DATASHEET

Full Color Side View LEDs (Height 0.8mm)
99-235/RSGBB7C-A22/2D

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.
- Precondition: Bases on JEDEC J-STD 020D Level 3
- 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)

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

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol		Rating	Unit
Reverse Voltage	V_R		5	V
Forward Current	I_F	RS	30	mA
		GB	30	
		B7	30	
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	RS	100	mA
		GB	100	
		B7	100	
Power Dissipation	Pd	RS	110	mW
		GB	110	
		B7	110	
Junction Temperature	T_j		115	℃
Operating Temperature	T_{opr}		-40 ~ +85	℃
Storage Temperature	Tstg		-40 ~ +90	℃
ESD	ESD_{HBM}	RS	2000	V
		GB	1000	
		B7	1000	
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	RS	285	-----	715	mcd	
		GB	710	-----	1800		
		B7	72	-----	180		
Viewing Angle	$2\theta_{1/2}$		-----	120	-----	deg	
Dominant Wavelength	λd	RS	618	-----	627	nm	R:I_F=17mA G:I_F=18mA B:I_F=9mA
		GB	520	-----	535		
		B7	457	-----	466		
Forward Voltage	V_F	RS	1.80	-----	2.30	V	
		GB	2.75	-----	3.45		
		B7	2.75	-----	3.45		
White point coordinate	x	-----	-----	0.294	-----	-----	
	y	-----	-----	0.286	-----		
Reverse Current	I_R	RS	-----	-----	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
RS	T1	285	360	mcd	R:I_F=17mA G:I_F=18mA B:I_F=9mA
	T2	360	450		
	U1	450	560		
	U2	560	715		
GB	V1	710	900		
	V2	900	1120		
	AA	1120	1400		
	AB	1400	1800		
B7	Q1	72	90		
	Q2	90	112		
	R1	112	140		
	R2	140	180		

Bin Range of Forward Voltage

Chip	Bin Code	Min.	Max.	Unit	Condition
RS	RV1	1.80	2.05	V	R:I_F=17mA G:I_F=18mA B:I_F=9mA
	RV2	2.05	2.3		
GB	GV1	2.75	3.10		
	GV2	3.10	3.45		
B7	BV1	2.75	3.10		
	BV2	3.1	3.45		

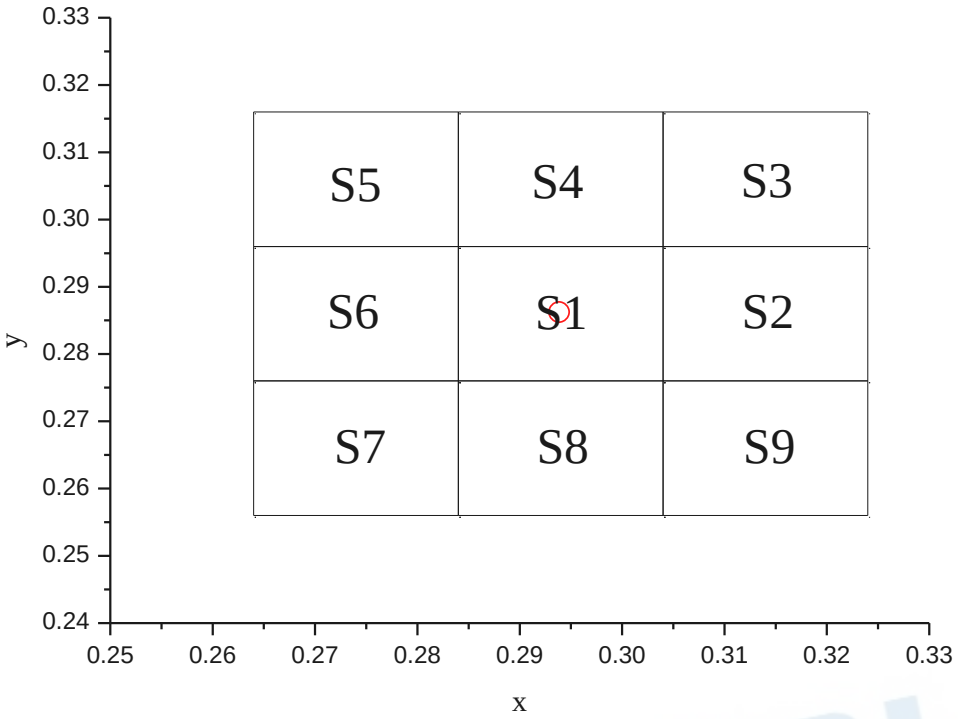
Note:
1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Forward Voltage: ±0.1V

