Luckylight

2.50mm Height Top View

Full Color Chip LEDs

Technical Data Sheet

Part No.: R2727RGBM-002-B

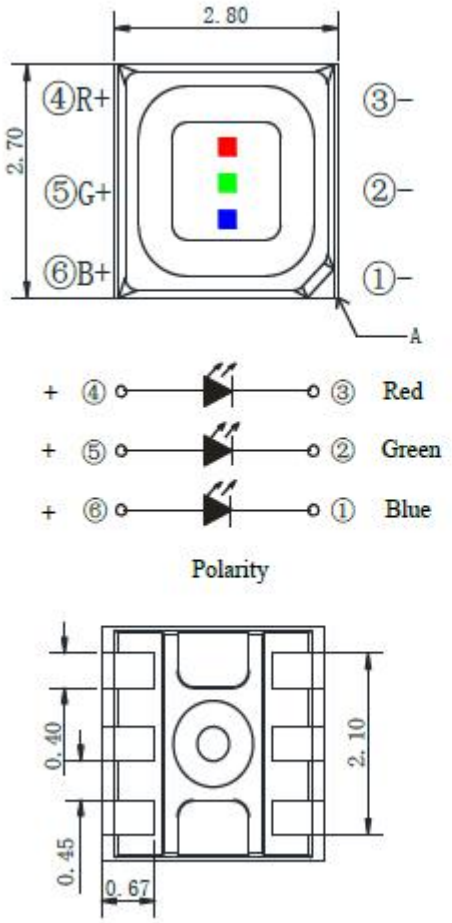
Features:

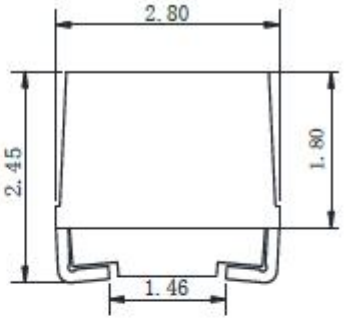
- ◇ Long operating life.
- ◇ High Power Consumption.
- ◇ Excellent thermal performance.
- ◇ The product itself will remain within RoHS compliant Version.

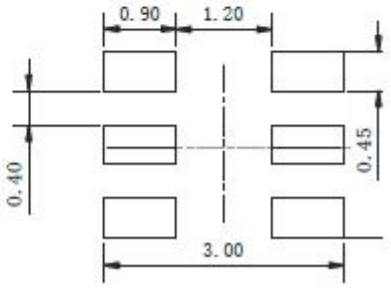
Applications:

- ◇ Backlight in dashboards and switches.
- ◇ Telecommunication: Indicator and backlight in telephone and fax.
- ◇ Indicator and backlight for audio and video equipment.
- ◇ Indicator and backlight in office and family equipment.
- ◇ Flat backlight for LCD's, switches and symbols.
- ◇ Light pipe application.
- ◇ General use.

Package Dimension:







Part No.	Chip Material		Lens Color	Source Color
R2727RGBM-002-B	R	AlGaInP	White Diffused	Hyper Red
	G	InGaN		Pure Green
	B	InGaN		Blue

Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (.010”) unless otherwise specified.
3. Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25℃

Parameters	Symbol		MAX	Unit
Power Dissipation	PD	Hyper Red	60	mW
		Pure Green	90	
		Blue	90	
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	Hyper Red	100	mA
		Pure Green	100	
		Blue	100	
Continuous Forward Current	IF	Hyper Red	25	mA
		Pure Green	25	
		Blue	25	
Reverse Voltage	VR		5	V
Electrostatic Discharge (HBM)	ESD	Hyper Red	2000	V
		Pure Green	400	
		Blue	400	
Operating Temperature Range	Topr		-40℃ to +80℃	
Storage Temperature Range	Tstg		-40℃ to +85℃	
Soldering Temperature	Tsld		260℃ for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

