Fullor PCB Type SMD LED

AOL-S19337R6GHBH

Feature:

- Package in 8mm tape on a “ 7 “ diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder process
- Full-color type
- Pb-free
- RoHS complaint Version

Applications

- Automotive
- Portable equipment
- General use

Descriptions

- The SMD LED is much smaller than lead frame type components, thus enable smaller board size, higher packing density and reduced storage space and finally smaller equipment to be obtained.
- Light weight makes them ideal for miniature applications.

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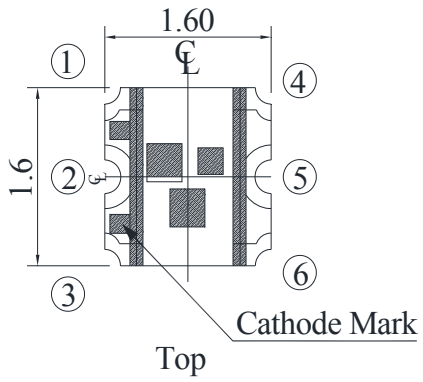
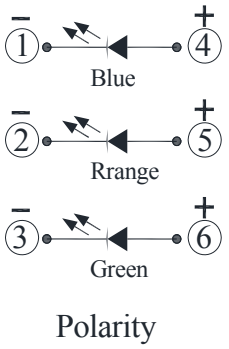
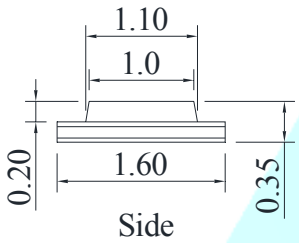
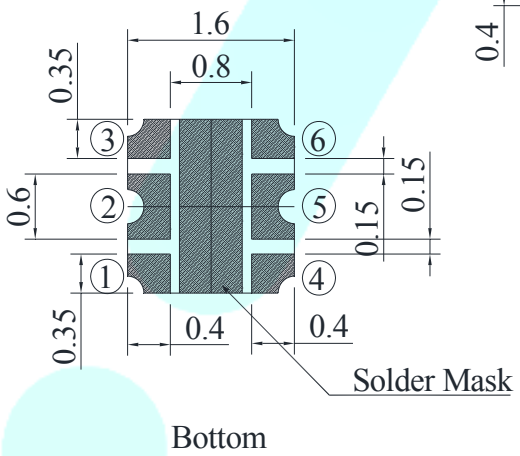
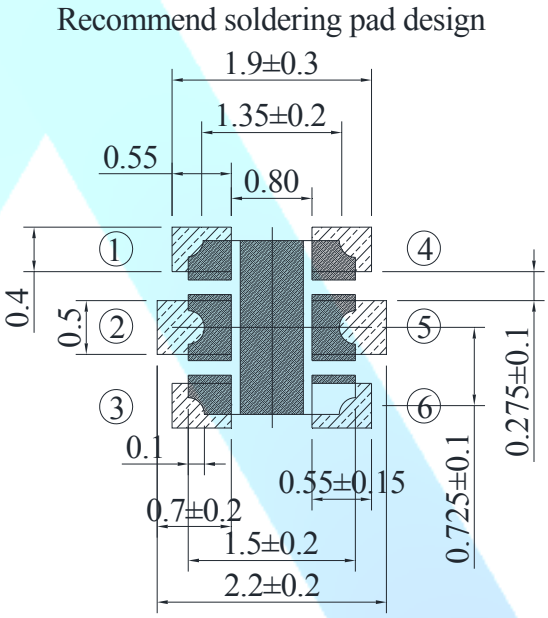
Package Dimension











NOTE:
The tolerances unless mentioned is±0.1mm,Unit= mm

Rev	Date	Drawn by	Checked by	Approved by
A0	06-01-2020	Xiaver	Eric	Sumeng

Device Selection Guide

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

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		
		BH		
Peak Forward Current (Duty 1/10 @lKHz)	I_{FP}	R6	60	mA
		GH	100	
		BH	100	
Power Dissipation	P_d	R6	60	mW
		GH	95	
		BH	95	
Electrostatic Discharge(HBM)	ESD	R6	2000	V
		GH	150	
		BH	150	
Operating Temperature	T_{OPR}	R6	-40 ~+85	℃
		GH		
		BH		
Storage Temperature	T_{STG}	R6	-40 ~+90	℃
		GH		
		BH		
Soldering Temperature	T_{SOL}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.		

Electro-optical Characteristics (Temperature=25°C)

Parameter	Symbol	Code	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_V	R6	72	100	---	mcd	I_F=20mA
		GH	112	180			
		BH	28.5	50			
Viewing Angle	$2\theta_{1/2}$		---	120	---	deg	
Peak Wavelength	λ_P	R6	---	632	---	nm	
		GH		518			
		BH		468			
Dominant Wavelength	λ_d	R6	---	624	---	nm	
		GH		525			
		BH		470			
Spectrum Radiation Bandwidth	$\Delta\lambda$	R6	---	20	---	nm	
		GH		35			
		BH		35			
Forward Voltage	V_F	R6	---	2.0	2.4	V	
		GH		3.3	3.9		
		BH		3.9	3.9		
Reverse Current	I_R	R6	---	---	10	μA	V_R=5V
		GH			50		
		BH			50		

Notes:

1.Tolerance of Luminous Intensity ±10%

2.Tolerance of Dominant Wavelength ±1nm

3.Tolerance of Forward Voltage ±0.1V

R6

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
Q1	72.0	90.0	mcd	I_F=20mA
Q2	90	112		
R1	112	140		
R2	140	180		
S1	180	225		