Bin Range of Chromaticity Coordinates Specifications
R/G/B=17/18/9mA

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			

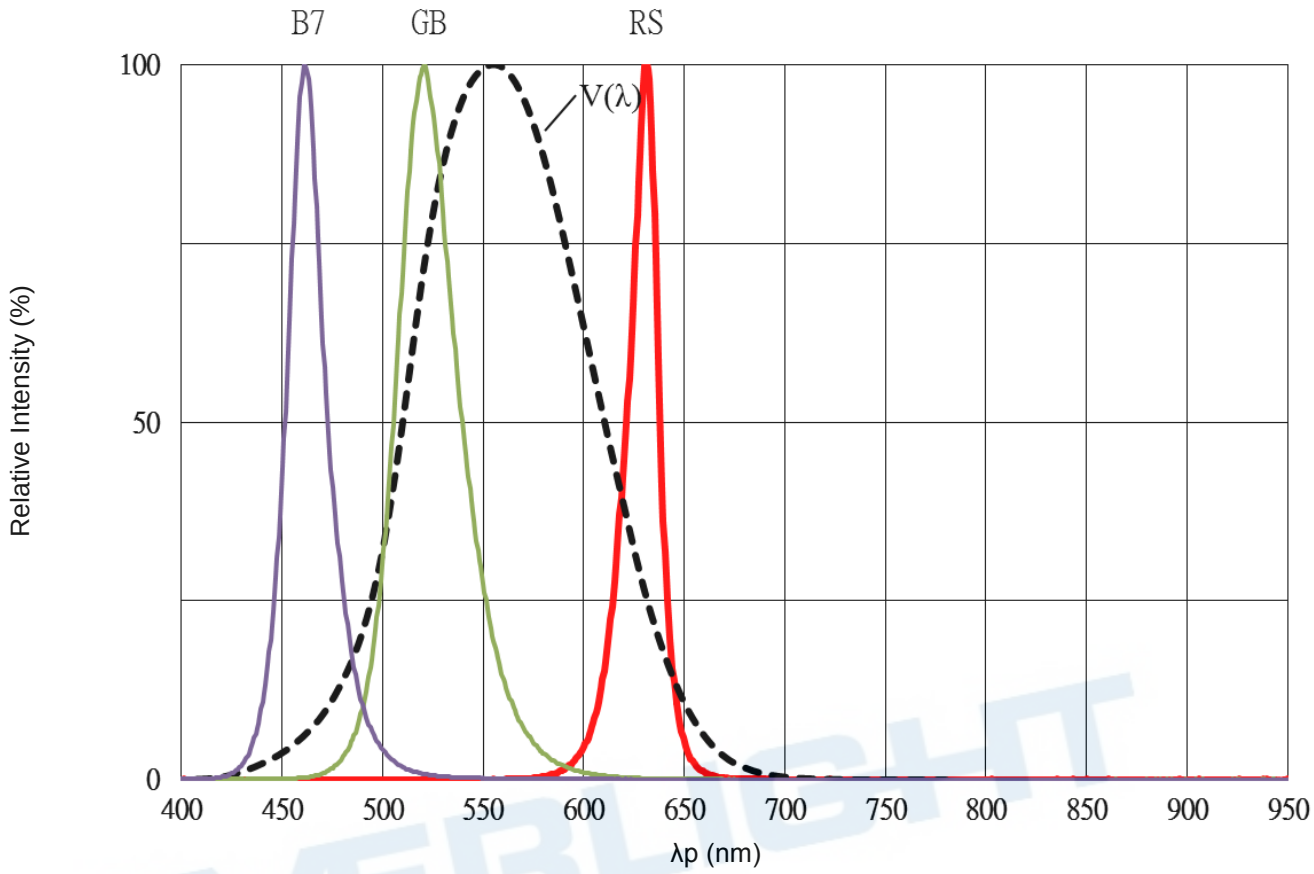
Note:
Tolerance of Chromaticity Coordinates: ±0.01.

The C.I.E. 1931 Chromaticity Diagram
R/G/B=17/18/9mA



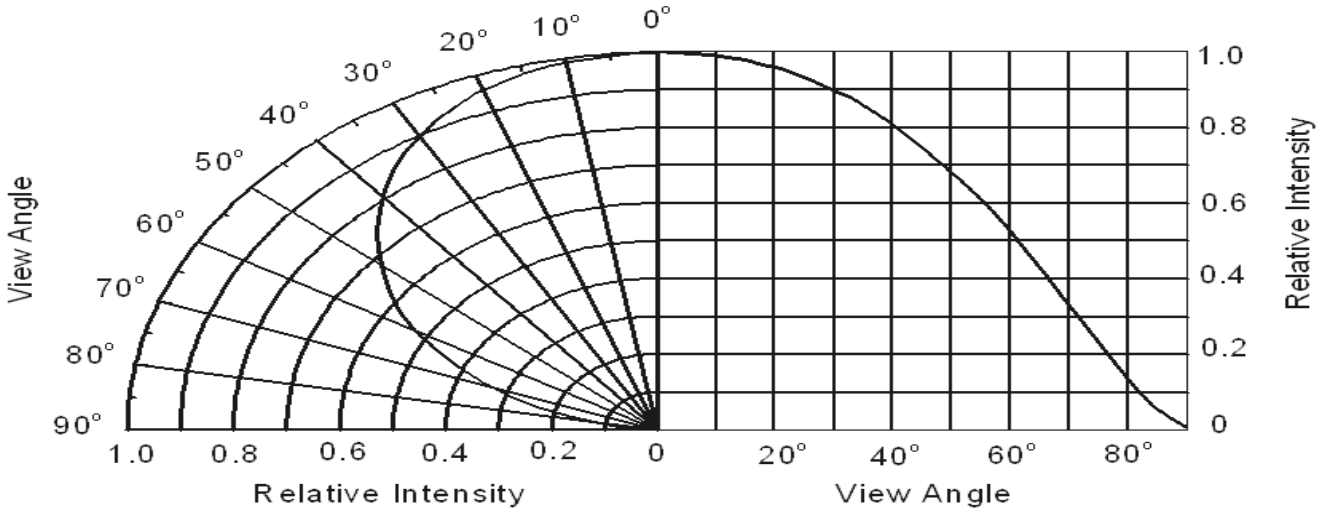
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution



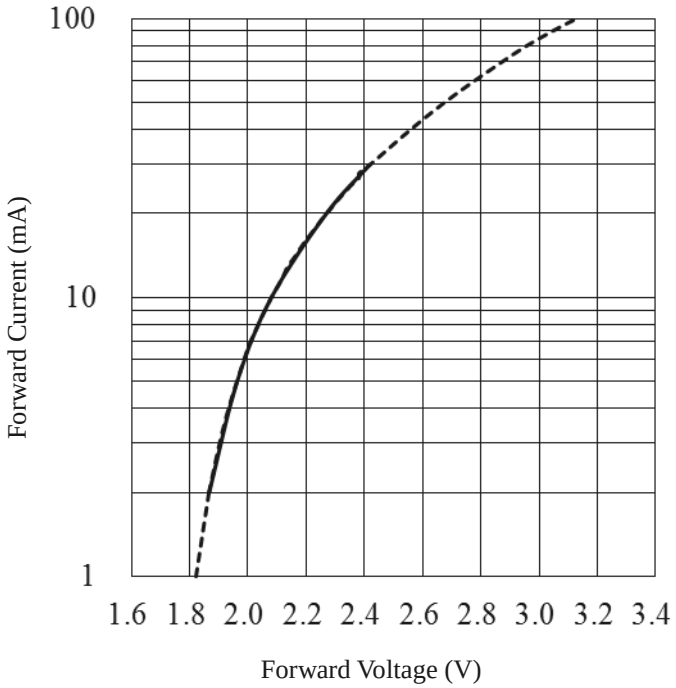
Note: V(λ)=Standard eye response curve;

Diagram Characteristics of Radiation

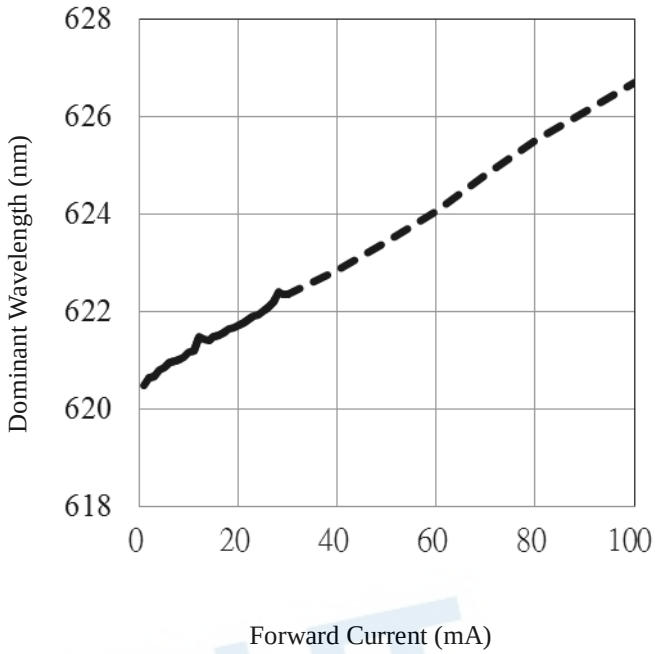


Typical Electro-Optical Characteristics Curves(RS)

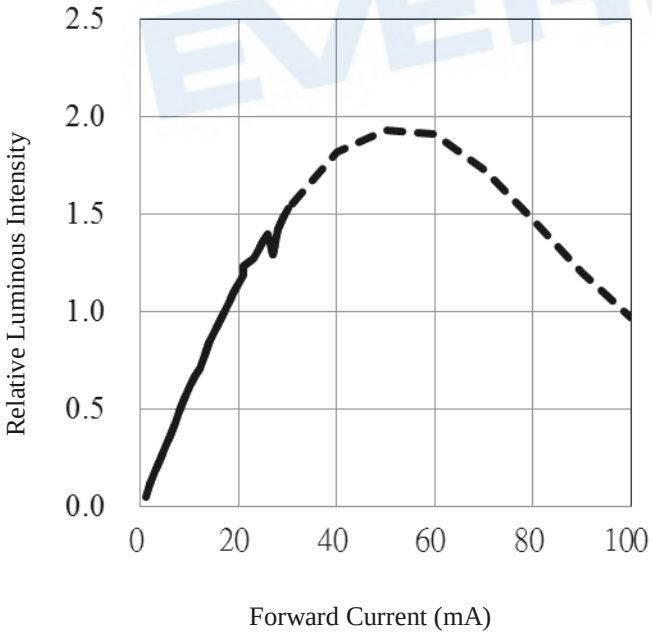
Forward Current vs. Forward Voltage (Ta=25℃)



