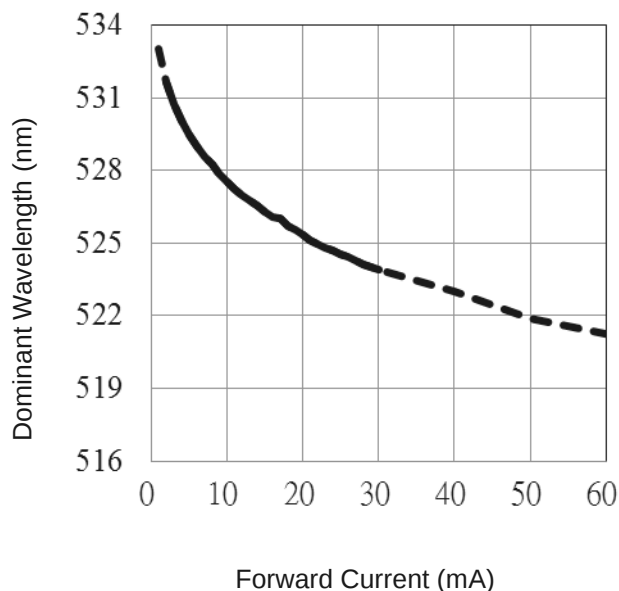


Typical Electro-Optical Characteristics Curves (GT)

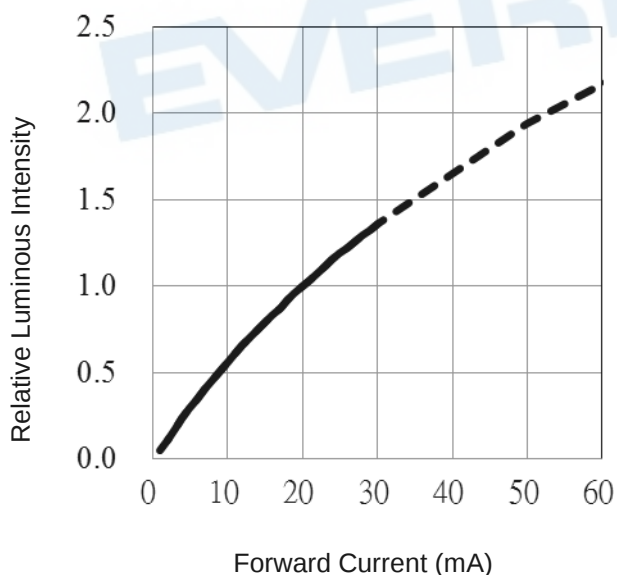
Forward Current vs. Forward Voltage (Ta=25°C)



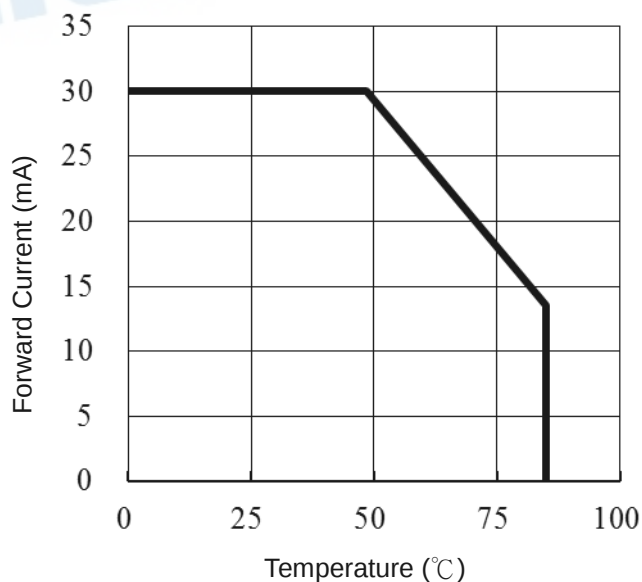
Dominant Wavelength vs. Forward Current (Ta=25°C)



Relative Luminous Intensity vs. Forward Current (Ta=25°C)

