

## Features

- Super-luminosity LED.
- White SMT package.
- Built in Red, Green, and Blue chips.
- Lead frame package with 6 individual pins.
- Wide viewing angle.
- ESD protection.
- Pb-free.
- RoHS compliant version.



## Descriptions

- 120° viewing angle.
- Low power consumption.

## Device Selection Guide

Chip			Lens Color
Type	Material	Emitted Color	
R	AlGaInP	Brilliant Red	Water Clear
G	InGaN	Brilliant Green	
B	InGaN	Blue	

**Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering**

Unit: mm Tolerance: +/-0.1

Outline Dim.	Soldering Pattern
<p style="text-align: center;">R      G      B Die1 Die2 Die3 Pin 6 Pin 5 Pin 4 Pin 1 Pin 2 Pin 3 Polarity</p>	
<p>Soldering terminals may shift in the x, y direction.</p>	

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating		Unit
Reverse Voltage	V <sub>R</sub>	5		V
Forward Current	I <sub>F</sub>	R	30	mA
		G	30	
		B	30	
Peak Forward Current (Duty 1/10 @ 1KHz)	I <sub>FP</sub>	R	120	mA
		G	110	
		B	110	
Power Dissipation	P <sub>d</sub>	R	80	mW
		G	110	
		B	110	
Electrostatic Discharge(HBM)	ESD	2000		V
Operating Temperature	T <sub>opr</sub>	-40 ~ +85		°C
Storage Temperature	T <sub>stg</sub>	-40~ +90		°C
Soldering Temperature	T <sub>sol</sub>	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 <sub>v</sub>	R	450	-----	715	mcd	I <sub>F</sub> =20mA
		G	900	-----	2250		
		B	225	-----	450		
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I <sub>F</sub> =20mA	
Peak Wavelength	$\lambda_p$	R	-----	632	-----	nm	I <sub>F</sub> =20mA
		G	518	-----	-----		
		B	-----	468	-----		
Dominant Wavelength	$\lambda_d$	R	617.5	-----	633.5	nm	I <sub>F</sub> =20mA
		G	523.5	-----	535.5		
		B	466	-----	472		
Spectrum Radiation Bandwidth	$\Delta\lambda$	R	-----	20	-----	nm	I <sub>F</sub> =20mA
		G	-----	35	-----		
		B	-----	35	-----		
Forward Voltage	V <sub>F</sub>	R	1.75	-----	2.35	V	I <sub>F</sub> =20mA
		G	2.75	-----	3.95		
		B	2.75	-----	3.95		
Reverse Current	I <sub>R</sub>	R	-----	-----	10	$\mu A$	V <sub>R</sub> =5V

Specific binning requirements- please contact our home office

**Notes:**

1. Tolerance of Luminous Intensity  $\pm 10\%$
2. Tolerance of Dominant Wavelength  $\pm 1$  nm

■ **Luminous Intensity (Iv) Bin:**

Color	BinCode	Spec.Range
Red	V	450 -560mcd
	W	560 -715mcd
Green	Y	900 -1125mcd
	Z	1125 -1440mcd
	AA	1440 -1800mcd
	AB	1800 -2250mcd
Blue	S2	220 -285mcd
	T	285 -360mcd
	U	360 -450mcd

■ **Dominant Wavelength ( $\lambda_D$ ) Bin:**

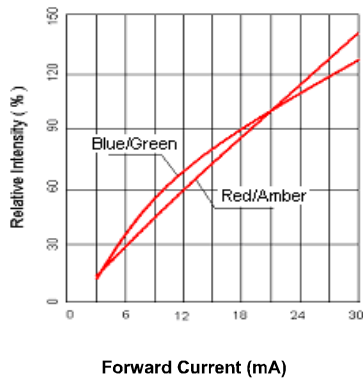
Color	BinCode	Spec.Range
Red	A	615 -620nm
	B	620 -625nm
	C	625 -630nm
Green	B	520 -525nm
	C	525 -530nm
	D	530 -535nm
Blue	A	460 -465nm
	B	465 -470nm