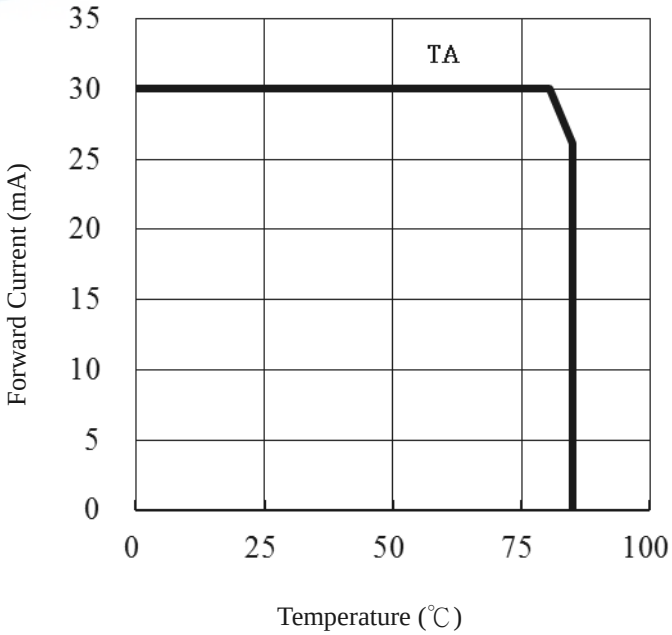
Dominant Wavelength vs. Forward Current (Ta=25℃)



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

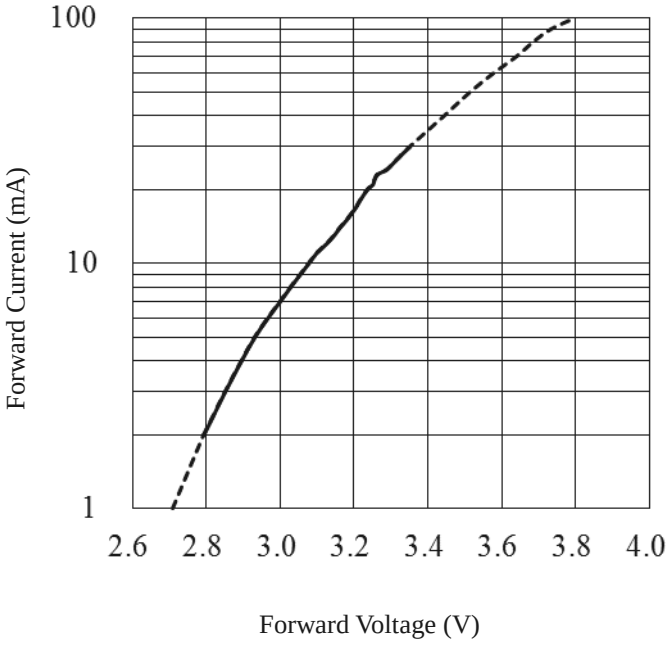


Forward current vs. Ambient and Solder Temperature

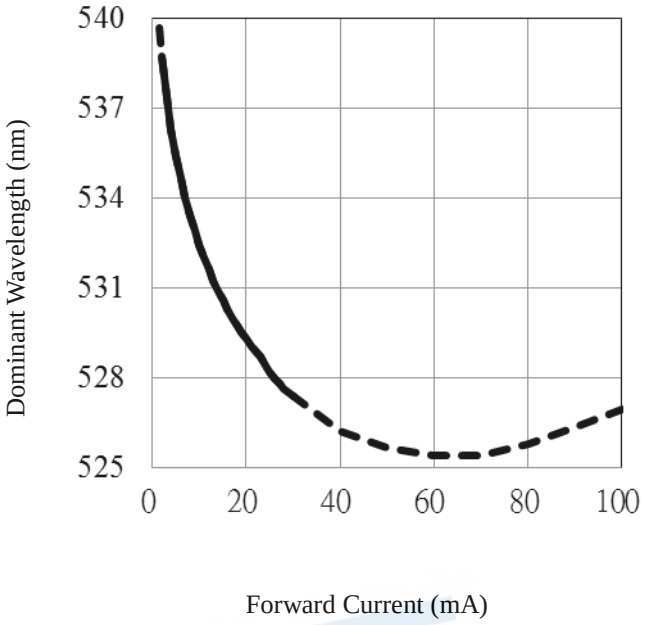


Typical Electro-Optical Characteristics Curves(GB)

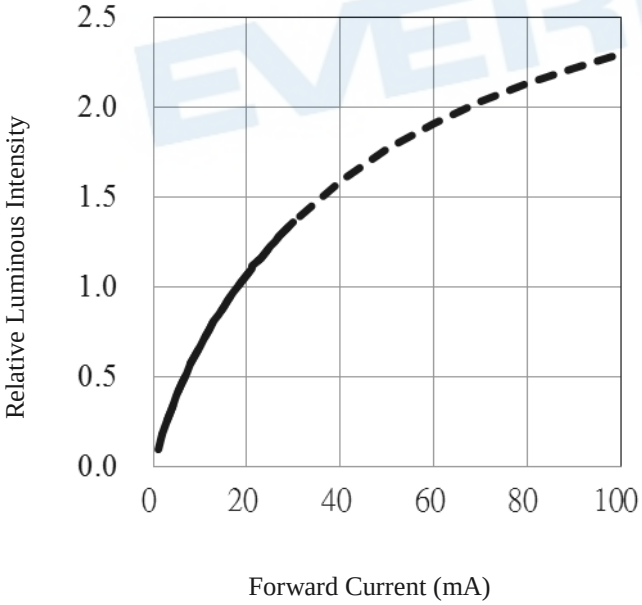
Forward Current vs. Forward Voltage (Ta=25℃)