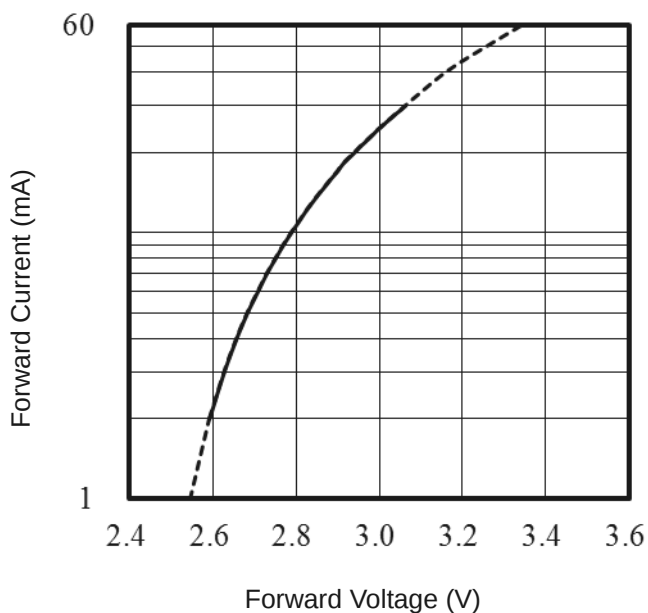


Max. Permissible Forwarded Current (Ta=25°C)

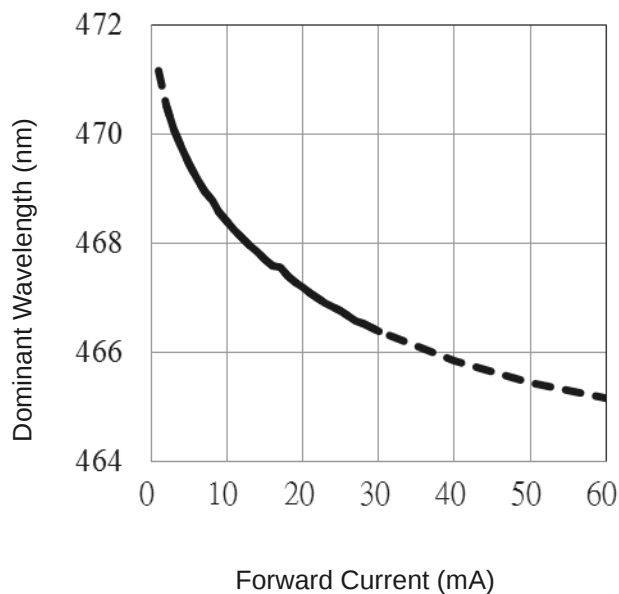


Typical Electro-Optical Characteristics Curves (BZ)

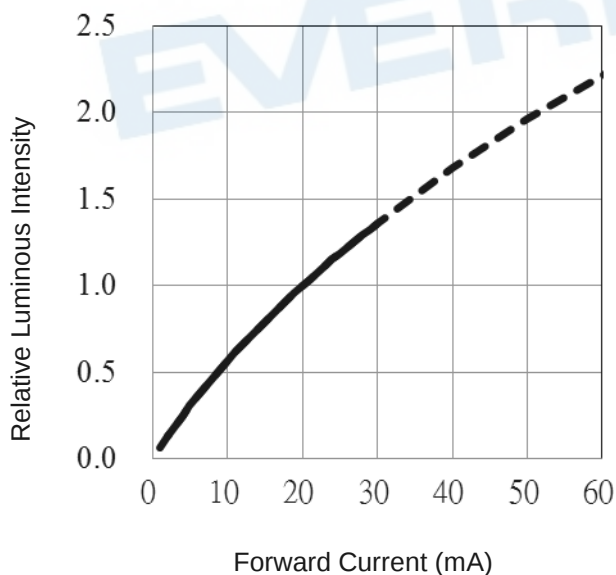
Forward Current vs. Forward Voltage (Ta=25°C)



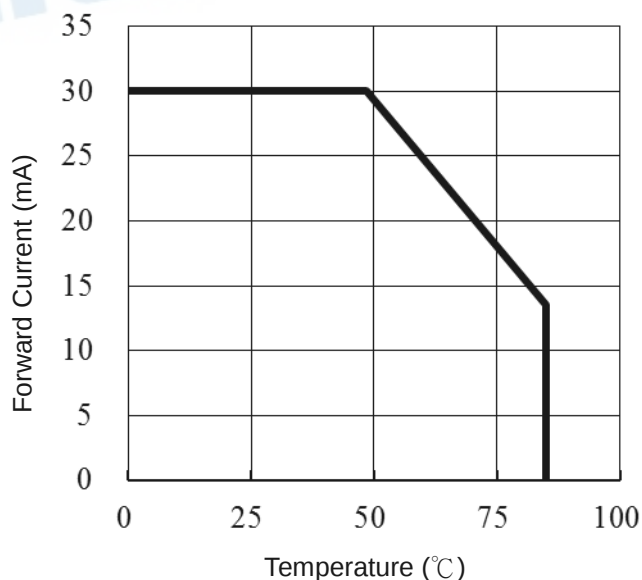
Dominant Wavelength vs. Forward Current (Ta=25°C)



