

SMD-Luminosity Full Color LEDs 67-135-BYGRRTNW-M101520-2T8-CS



Features

- . Colorless clear resin.
- . White SMT package.
- . Built in 3 LED chips.
- . Lead frame package with individual 6 pins.
- . Wide viewing angle.
- . Soldering methods: Reflow soldering.
- . High performance.
- . 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

Description

Due to the package design, 67-235 has wide viewing angle, low power consumption and high luminous intensity. This feature makes it ideal for light pipe or lighting application.

Applications

- . Amusement equipment.
- . Information boards.
- . Flashlight for digital camera of cellular phone.
- . Lighting for small size device.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Red	White Diffuser
InGaN	Green	White Diffuser
InGaN	Blue	White Diffuser

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	I _F	BY	30
		GR	30
		RTN	30
Peak Forward Current (Duty 1/10 @1KHz)	I _{FP}	BY	60
		GR	60
		RTN	60
Power Dissipation	P _d	BY	102 mW
		GR	102 mW
		RTN	82 mW
Junction Temperature	T _j	115	°C
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
ESD		2000	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	BY	140	-----	355	mcd B:I _F =10mA G:I _F =15mA R:I _F =20mA
		GR	900	-----	2240	
		RTN	450	-----	1120	
		Mix	1400	-----	3550	
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	B:I _F =10mA G:I _F =15mA R:I _F =20mA
Peak Wavelength	λ _p	BY	-----	460	-----	nm B:I _F =10mA G:I _F =15mA R:I _F =20mA
		GR	-----	520	-----	
		RTN	-----	630	-----	
Dominant Wavelength	λ _d	BY	460	-----	475	nm B:I _F =10mA G:I _F =15mA R:I _F =20mA
		GR	520	-----	535	
		RTN	617.5	-----	629.5	
Spectrum Radiation Bandwidth	Δλ	BY	-----	23	-----	nm B:I _F =10mA G:I _F =15mA R:I _F =20mA
		GR	-----	30	-----	
		RTN	-----	18	-----	
Forward Voltage	V _F	BY	2.40	-----	3.40	V B:I _F =10mA G:I _F =15mA R:I _F =20mA
		GR	2.40	-----	3.40	
		RTN	1.75	-----	2.75	
Zener	V _Z	5.30	-----	7.00	V	I _Z =5mA

Note:

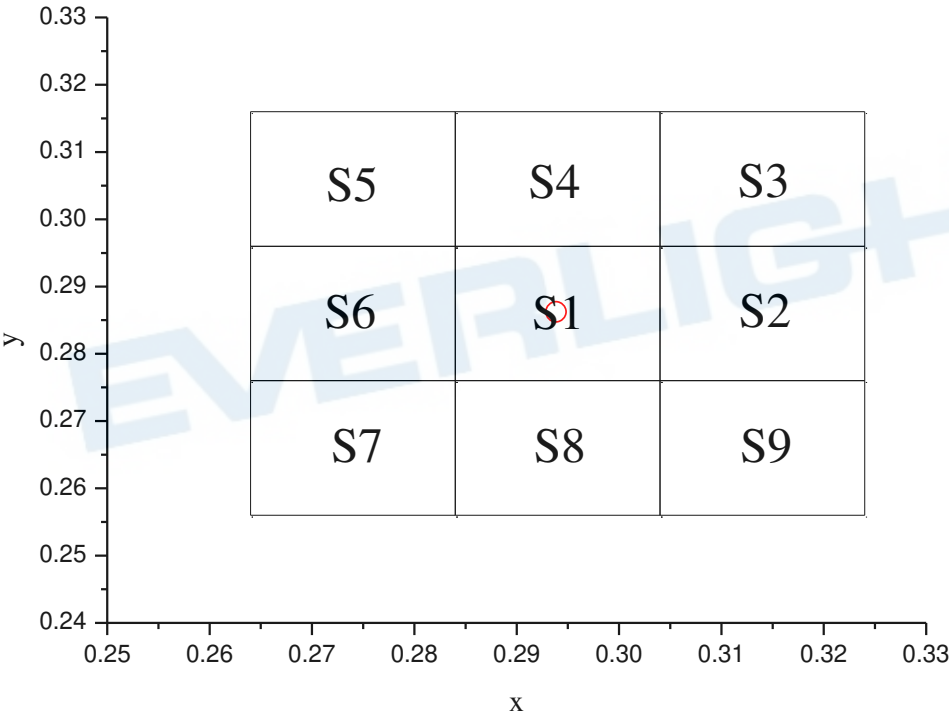
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

Chip	Bin Code	Min.	Max.	Unit	Condition
Mix	AB	1400	1800	mcd	B:I _F =10mA G:I _F =15mA R:I _F =20mA
	BA	1800	2240		
	BB	2240	2800		
	CA	2800	3550		