GH

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
R2	140	180	mcd	I_F=20mA
S1	180	225		
S2	225	285		

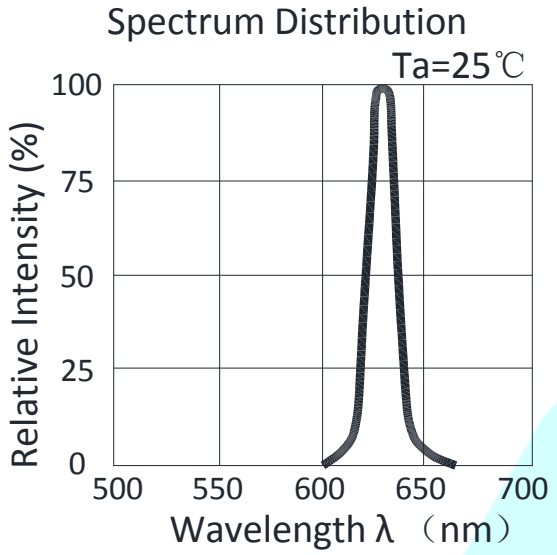
BH

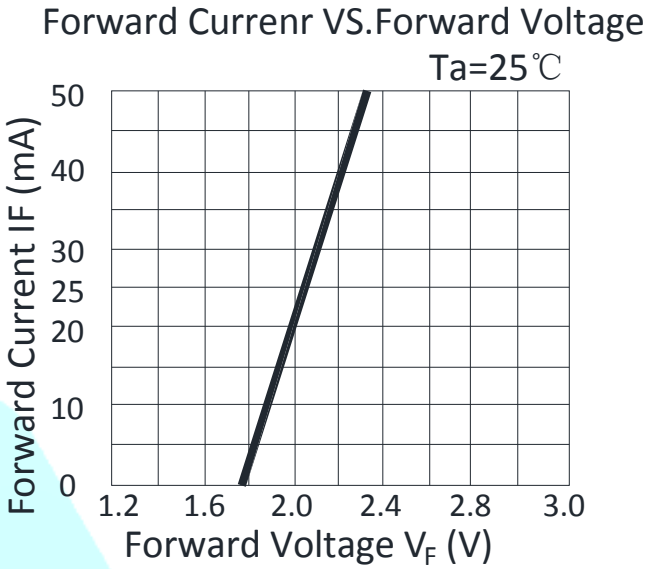
Bin Range of Luminous Intensity

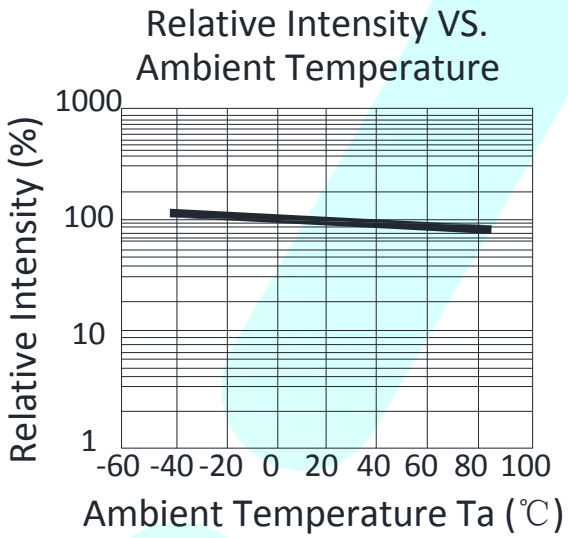
Bin Code	Min.	Max.	Unit	Condition
N2	36.0	45.0	mcd	I_F=20mA
P1	45.0	57.0		
P2	57.0	72.0		
Q1	72.0	90.0		

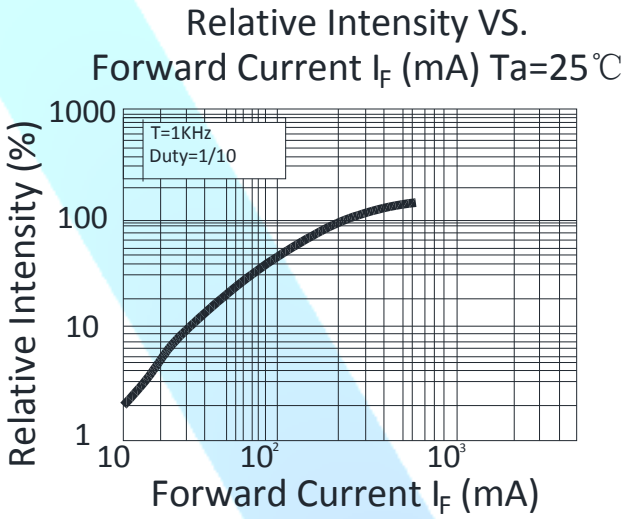
Note: Tolerance of Luminous Intensity ±11%

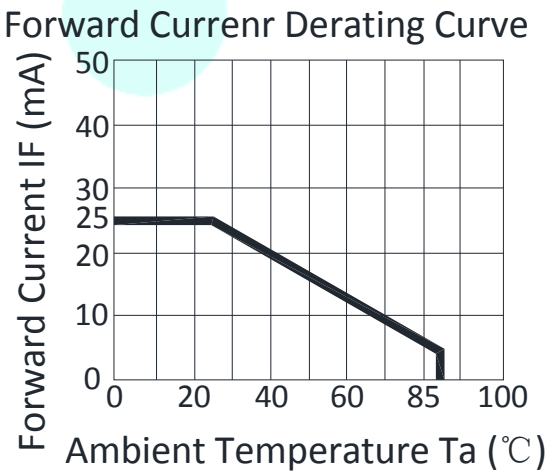
Typical Electro-optical Characteristics Curves R6