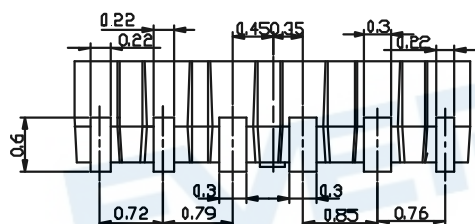
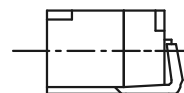
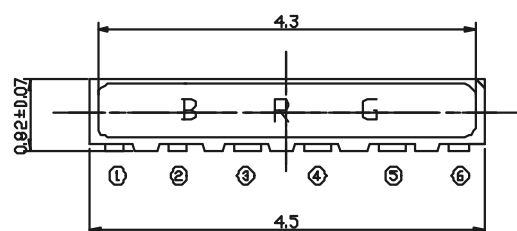
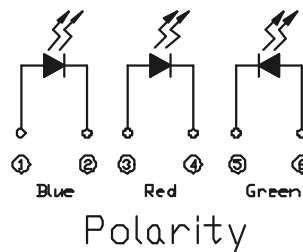
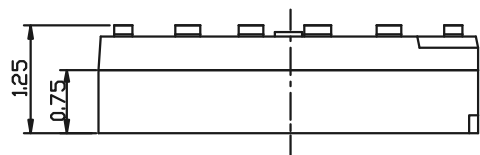
Relative Luminous Intensity vs. Forward Current (Ta=25°C)



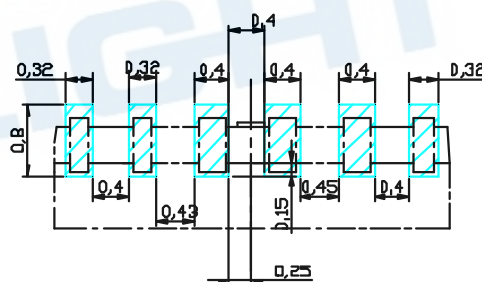
Max. Permissible Forwarded Current (Ta=25°C)