Note:
Tolerance of Luminous Intensity: ±11%

The C.I.E. 1931 Chromaticity Diagram
B/G/R=10/15/20mA



Bin Range of Chromaticity Coordinates Specifications

B/G/R=10/15/20mA

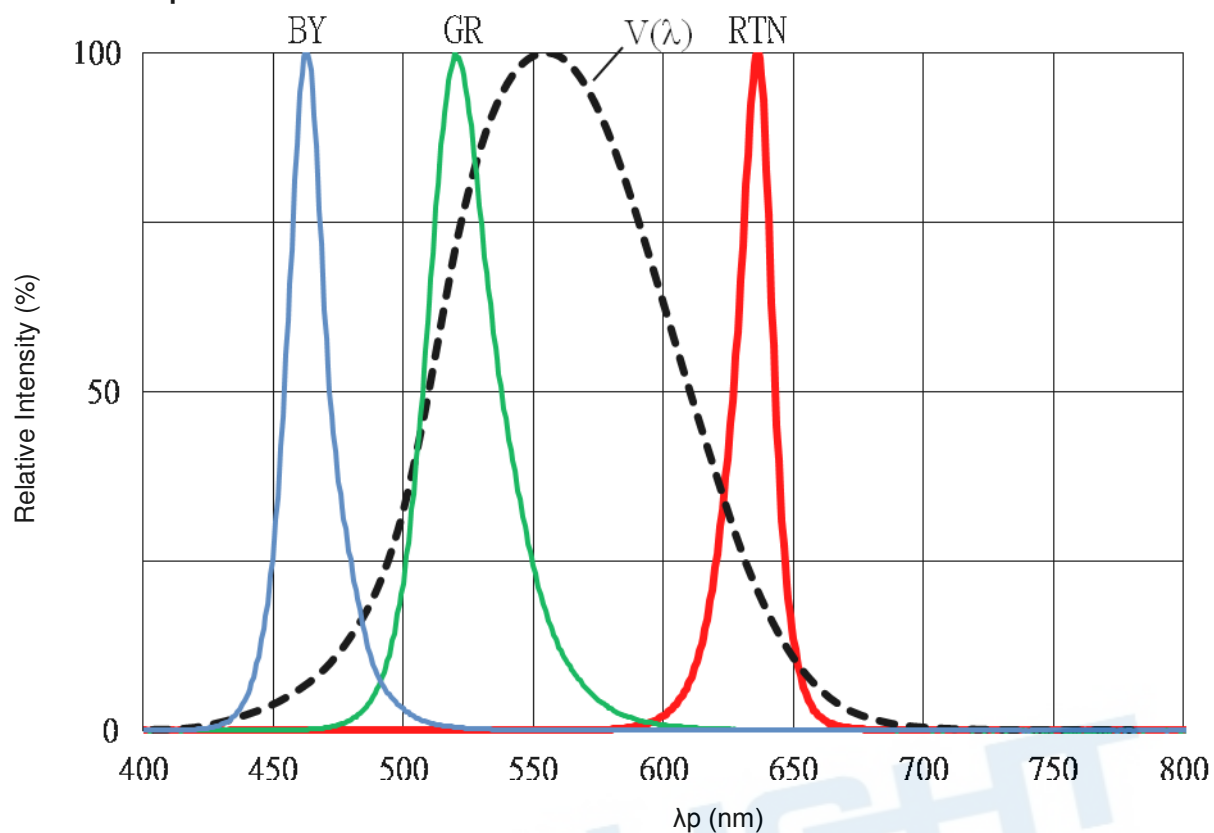
Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
S1	0.284	0.276	S2	0.304	0.276
	0.284	0.296		0.304	0.296
	0.304	0.296		0.324	0.296
	0.304	0.276		0.324	0.276
S3	0.304	0.296	S4	0.284	0.296
	0.304	0.316		0.284	0.316
	0.324	0.316		0.304	0.316
	0.324	0.296		0.304	0.296
S5	0.264	0.296	S6	0.264	0.276
	0.264	0.316		0.264	0.296
	0.284	0.316		0.284	0.296
	0.284	0.296		0.284	0.276
S7	0.264	0.256	S8	0.284	0.256
	0.264	0.276		0.284	0.276
	0.284	0.276		0.304	0.276
	0.284	0.256		0.304	0.256
S9	0.304	0.256			
	0.304	0.276			
	0.324	0.276			
	0.324	0.256			

Note:

Tolerance of Chromaticity Coordinates: ± 0.01 .