Parameters	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity (Note 1)	IV	Hyper Red	300	450	856	mcd	IF=15mA
		Pure Green	500	750	1428		IF=8mA
		Blue	70	120	200		IF=5mA
Viewing Angle (Note 2)	$2\theta_{1/2}$	Hyper Red	---	120	---	Deg	IF=15mA
		Pure Green	---	120	---		IF=8mA
		Blue	---	120	---		IF=5mA
Peak Emission Wavelength (Measurement@Peak)	λp	Hyper Red	---	632	---	nm	IF=15mA
		Pure Green	---	520	---		IF=8mA
		Blue	---	468	---		IF=5mA
Dominant Wavelength (Note 3)	λd	Hyper Red	---	624	---	nm	IF=15mA
		pure Green	---	525	---		IF=8mA
		Blue	---	470	---		IF=5mA
Spectral Line Half-Width	△λ	Hyper Red	---	20	---	nm	IF=15mA
		Pure Green	---	35	---		IF=8mA
		Blue	---	25	---		IF=5mA
Forward Voltage	VF	Hyper Red	1.60	2.00	2.40	V	IF=15mA
		Pure Green	2.60	3.00	3.60		IF=8mA
		Blue	2.60	3.00	3.60		IF=5mA
Reverse Current	IR	Hyper Red	---	---	10	μA	V_R=5V
		Pure Green			50		
		Blue			50		

Notes:

1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

3. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

R:

Bin Range (IF=15mA)			
Bin Code	Min.	Max.	Unit
A1	615	620	nm
A2	620	625	
A3	625	630	
Bin Code	Min.	Max.	Unit
B2	390	507	mcd
B3	507	660	
B4	660	856	
Bin Code	Min.	Max.	Unit
C0	1.8	2.3	v

G:

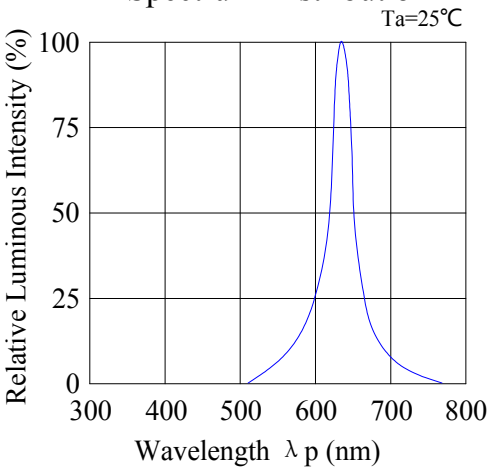
Bin Range (IF=8mA)			
Bin Code	Min.	Max.	Unit
D1	520	525	
D2	525	530	
D3	530	535	
Bin Code	Min.	Max.	Unit
E2	650	845	mcd
E3	845	1090	
E4	1090	1428	
Bin Code	Min.	Max.	Unit
F1	2.6	3.2	v

B:

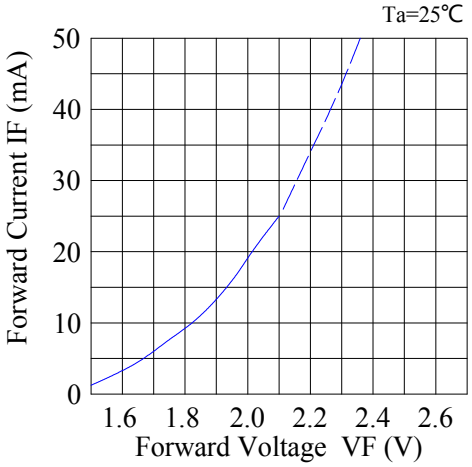
Bin Range (IF=5mA)			
Bin Code	Min.	Max.	Unit
G1	465	470	nm
G2	470	475	
Bin Code	Min.	Max.	Unit
H2	90	120	mcd
H3	120	153	
H4	153	200	
Bin Code	Min.	Max.	Unit
V1	2.6	3.2	v