■ **Forward Voltage (Vf) Bin:**

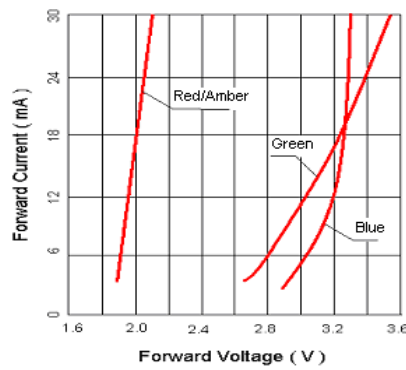
Color	BinCode	Spec.Range
Red	F5	2.0 -2.2V
	F6	2.2 -2.4V
	G5	2.4 -2.6V
Green	H7	2.9 -3.1V
	H8	3.1 -3.3V
	J7	3.3 -3.5V
Blue	H7	2.9 -3.1V
	H8	3.1 -3.3V
	J7	3.3 -3.5V

**Characteristics Curves**

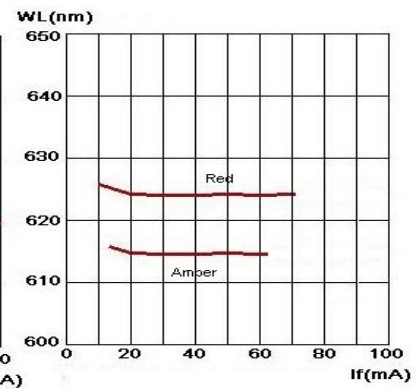
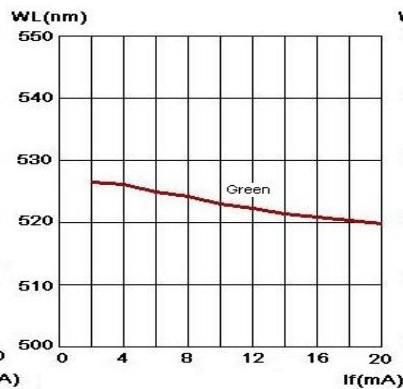
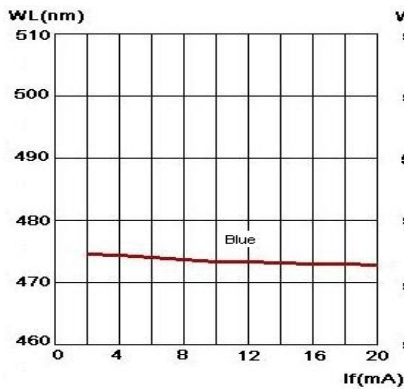
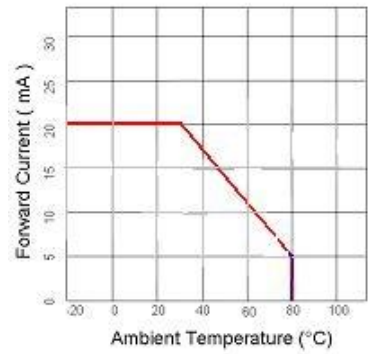
Relative Intensity vs. Forward Current