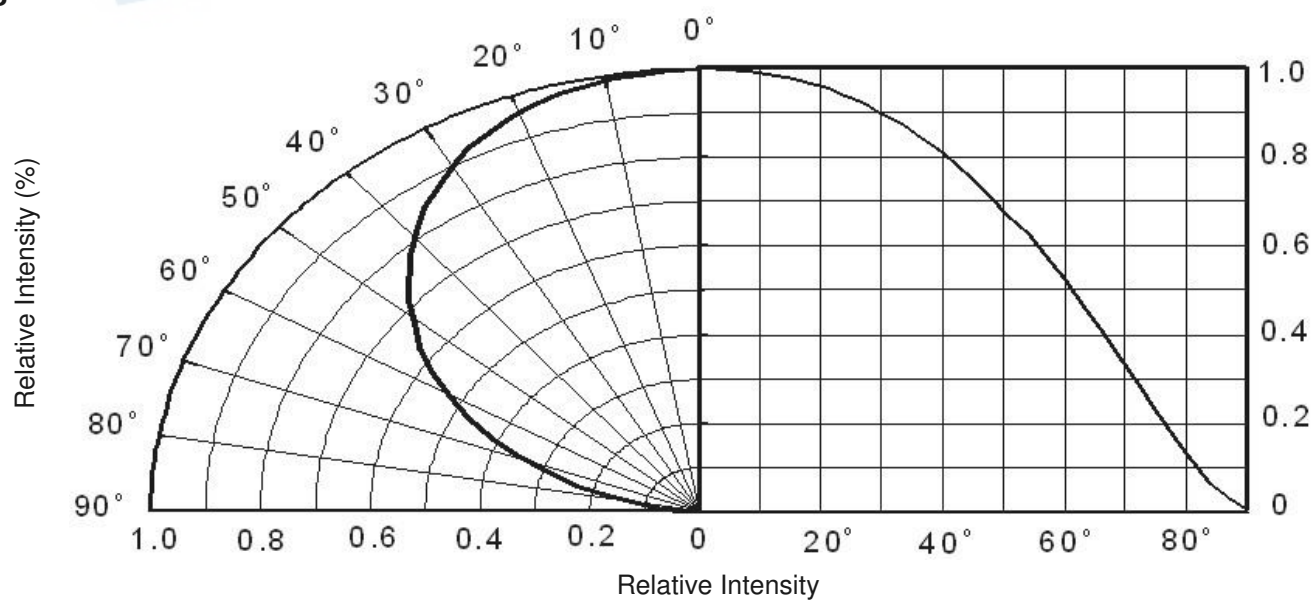
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



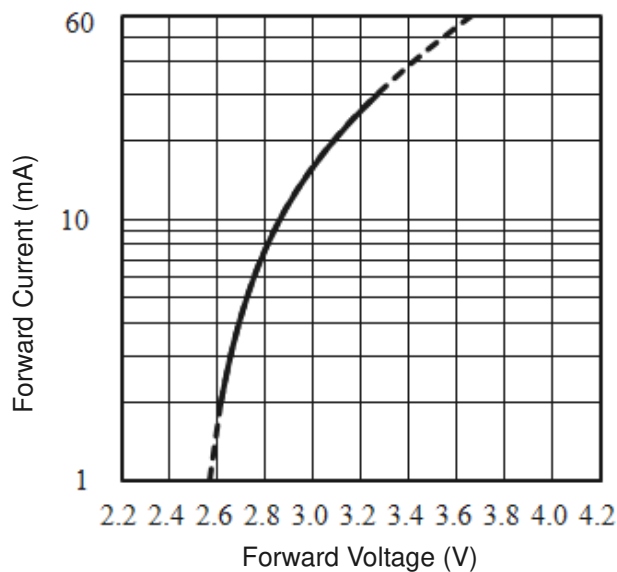
Note: $V(\lambda)$ = Standard eye response curve

Diagram Characteristics of Radiation

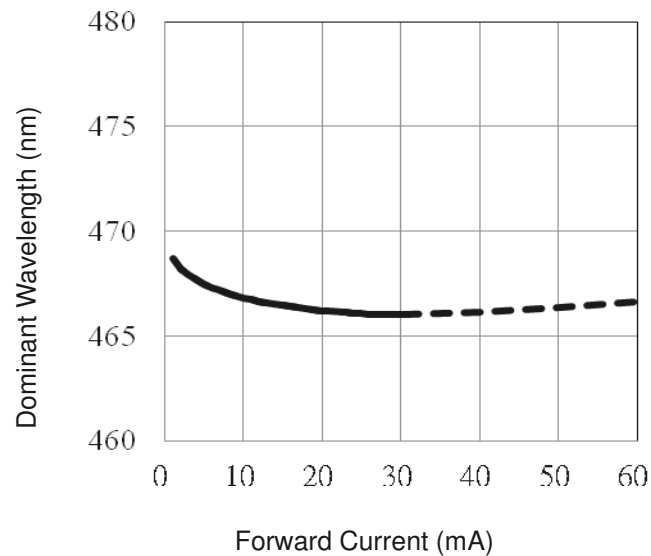


Typical Electro-Optical Characteristics Curves (BY)