Typical Electrical / Optical Characteristics Curves
(25℃ Ambient Temperature Unless Otherwise Noted)
Hyper Red:

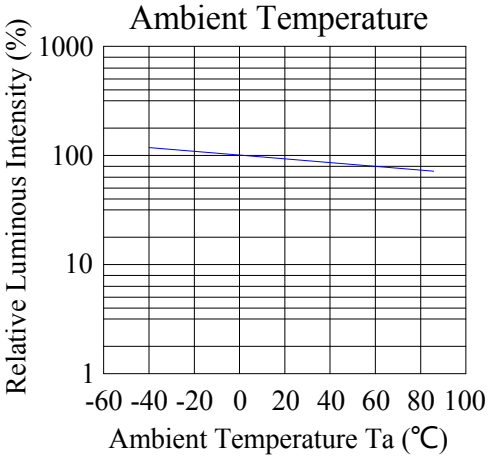
Spectrum Distribution



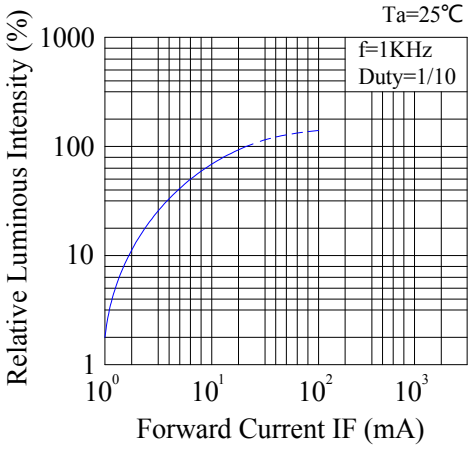
Forward Current & Forward Voltage



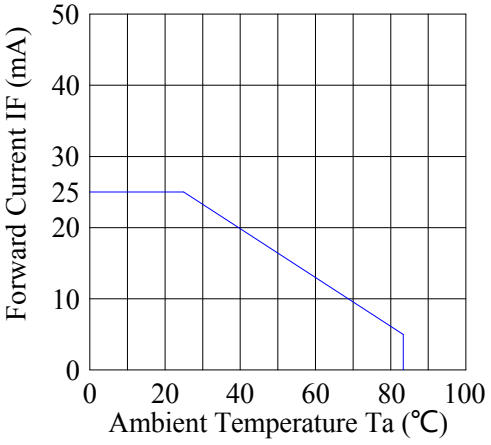
Luminous Intensity & Ambient Temperature