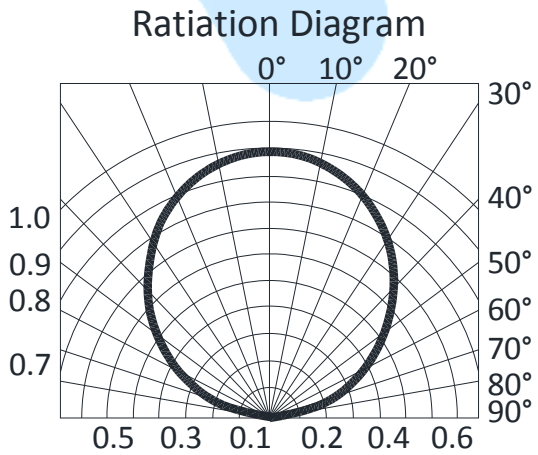






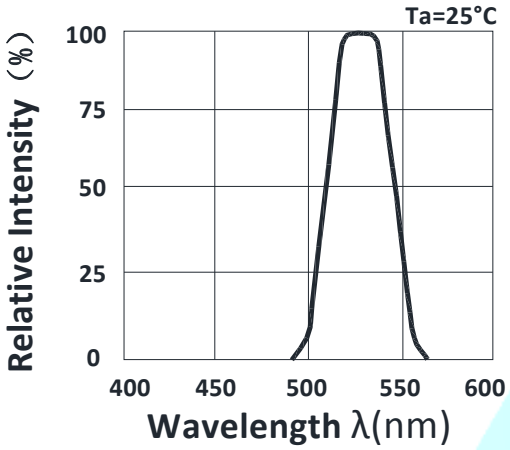




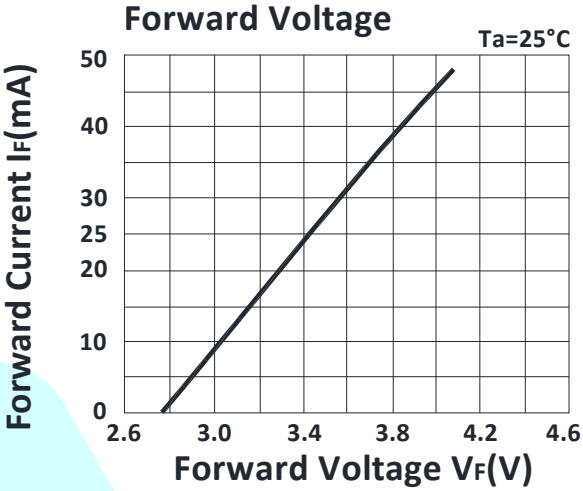


Typical Electro-optical Characteristics Curves GH

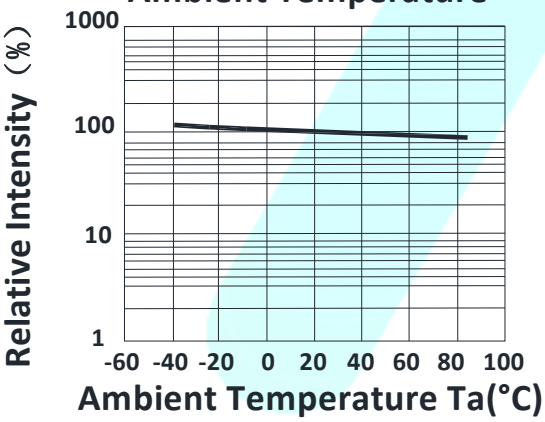
Spectrum Distribution



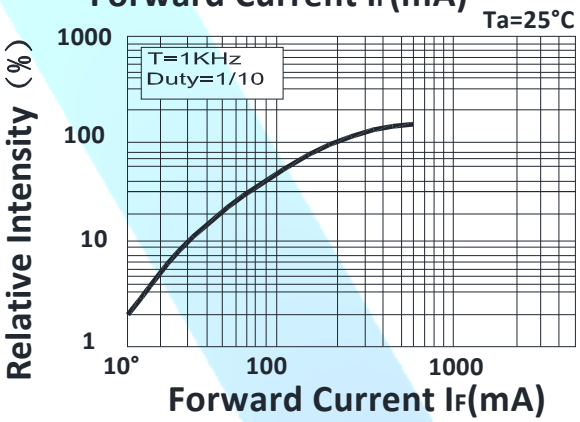
Forward Current V.S. Forward Voltage



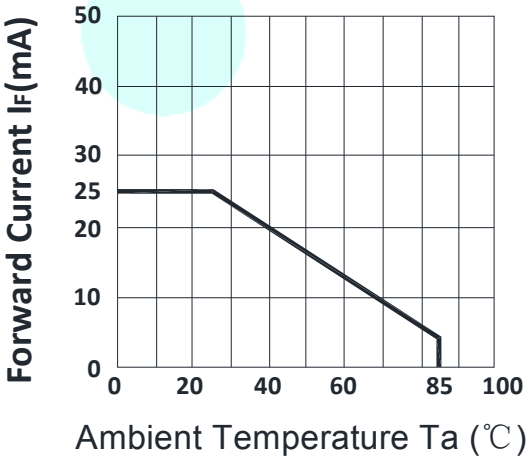
Relative Intensity V.S. Ambient Temperature