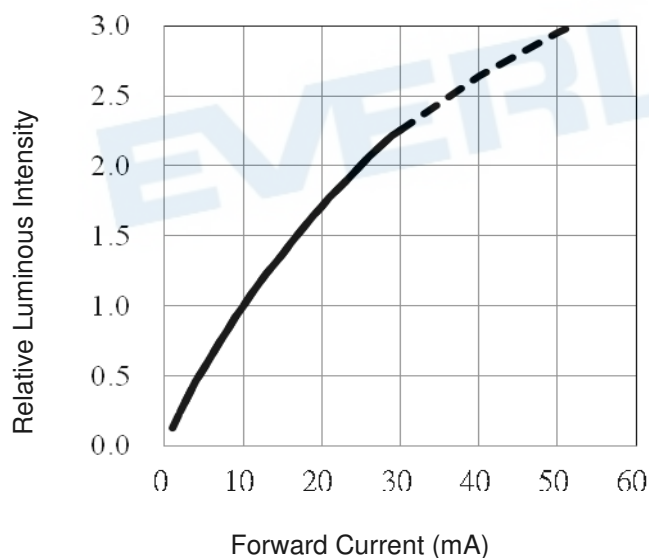
Forward Current vs. Forward Voltage ($T_a=25^\circ\text{C}$)



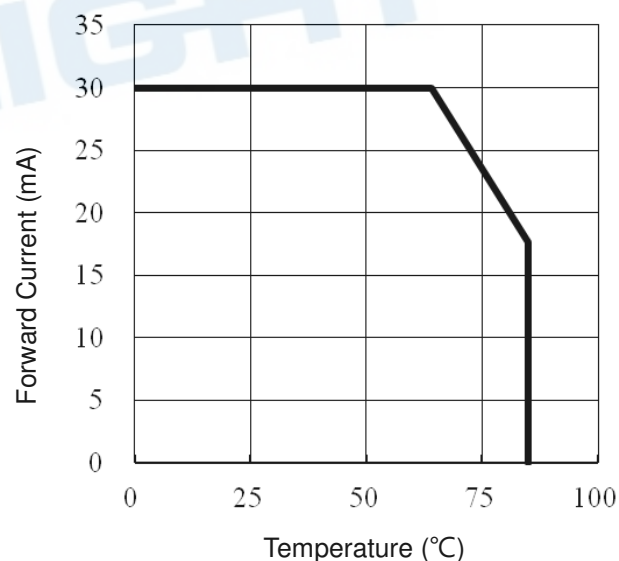
Dominant Wavelength vs. Forward Current ($T_a=25^\circ\text{C}$)



Relative Luminous Intensity vs. Forward Current ($T_a=25^\circ\text{C}$)

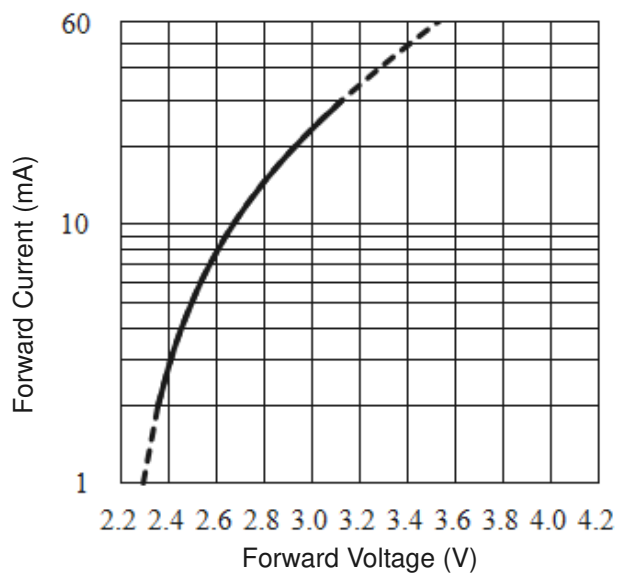


Max. Permissible Forwarded Current ($T_a=25^\circ\text{C}$)

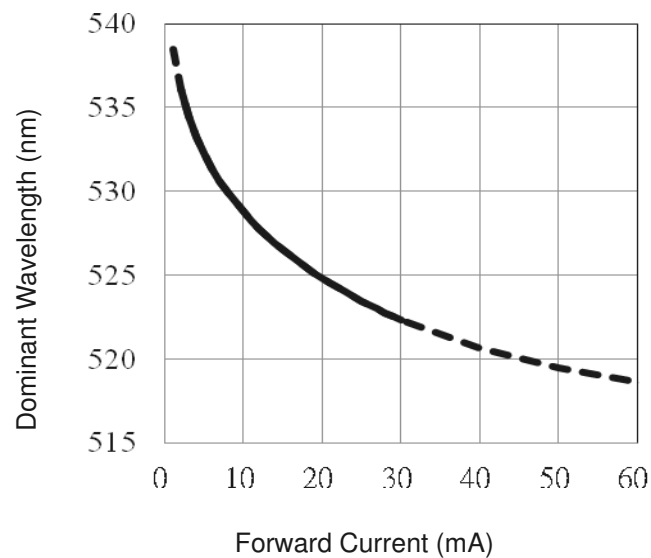


Typical Electro-Optical Characteristics Curves (GR)