Package Dimension



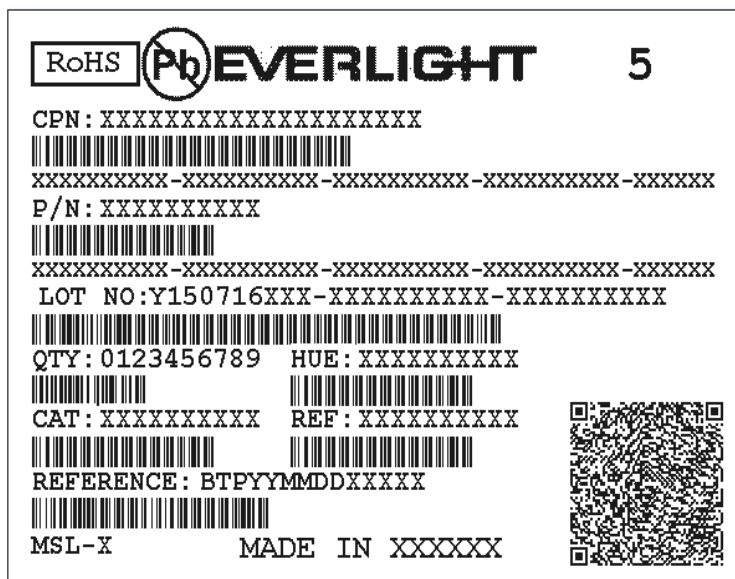
Recommended soldering pad design



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

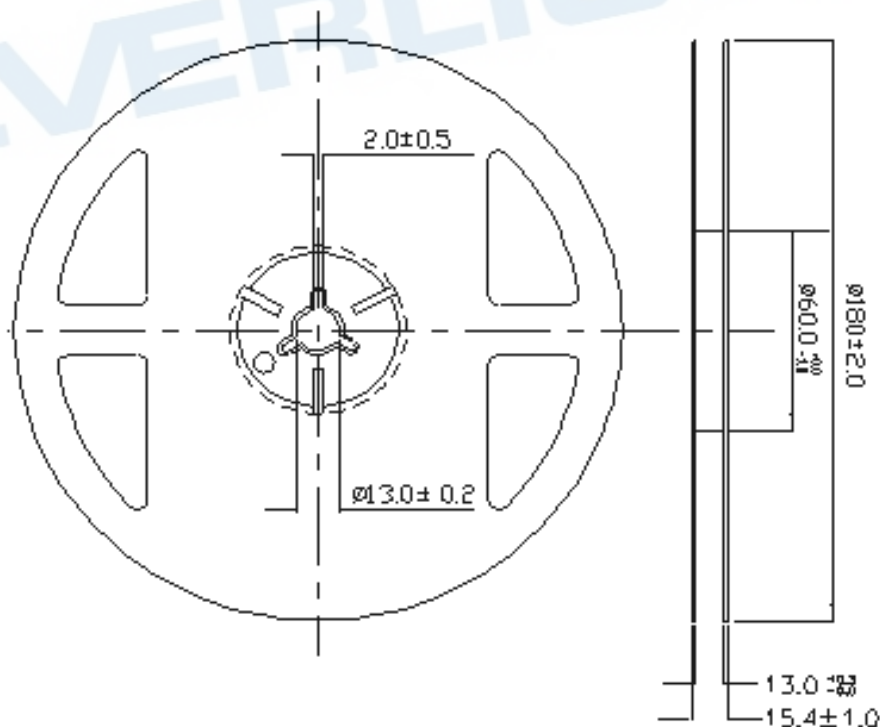
Moisture Resistant Packing Materials

Label Explanation

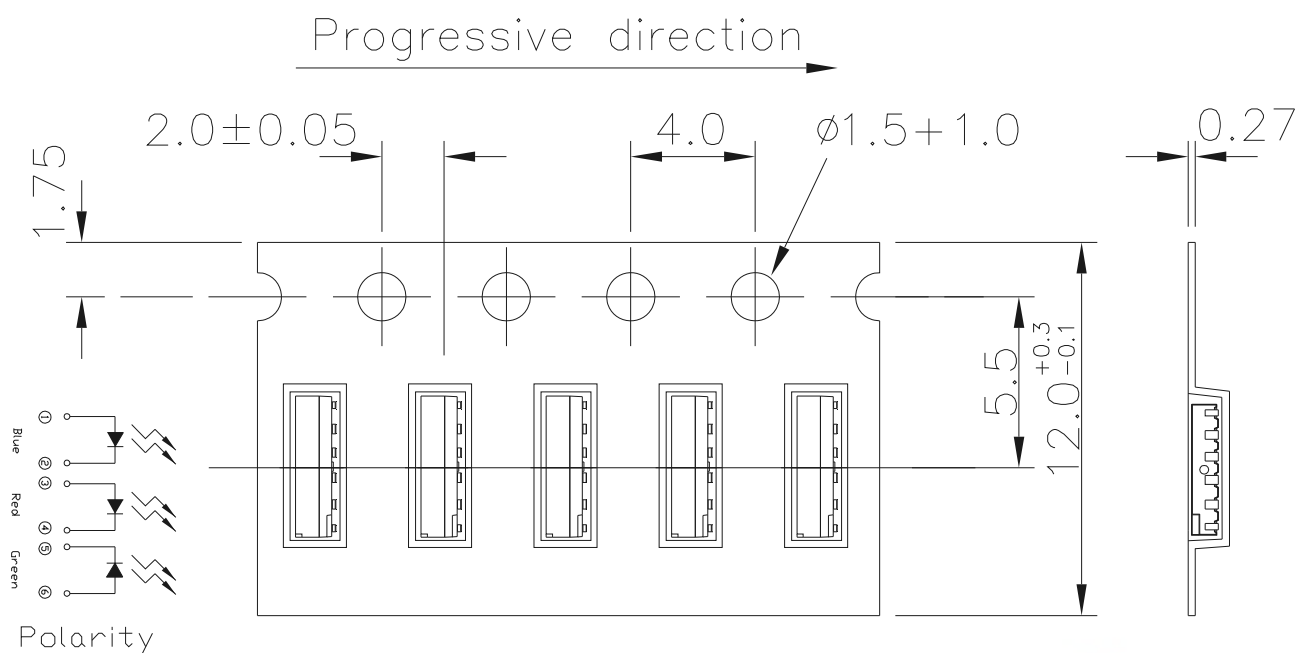


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

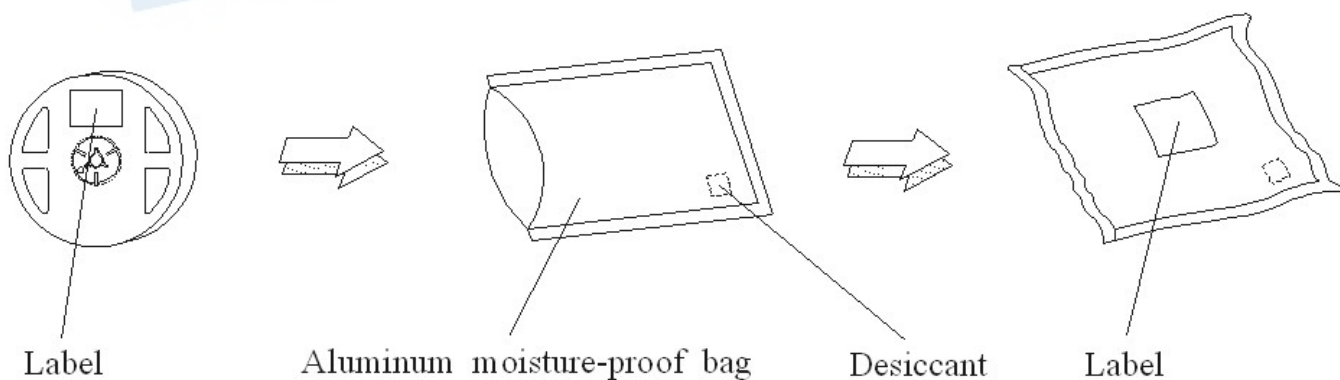


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