Forward Voltage vs. Forward Current

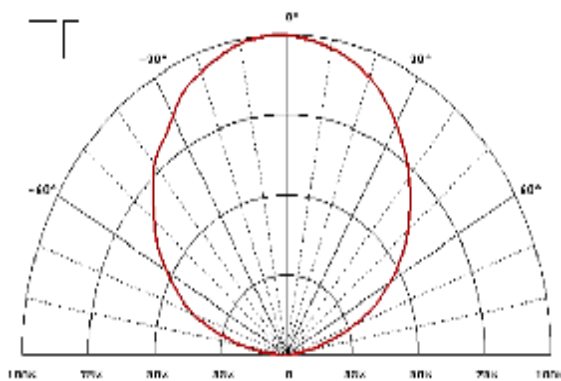


Forward Current vs. Ambient Temperature

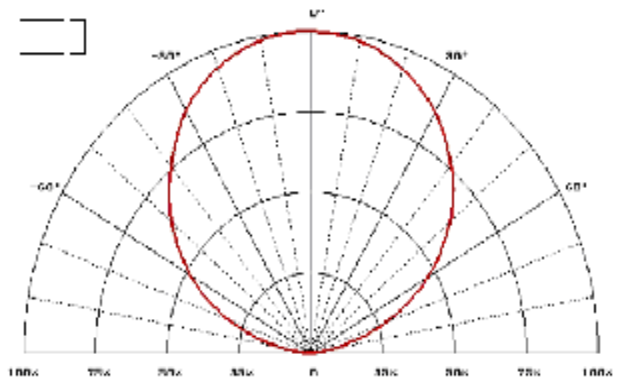


Wavelength vs. Forward Current

Directive Characteristics



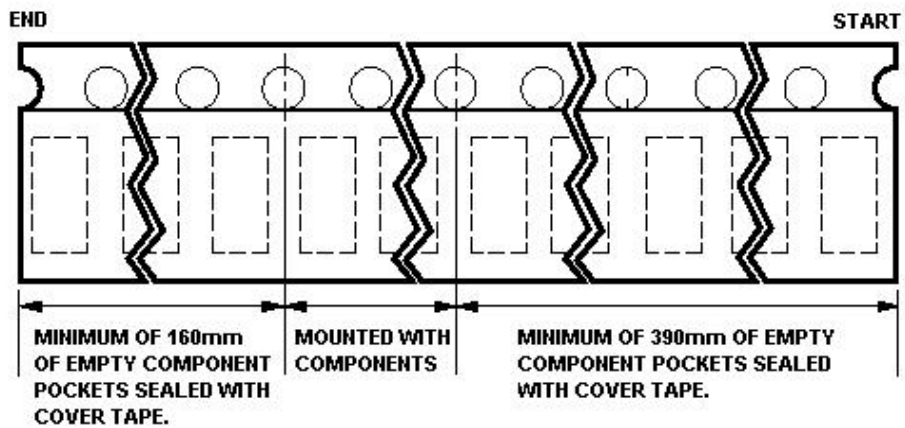
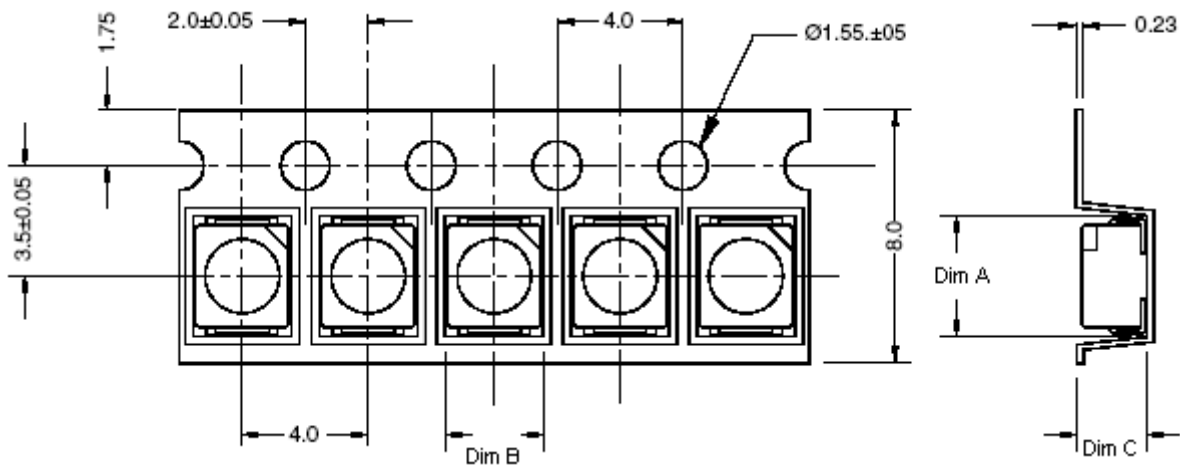
Directive Characteristics