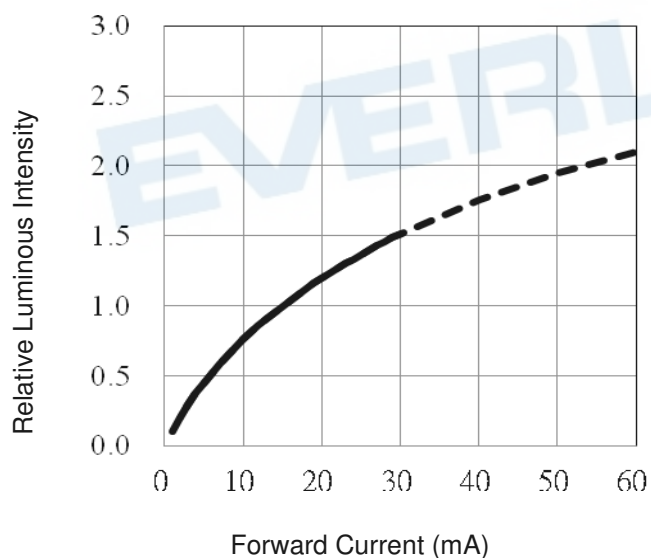
Forward Current vs. Forward Voltage (Ta=25°C)



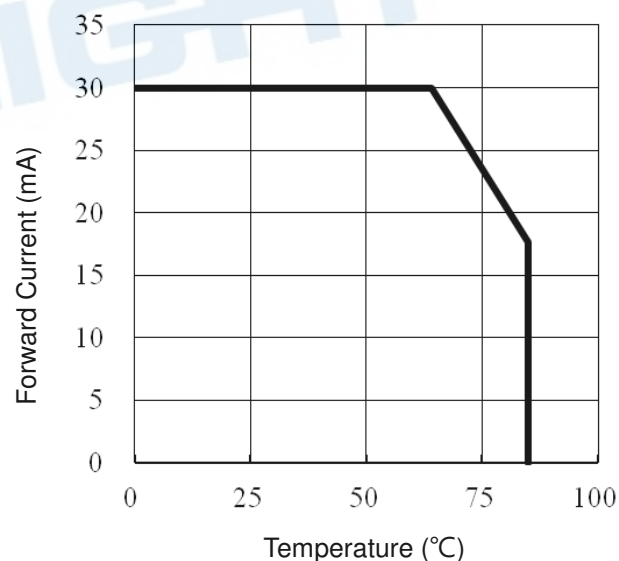
Dominant Wavelength vs. Forward Current (Ta=25°C)



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

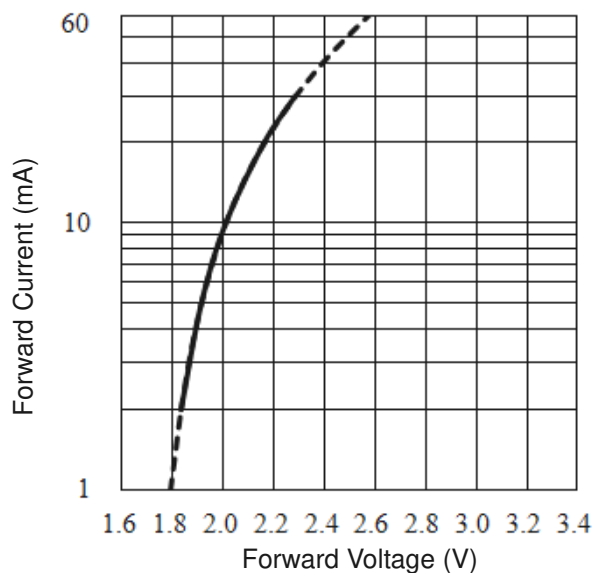


Max. Permissible Forwarded Current (Ta=25°C)

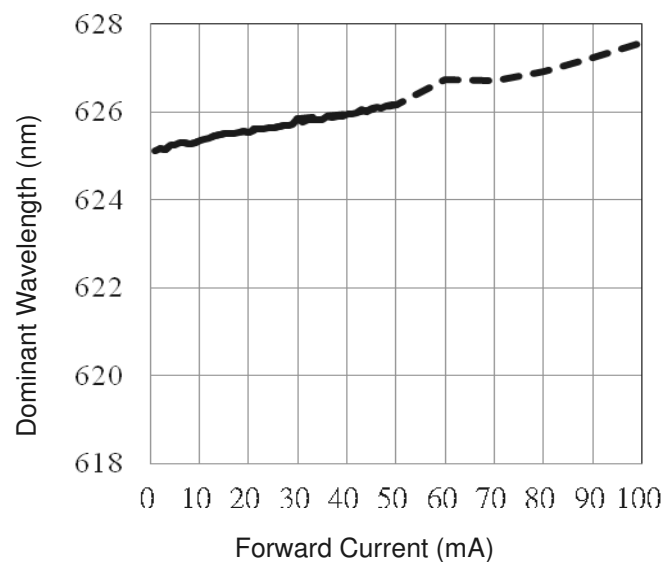


Typical Electro-Optical Characteristics Curves (RTN)