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

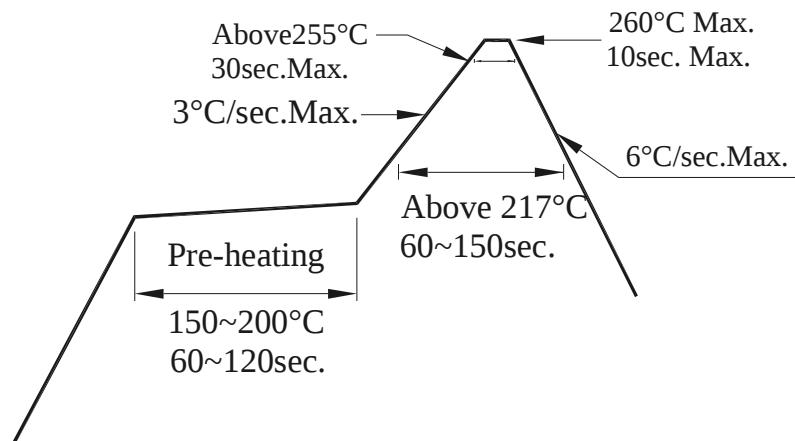
Moisture Resistant Packing Process



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.

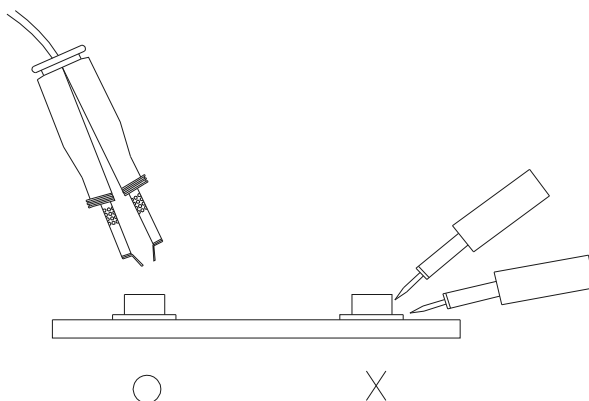
3.4 After soldering, do not warp the circuit board.

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.



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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