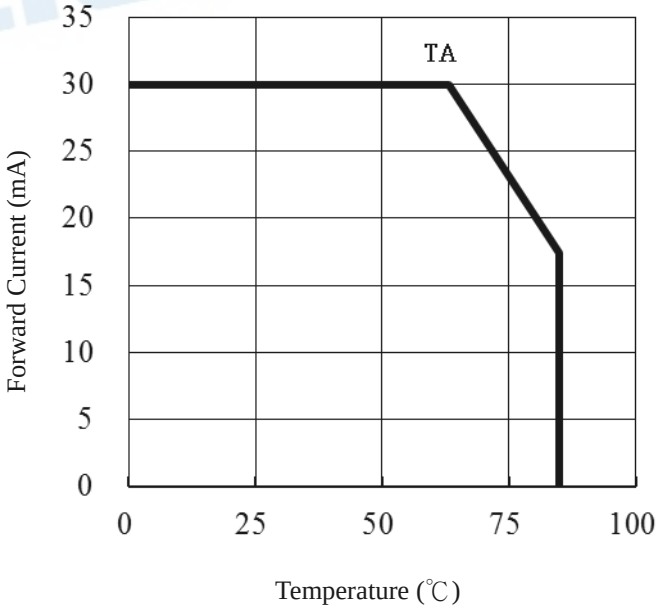
Dominant Wavelength vs. Forward Current (Ta=25℃)



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

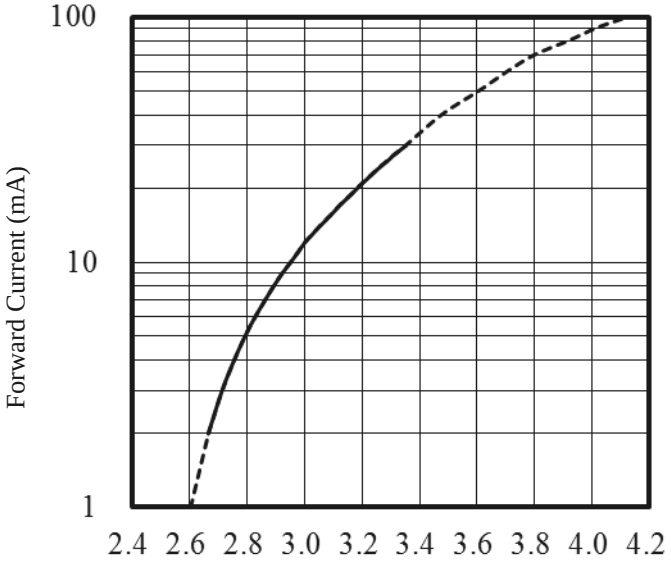


Forward current vs. Ambient and Solder Temperature

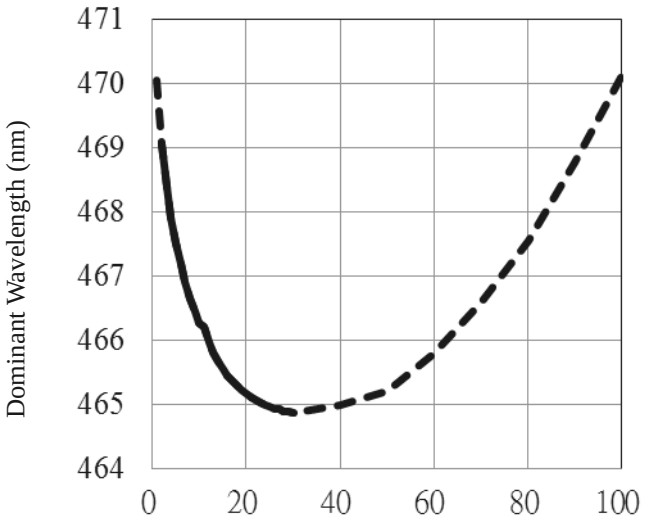


Typical Electro-Optical Characteristics Curves(B7)

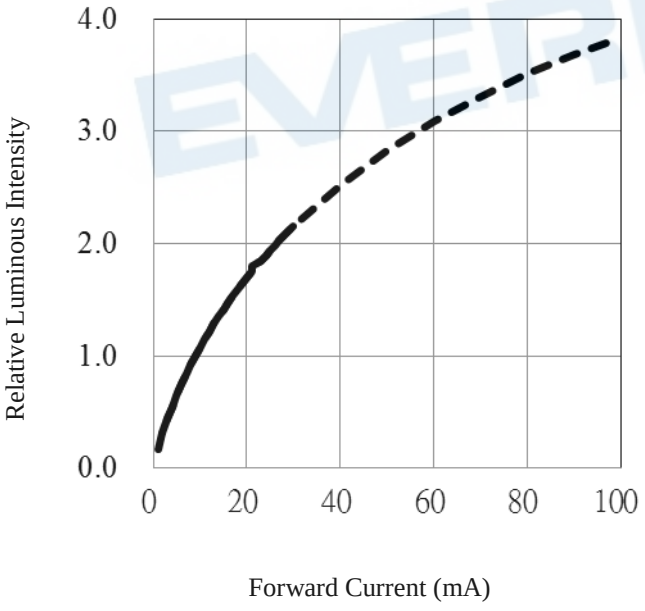
Forward Current vs. Forward Voltage (Ta=25℃)