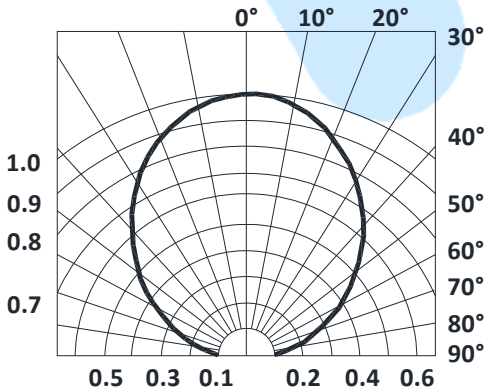
Relative Intensity V.S. Forward Current IF(mA)



Forward Current Derating Curve

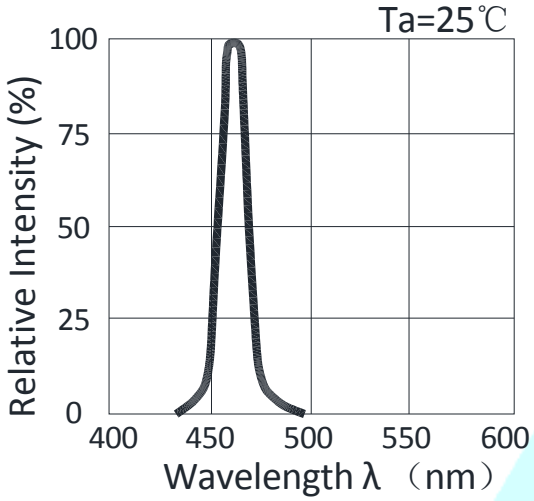


Ratiation Diagram

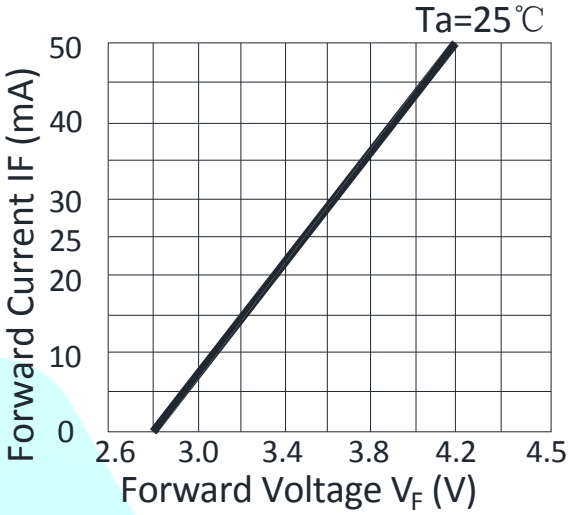


Typical Electro-optical Characteristics Curves BH

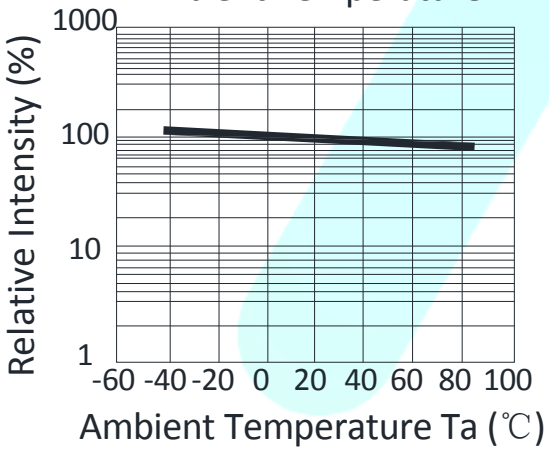
Spectrum Distribution



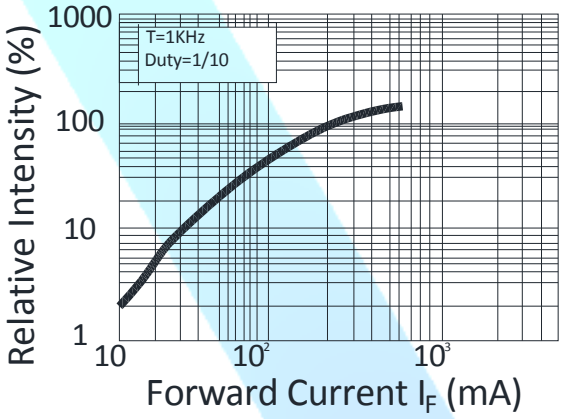
Forward Currenr VS.Forward Voltage



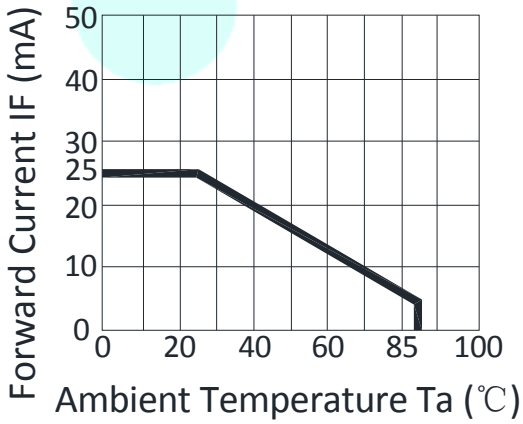
Relative Intensity VS.
Ambient Temperature



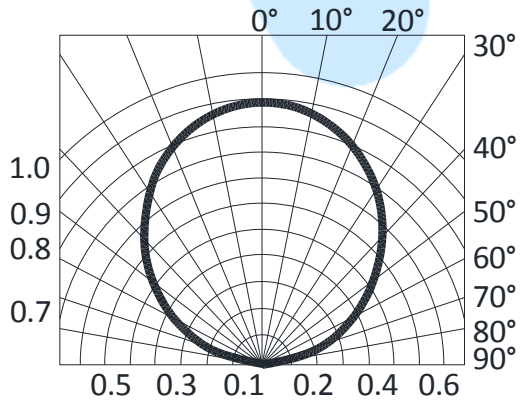
Relative Intensity VS.
Forward Current I_F (mA) Ta=25℃