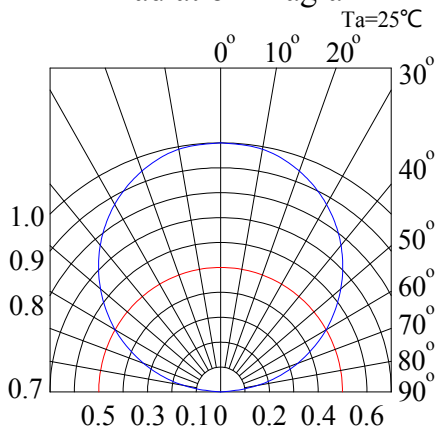
Luminous Intensity & Forward Current



Forward Current Derating Curve

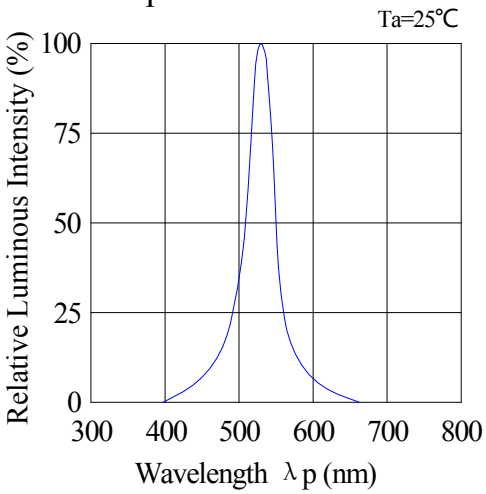


Radiation Diagram

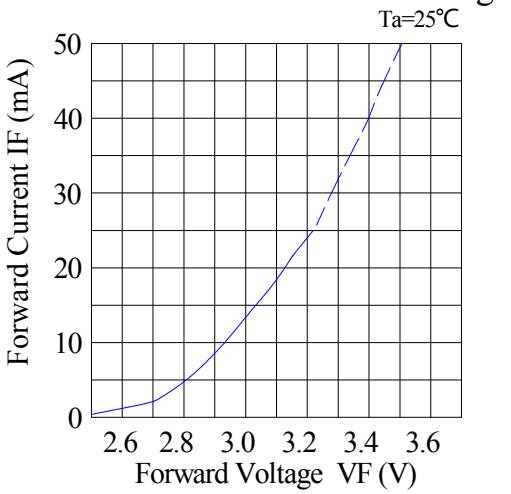


Pure Green:

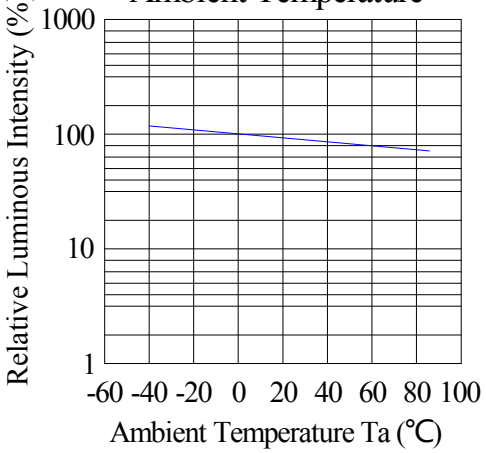
Spectrum Distribution



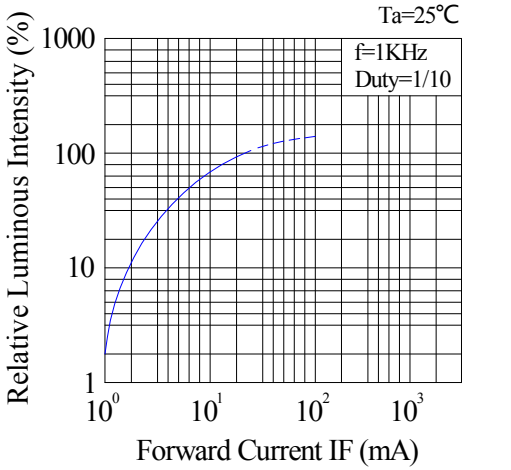
Forward Current & Forward Voltage



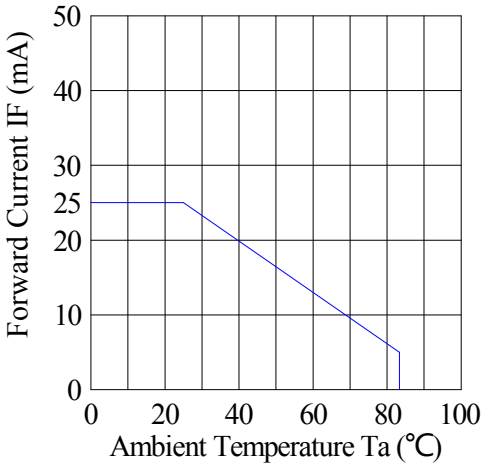
Luminous Intensity & Ambient Temperature