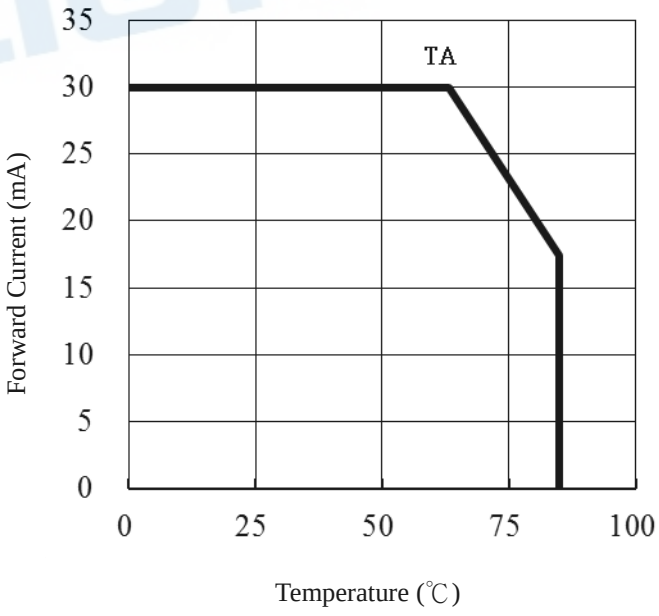
Dominant Wavelength vs. Forward Current (Ta=25℃)



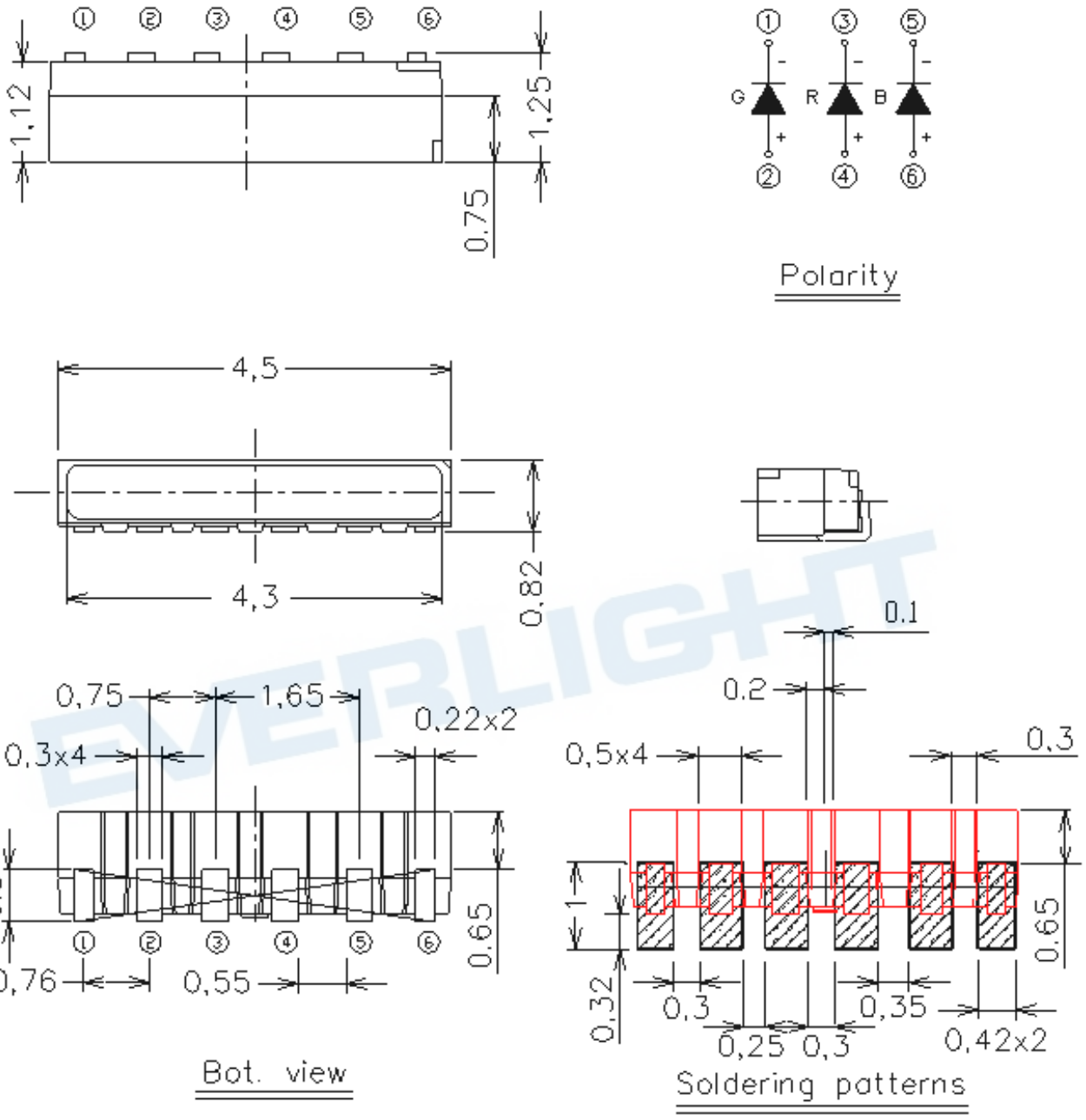
Relative Luminous Intensity vs.Forward Current (Ta=25℃)