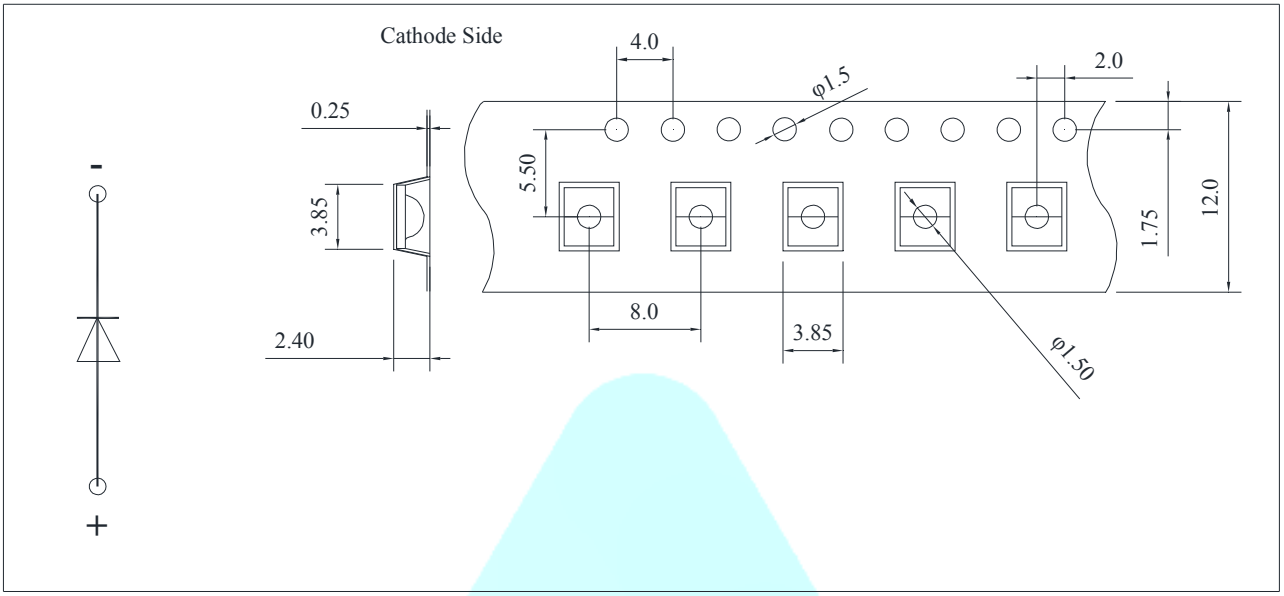
Forward Currenr Derating Curve



Ratiation Diagram

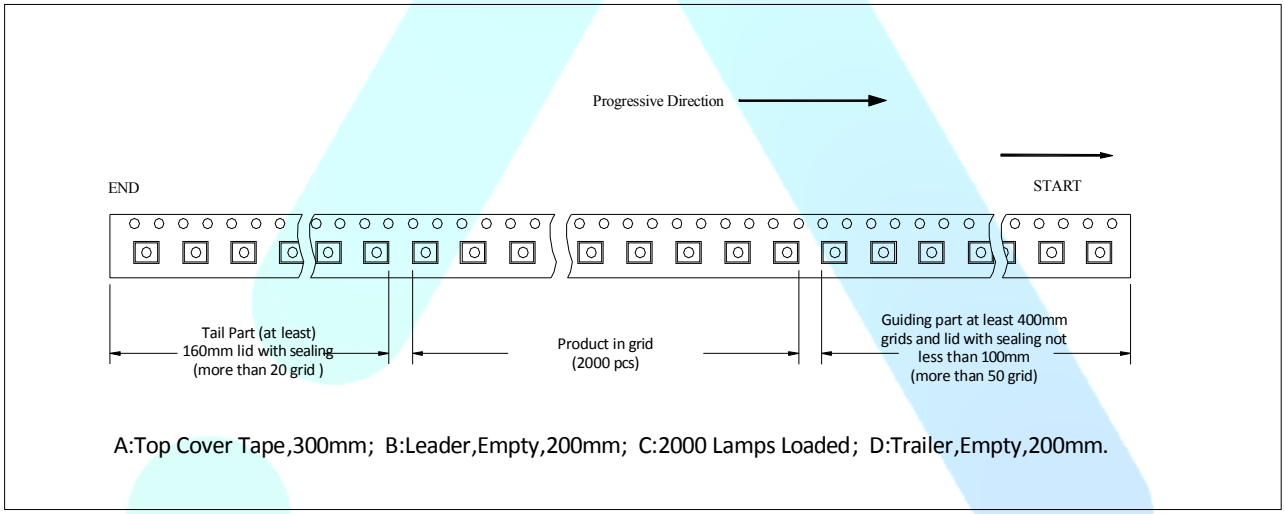


Packaging Carrier Tape

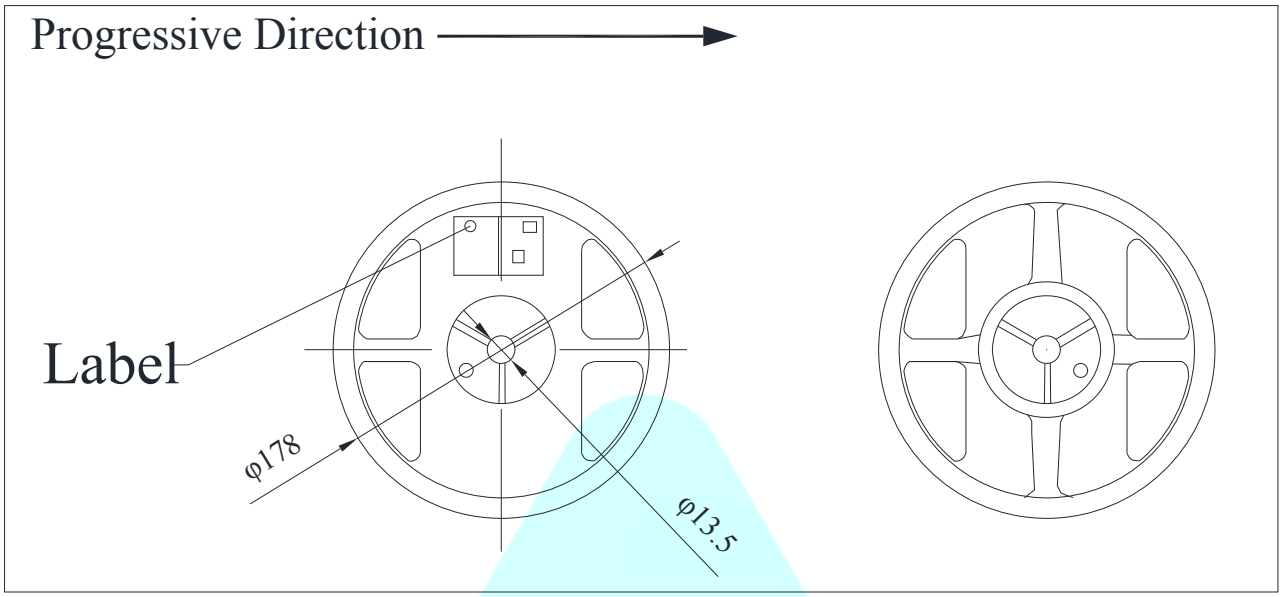


Note: The tolerances unless mentioned is ±0.1mm, Unit=mm.

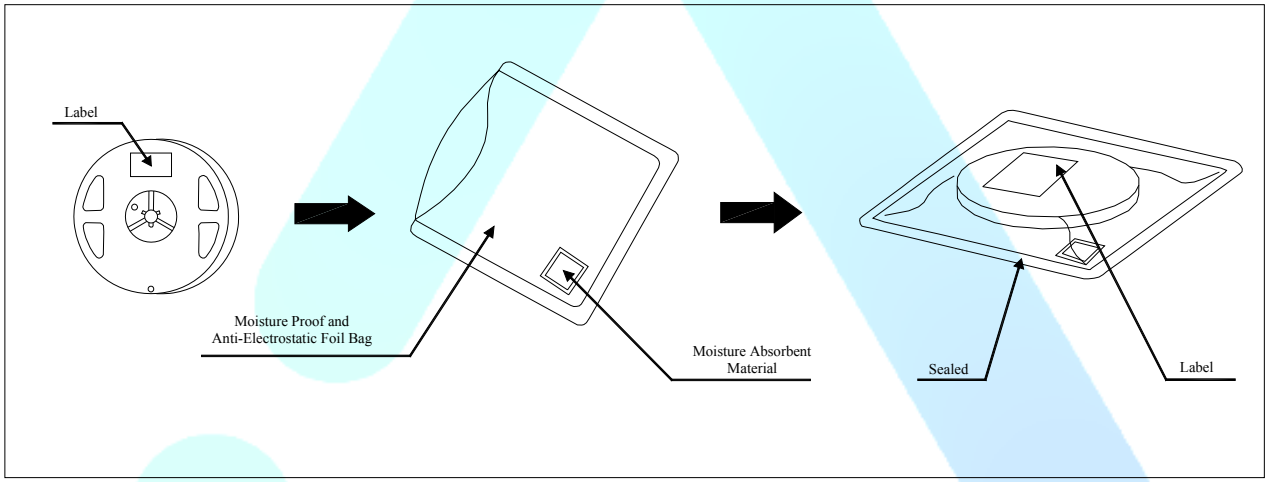