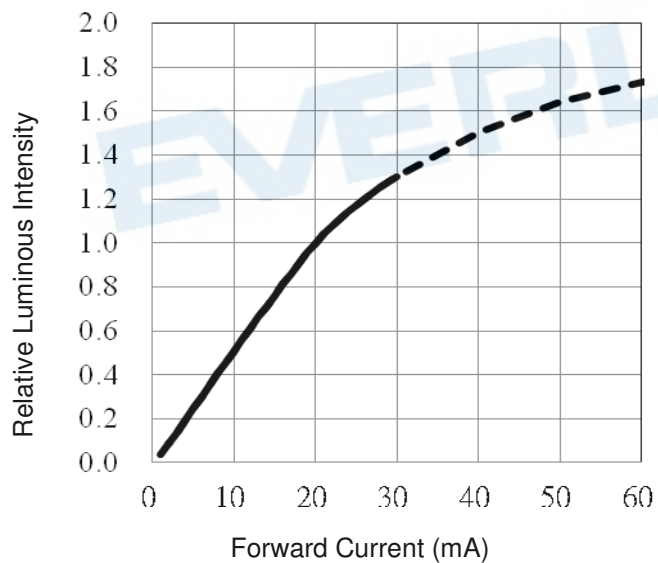
Forward Current vs. Forward Voltage ($T_a=25^\circ\text{C}$)



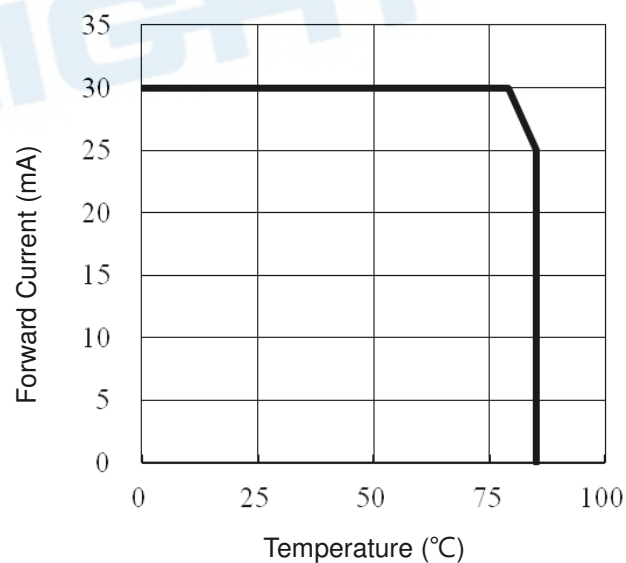
Dominant Wavelength vs. Forward Current ($T_a=25^\circ\text{C}$)



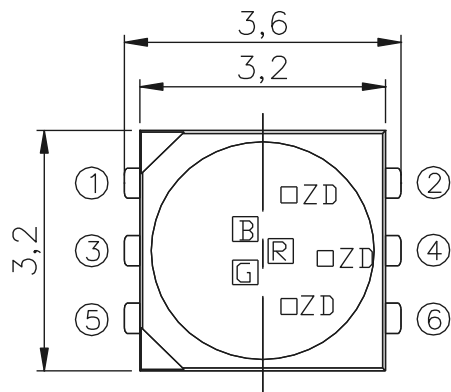
Relative Luminous Intensity vs. Forward Current ($T_a=25^\circ\text{C}$)



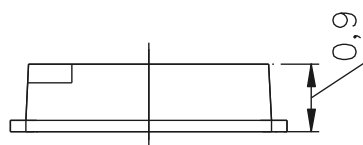
Max. Permissible Forwarded Current ($T_a=25^\circ\text{C}$)