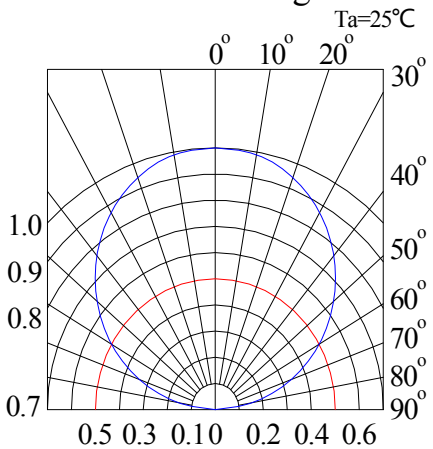
Luminous Intensity & Forward Current



Forward Current Derating Curve

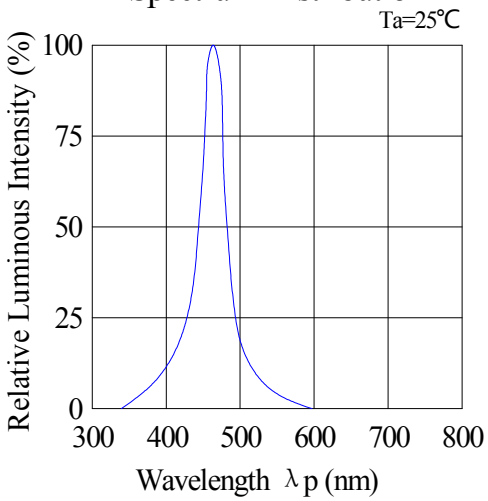


Radiation Diagram

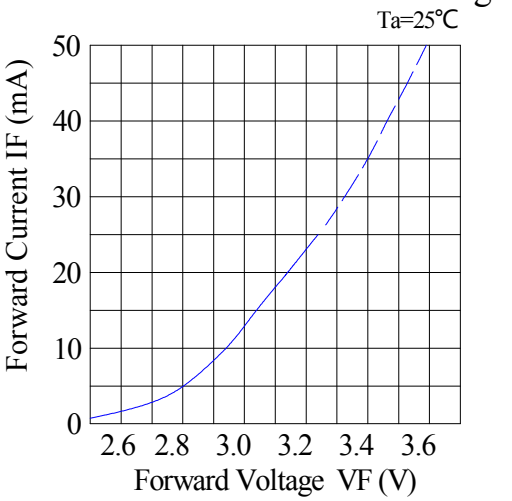


Blue:

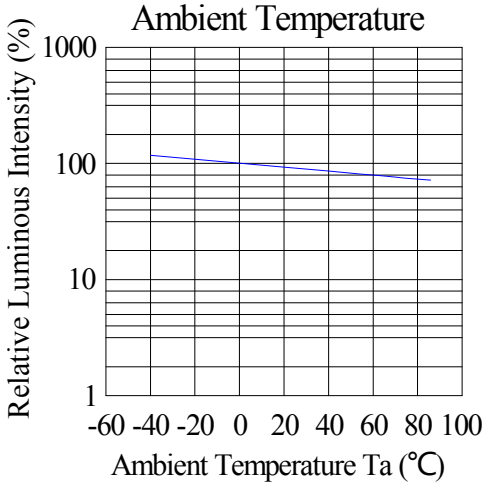
Spectrum Distribution



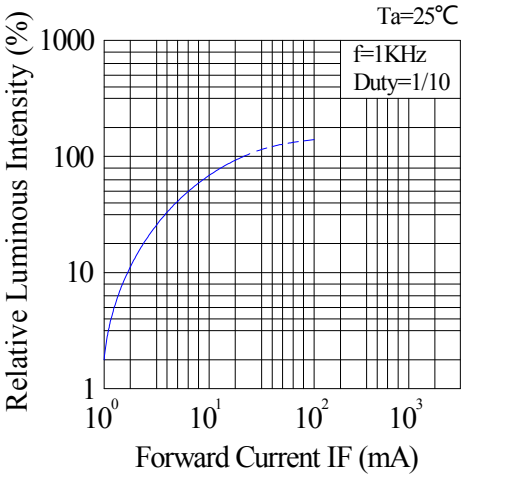
Forward Current & Forward Voltage



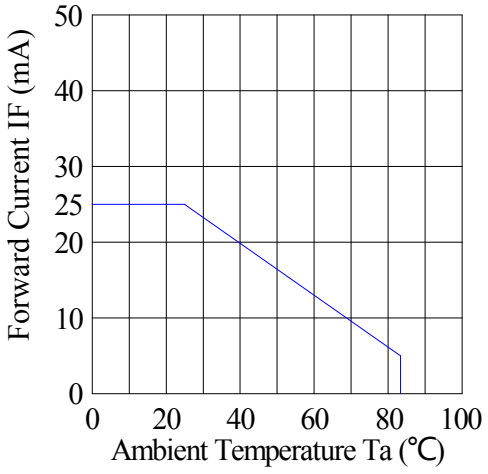
Luminous Intensity & Ambient Temperature