Details of Carrier Tape



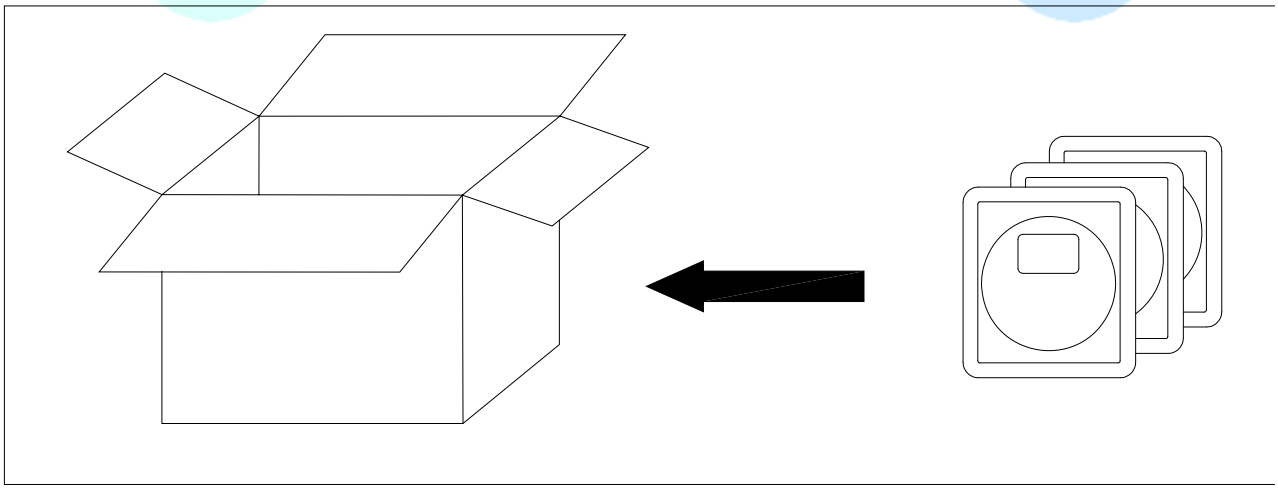
Reel Dimension



Moisture Proof and Anti-Electrostatic Foil Bag



Cardboard Box



Label Explanation

CPN: Customer Product Number
P/N: Product Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT NO: Lot Number