Forward current vs. Ambient and Solder Temperature



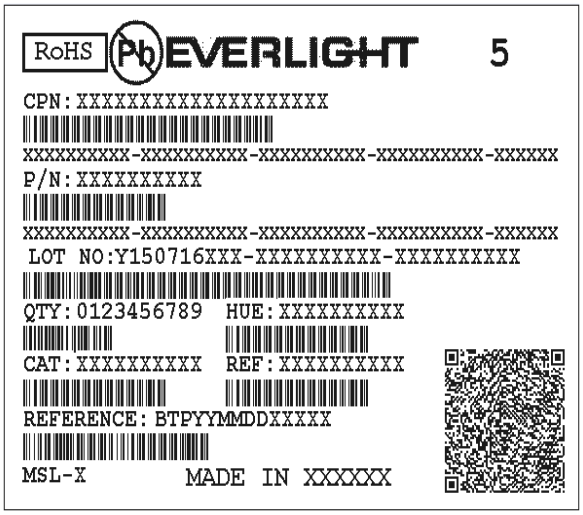
Package Dimension



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

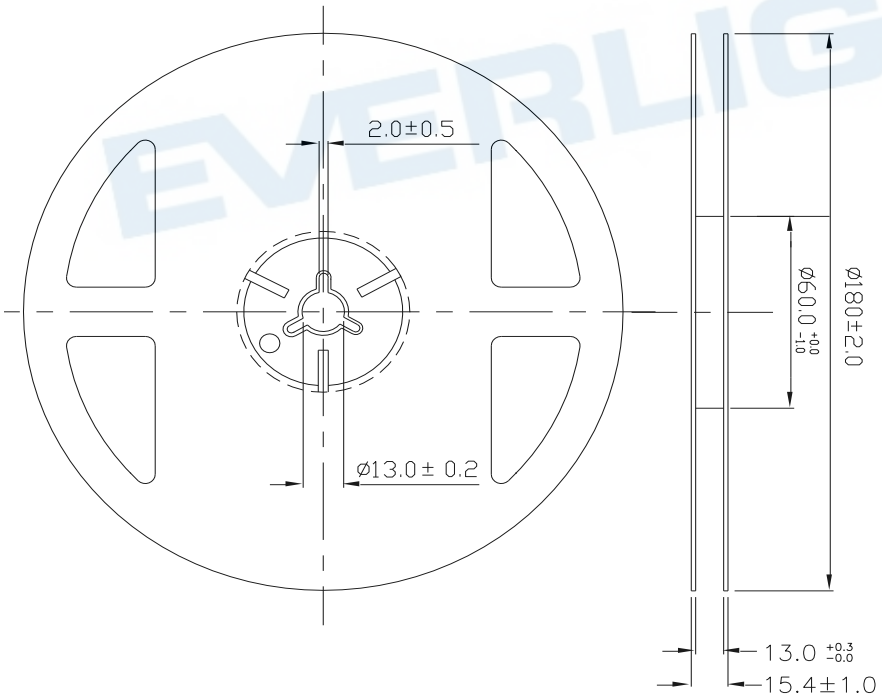
Moisture Resistant Packing Materials

Label Explanation

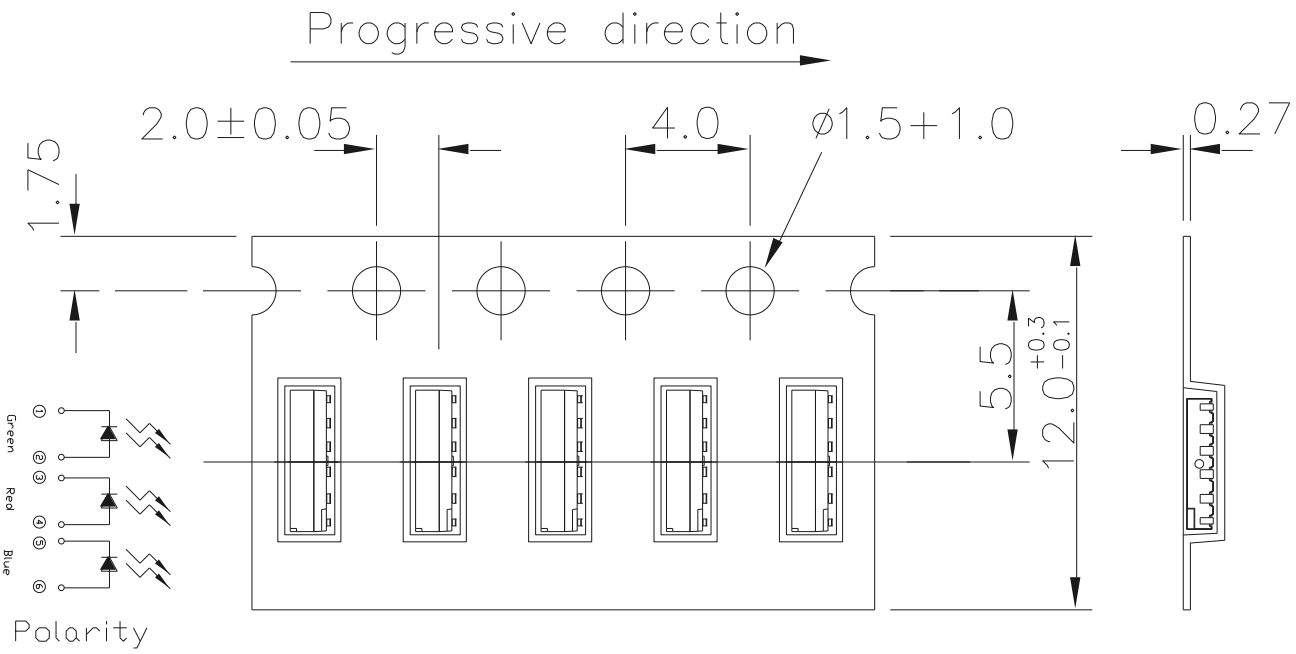


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

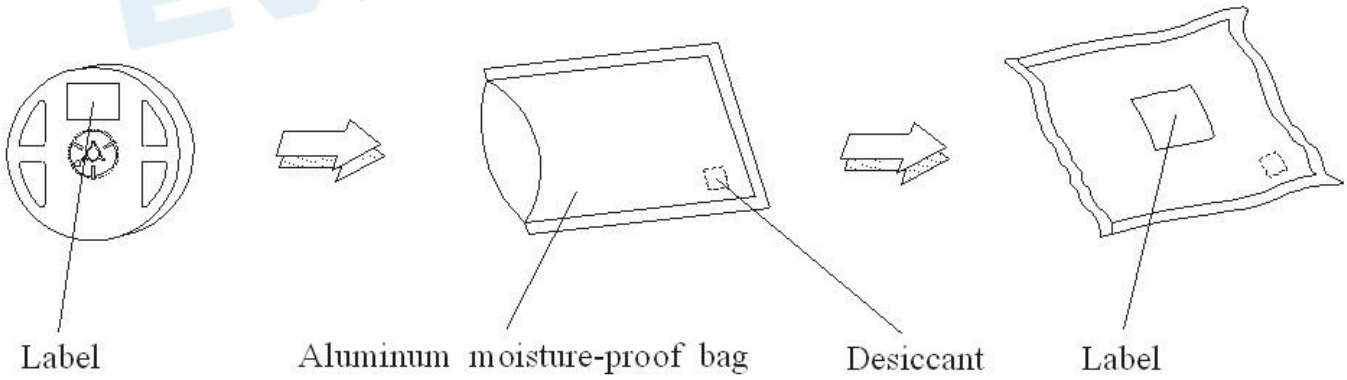


Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