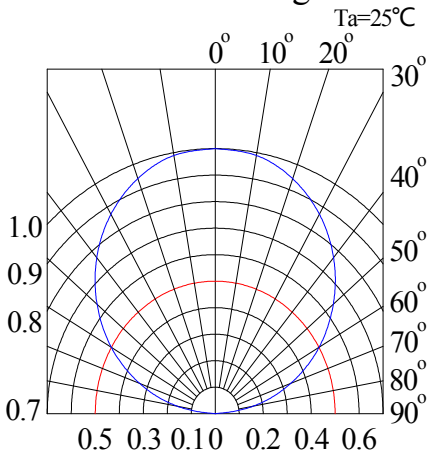
Luminous Intensity & Forward Current



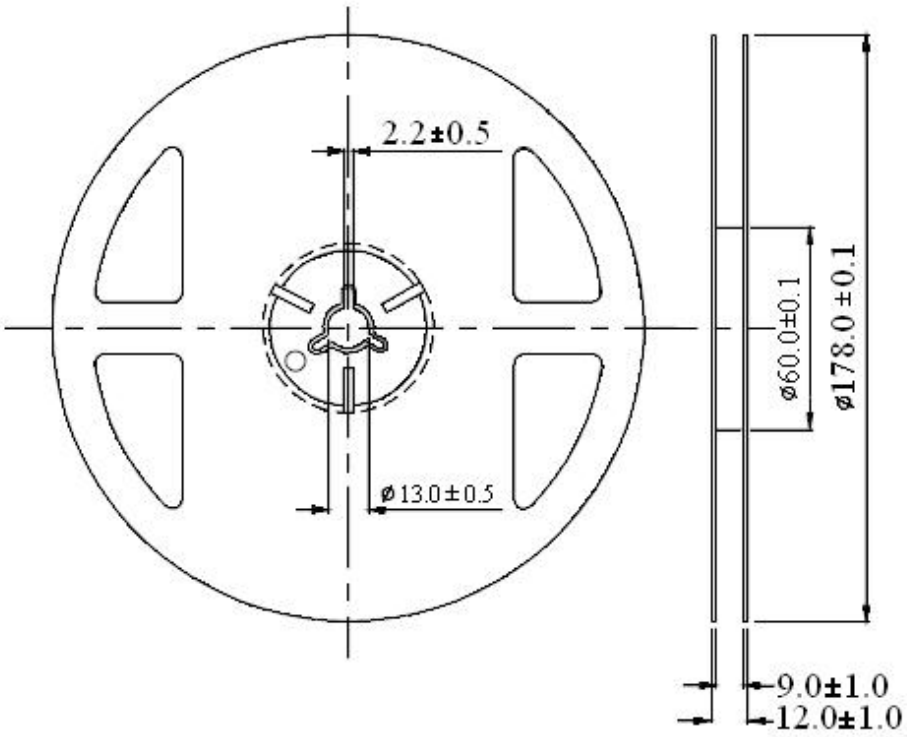
Forward Current Derating Curve



Radiation Diagram



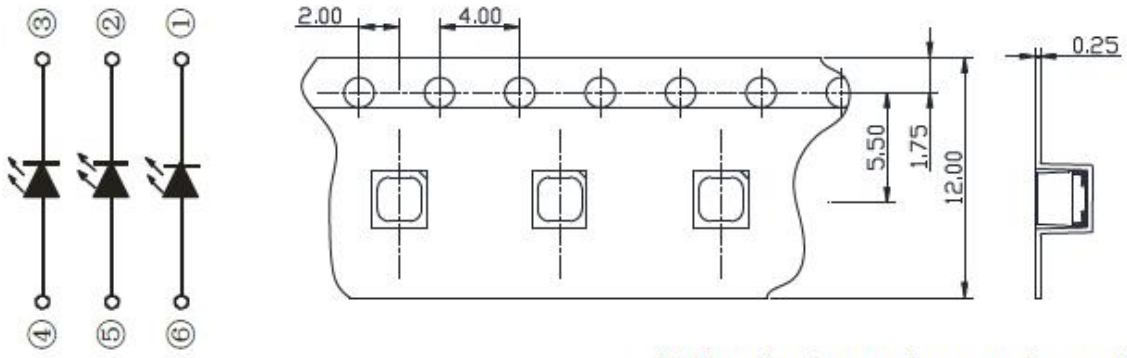
Reel Dimensions:



Unit: mm
Tolerance: ±0.25mm

Carrier Tape Dimensions:

Loaded quantity 7000PCS per reel.



All dimensions in mm, tolerances unless mentioned is ±0.1 mm.

Please read the following notes before using the product:

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Storage environment: Before opening the package, the product should be kept at 30℃ or less and humidity less than 60% RH, When the storage time more than 2 months, need to be used to bake

2.3 Before using, please check whether there is any air leakage or not, If the bag has leaked air, Please bake the product with below condition

2.4 Before soldering,the product must be stored under the condition of<30℃ and <60%RH. Under these conditions the SMD LEDs must be used (subj ect to reflow oven) within 12 hours

2.5 If the moisture adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 70±5℃ for 24 hours.

3. Soldering Condition

When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.

To avoided the Epoxy climb up on lead frame and was impact to non-soldering problem, dipping the lens into the solder must be avoided.

Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions:

Soldering Iron		Wave Soldering	
Temperature Soldering Time	300℃ Max. 3 sec. Max. (one time only)	Pre-heat Pre-heat Time Solder Wave Soldering Time	100℃ Max. 60 sec. Max. 260℃ Max. 5 sec. Max.

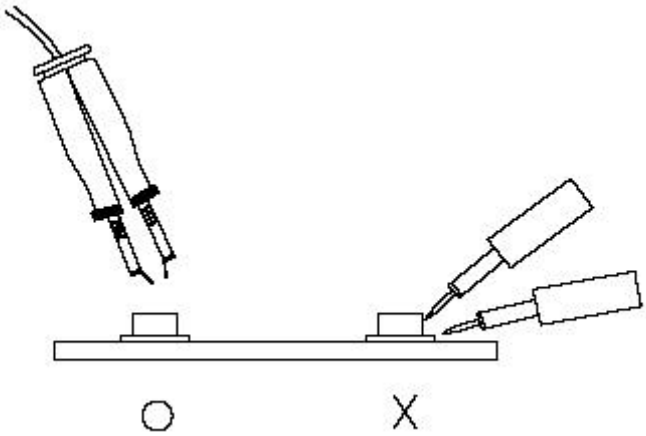
Note: Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃ for 5 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.