Guideline for Soldering

1.Hand Soldering

- A soldering iron of less than 20W is recommended to be used in Hand Soldering. Please keep the soldering iron under 360℃ while soldering. Each terminal of the LED is to go for less than 3 second and for one time only.
- Be careful because the damage of the product is often started at the time of the hand soldering

2.Reflow Soldering

- Use the conditions shown in the under Figure of Pb-Free Reflow Soldering.
- Reflow soldering should not be done more than two times.
- Stress on the LEDs should be avoided during heating in soldering process.
- After soldering, do not touch with the product before its temperature drop down to room temperature.

3.Cleaning

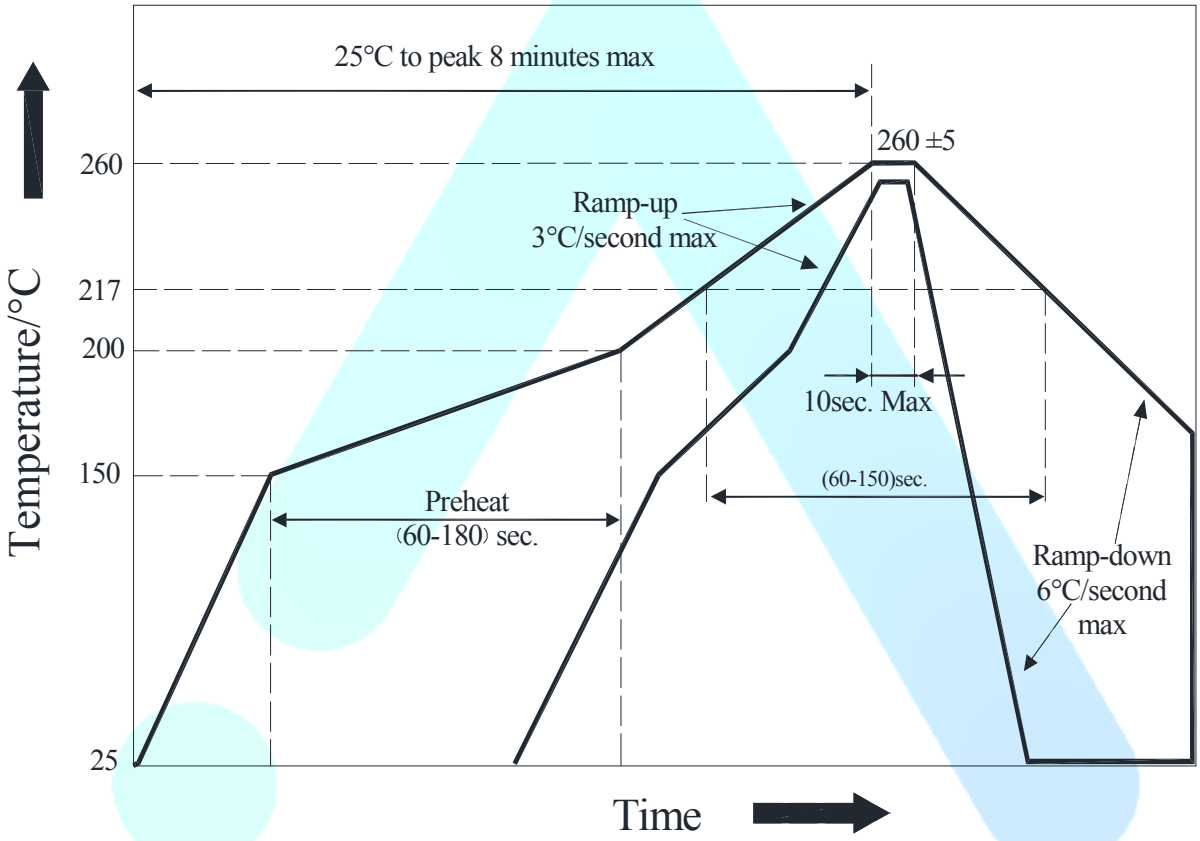
- It is recommended that alcohol be used as a solvent for cleaning after soldering. Cleaning is to go under 30℃ for 3 minutes or 50℃ for 30 seconds. When using other solvents, it should be confirmed before hand whether the solvents will dissolve the package and the resin or not.

- Ultrasonic cleaning is also an effective way for cleaning. But the influence of Ultrasonic cleaning on LED depends on factors such as ultrasonic power. Generally, the ultrasonic power should not be higher than 300W. Before cleaning, a pre-test should be done to confirm whether any damage to LEDs will occur.

Precautions

1. Storage

- Moisture proof and anti-electrostatic package with moisture absorbent material is used，to keep moisture to a minimum.
- Before opening the package, the product should be kept at 30℃ or less and humidity less than80% RH, and be used within a year.
- After opening the package, the product should be stored at 30℃ or less and humidity less than 10%RH, and be soldered with 24 hours (1day). It is recommended that the product be operated at the workshop condition of 30℃ or less and humidity less than 60%RH.