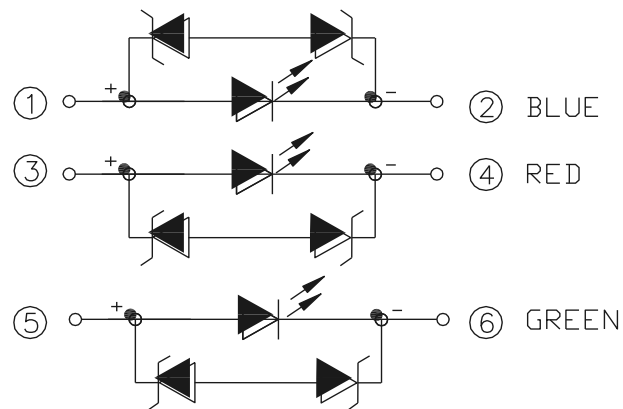
Package Dimension



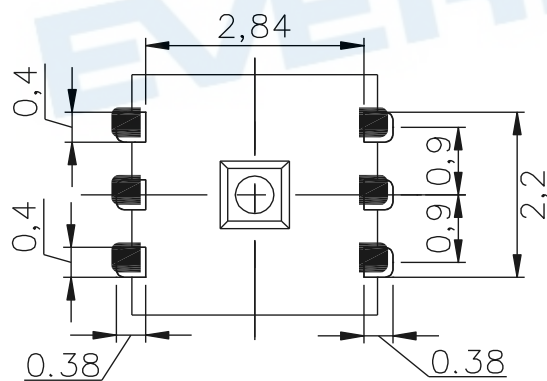
Top view



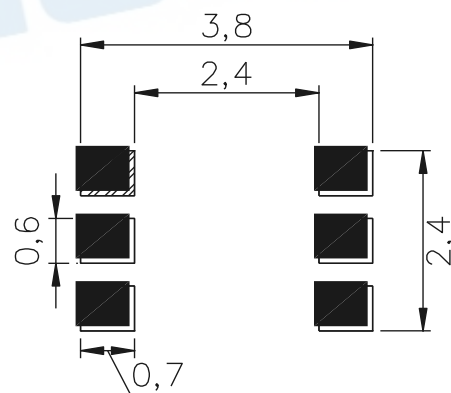
Side view



Polarity



Bot. view



Recommended soldering pad design

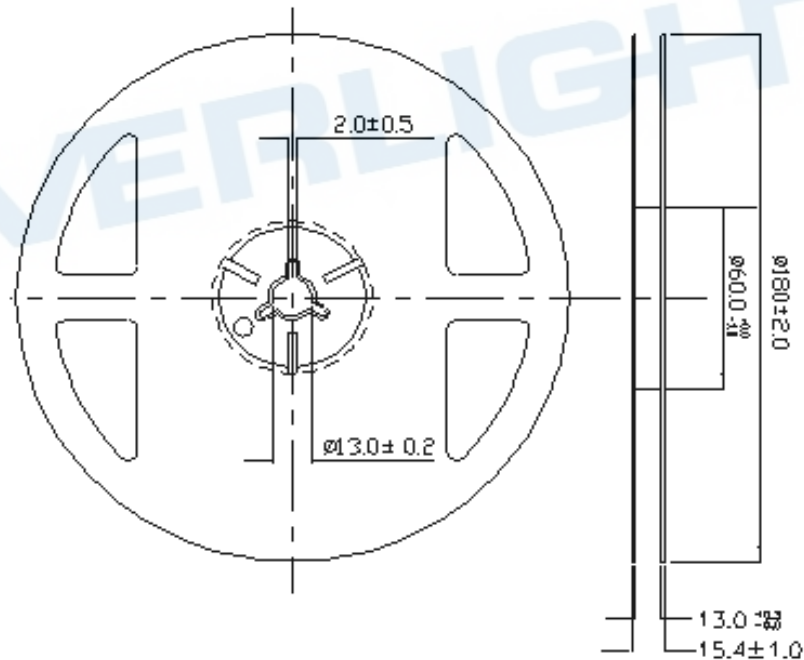
Note: Tolerances unless mentioned ± 0.1 mm. Unit = mm

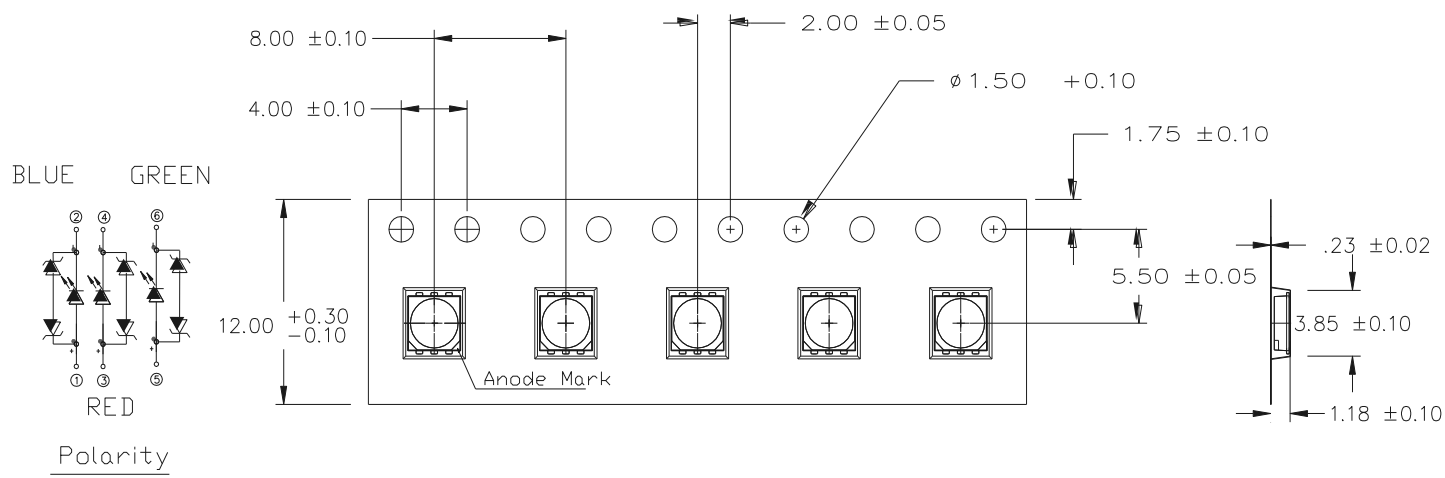
Moisture Resistant Packing Materials Label Explanation