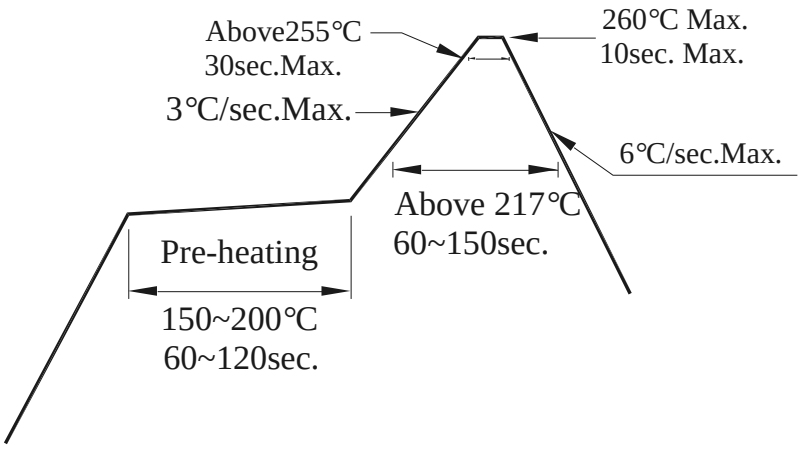
Note:
Tolerances unless mentioned ±0.1mm. Unit = mm

Moisture Resistant Packing Process

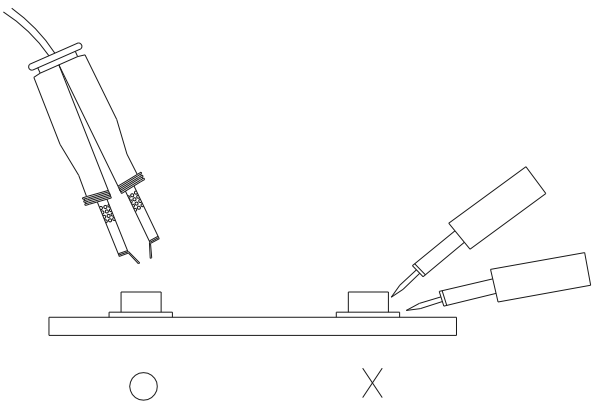


Precautions for Use

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.



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.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
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.