**Packaging**

**Carrier Tape Dimensions: Loaded quantity 1000 PCS per reel.**

**Tape Dimension**

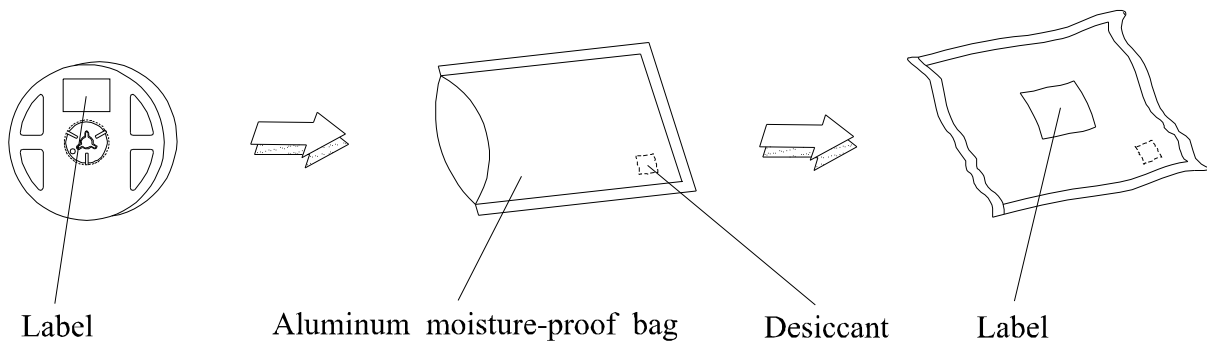


## Dry Pack

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

## Moisture Resistant Packaging



## PRECAUTIONS

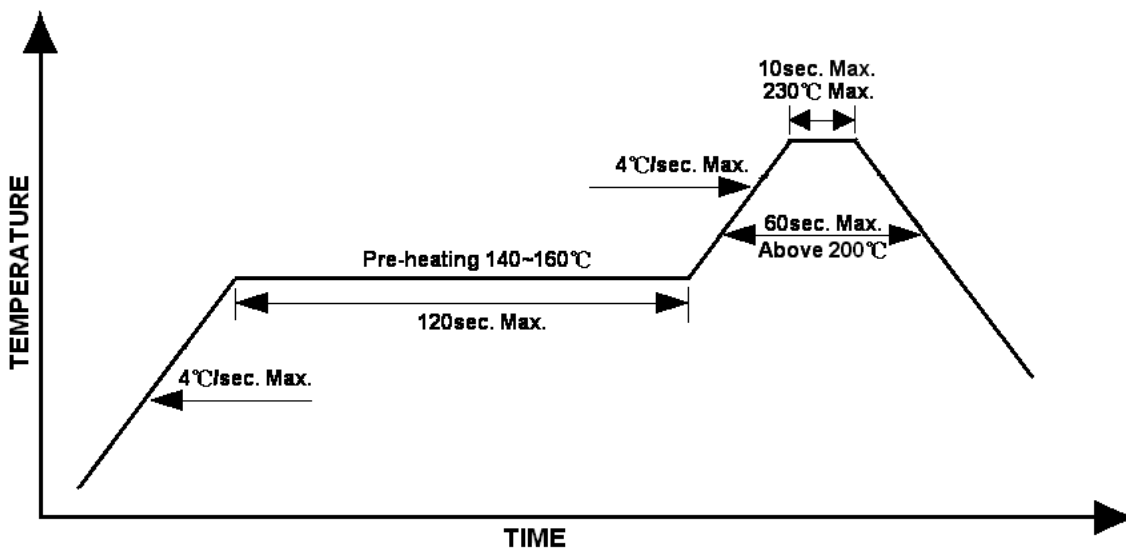
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.



## Reflow Soldering

- Recommended tin glue specifications: melting temperature in the range of 178~192 °C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

Lead Solder Profile



Lead-free Solder Profile