RoHS	EVERLIGHT	5
CPN: XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX		
P/N: XXXXXXXXXXXX		
XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX		
LOT NO: Y150716XXX-XXXXXXXXXX-XXXXXXXXXX		
QTY: 0123456789 HUE: XXXXXXXXXXXX		
CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX		
REFERENCE: BTPYYMDDXXXXX		
MSL-X MADE IN XXXXXX		

- 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

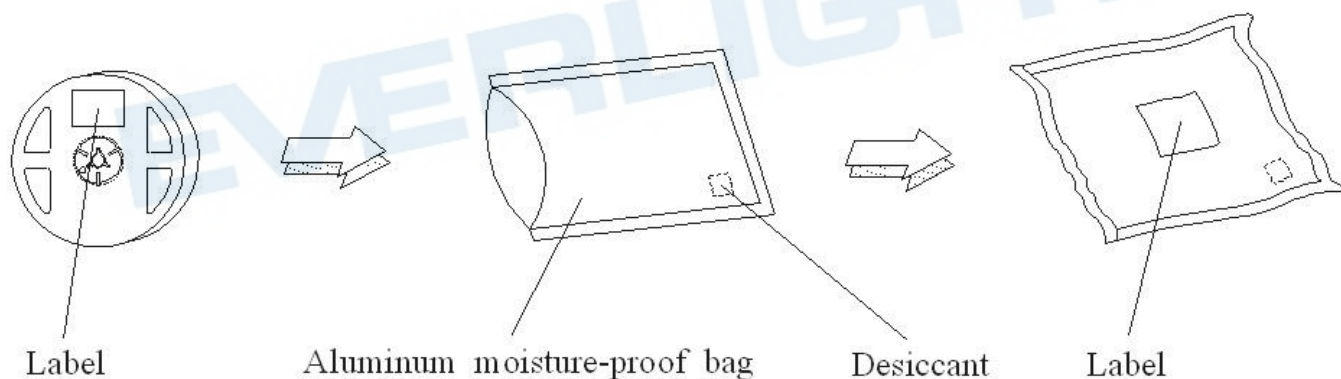
Reel Dimensions



Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel

Note:1.Tolerances unless mentioned ± 0.1 mm. Unit = mm

2.Minimum packing amount is 250/500/1000/2000 pcs per reel

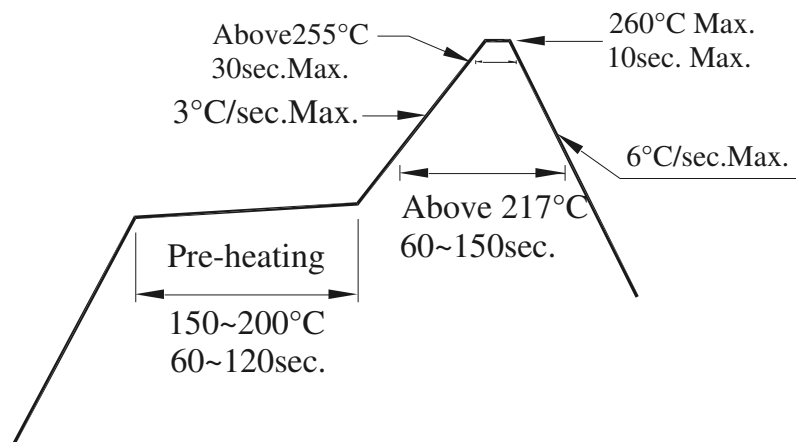
Moisture Resistant Packing Process

Note: Tolerances unless mentioned ± 0.1 mm. 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°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

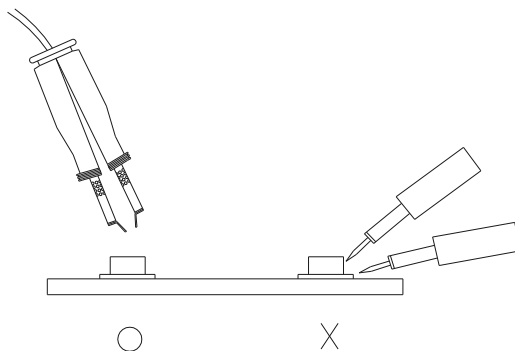
- 3.1 Pb-free solder temperature profile
- 3.2 Reflow soldering should not be done more than two times.
- 3.3 When soldering, do not put stress on the LEDs during heating.
- 3.4 After soldering, do not warp the circuit board.

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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