- If the moisture absorbent material has faded away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition: (80±5)℃ for 24 hours.

2. Static Electricity

- Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual Characteristic such as the forward voltage becomes lower, or the LEDs do not light at the low current even not light.
- All devices, equipment and machinery must be properly grounded. At the same time, it is recommended that wristbands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.

3. Vulcanization

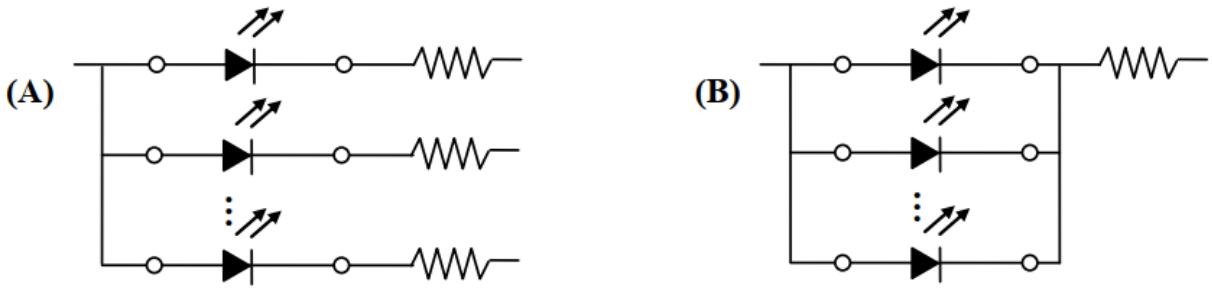
- LED curing is due to sulfur being in bracket and the +1 price of silver in the chemical reaction generated Ag 2 Sin the process. It will lead to the capacity of reflecting of silver layer reducing, light color temperature drift and serious decline, seriously affecting the performance of the product.So we should take corresponding measures to avioding vulcanization, such as to a void using sulphur volatile substance sand keeping away from high sulphur content of the material

4. Safety Advice For Human Eyes

- Viewing direct to the light emitting center of the LEDs, especially those of great Luminous Intensity will cause great hazard to human eyes. Please be careful.

5. Design Consideration

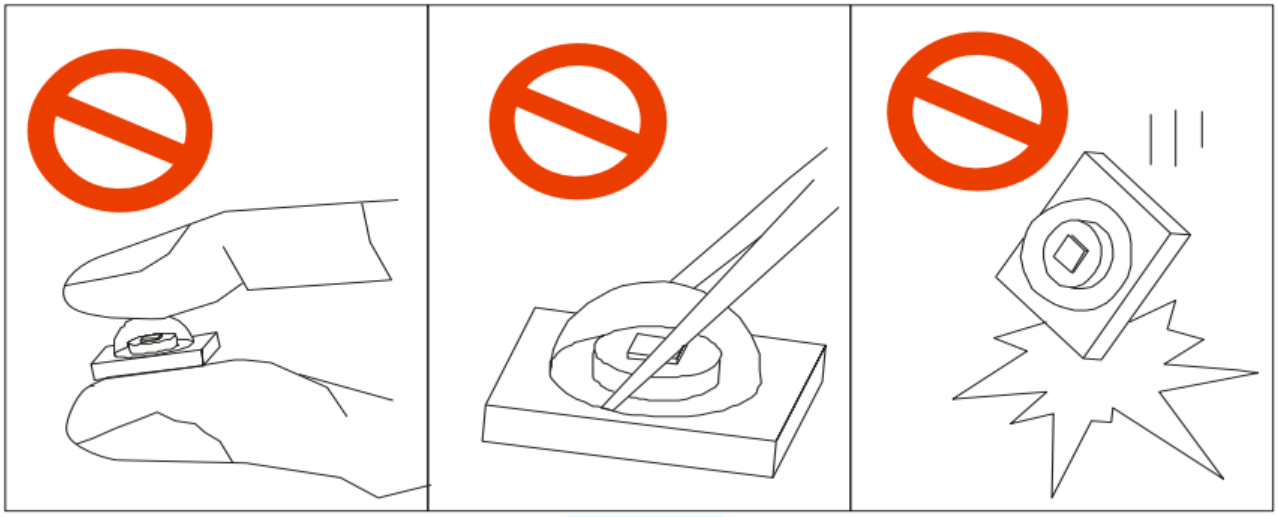
- In designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED. In the meanwhile, resistors for protection should be applied, otherwise slight voltage shift will cause big current change, burn out may happen.
- It is recommended to use Circuit A which regulates the current flowing through each LED rather than Circuit B. When driving LEDs with a constant voltage in Circuit B, the current through the LEDs may vary due to the variation in Forward Voltage (VF) of the LEDs. In the worst case, some LED may be subjected to stresses in excess of the Absolute Maximum Rating.



- Thermal Design is paramount importance because heat generation may result in the Characteristics decline, such as brightness decreased, Color changed and so on. Please consider the heat generation of the LEDs when making the system design.

6. Others

- When handling the product, touching the encapsulate with bare hands will not only contaminate its surface, but also affect on its optical characteristic. Excessive force to the encapsulate might result in catastrophic failure of the LEDs due to die breakage or wire deformation. For this reason, please do not put excessive stress on LEDs, especially when the LEDs are heated such as during Reflow Soldering.



➢ The silicon resin of encapsulate is fragile, so please avoid scratch or friction over the silicon resin surface. While handling the product with tweezers, do not hold by the silicon resin, be careful.