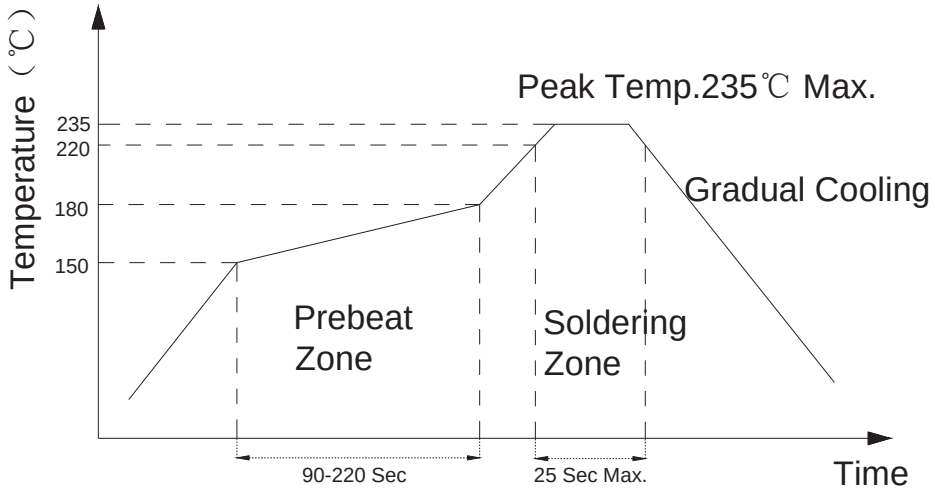


6. Caution in ESD

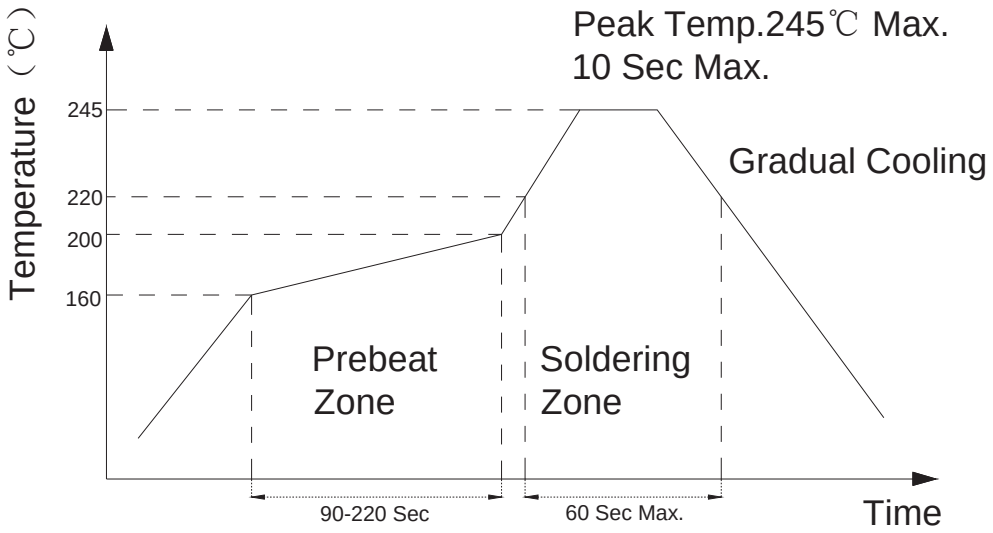
Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.

回流焊接曲线图 **IR reflow soldering Profile**

有铅焊接 Lead solder



无铅焊接 Lead Free solder



注意： 1. 我们建议的回流焊温度为 240℃±5℃，最高的焊接温度要控制在 260℃以内。
2. 当产品在处在高温状态中时不要对其硅胶施加压力。
3. 回流焊的次数应小于两次。

NOTES：

1. **We reeommend the reflow temperature 240℃±5℃.the maximum soldering temperature should be limited to 260°**
2. **Don’t cause stress to the silicone resin while it is exposed to high temperature.**
3. **Number of reflow process shall be 1 time.**

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