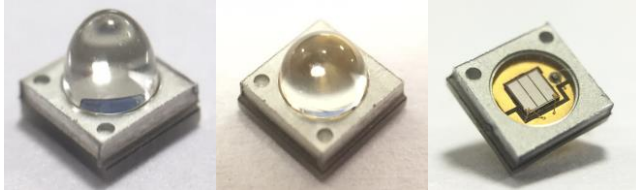


3939 Quartz LED Series



(30D)

(60D)

(120D)

◆ Outline :

3 0° : 3.9*3.9*3.2mm

6 0° : 3.9*3.9*2.6mm

120° : 3.9*3.9*1.6mm

- ◆ UVB power output ~70mW (Max)
- ◆ Optional optical quartz lens
- ◆ Long operation lifetime

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Features

- ROHS and REACH-compliant
- MSL 4 qualified according to J-STD 020
- ESD 2KV



3939 HighPower UVB

■ Product List

Peak Wavelength Range	Beam Angle	Part Number
300~320nm	30°	3939A31502D000
	60°	3939C31502D000
	120°	3939F31502D000
320-340nm	30°	3939A32502D000
	60°	3939C32502D000
	120°	3939F32502D000



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■ Maximum rating (Ta : 25°C)

Characteristics	Symbol	Min.	Typical	Max.	Unit
DC Forward Current ¹	I _F	---	---	350	mA
Forward Voltage	V _F	5.5	---	9.0	V
Junction Temperature ³	T _j	---	--	85	°C
Storage Temperature Range	T _{sto}	-40	–	100	°C
Soldering Temperature	T _{sol}		---	245	°C
Thermal Resistance Junction / Solder Point	R _{th}	---	12.5	---	°C/W
Beam Angle	2θ _{1/2}	---	30 60 120	---	Deg

◇ Notes:

1. For other ambient, limited setting of current will depend on de-rating curves.
2. When driving at maximum current the T_j must be kept below 85°C
3. Viewing angle(2θ_{1/2}) ± 10°

■ Peak-Wavelength Binning

Peak Wavelength			unit: nm@350mA
Bin Code	Min	Max	
UVB	300	320	
	320	340	

◇ Notes:

1. Binning current is 350mA
2. Wavelength tolerance ± 2nm



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■ Voltage binning

	Voltage			unit: V@350mA
Peak Wavelength	Bin Code	Min	Max	
300~340nm	V1	5.0	7.0	
	V2	7.0	9.0	

◇ Notes:

1. Binning current is 350mA

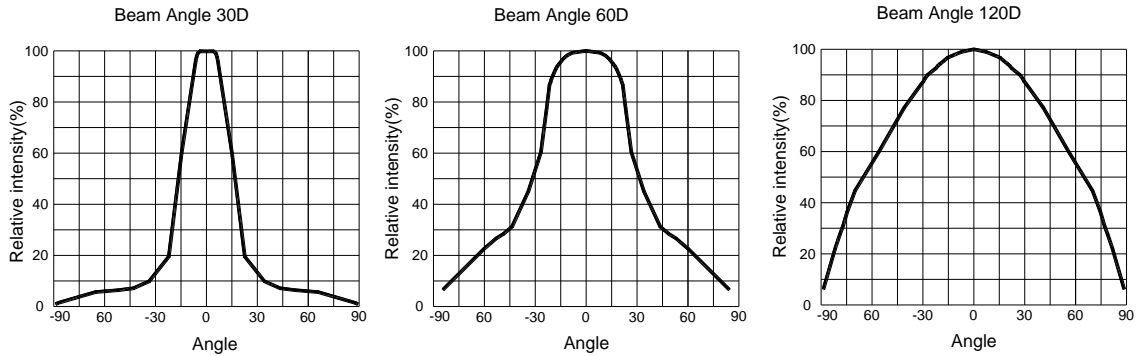
■ Radiant flux (Power) binning

	Radiant flux (Power)			unit: mw@350mA
Peak Wavelength	Bin Code	Min	Max	
300~340nm	A1	30	50	
	A2	50	70	

◇ Notes:

1. Binning current is 350mA
2. Power tolerance $\pm 10\%$

■ Typical spatial distribution ($2\theta_{1/2}$)



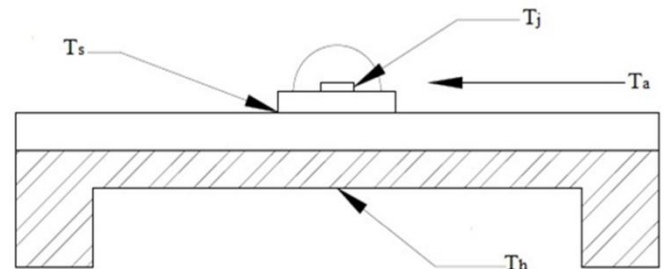
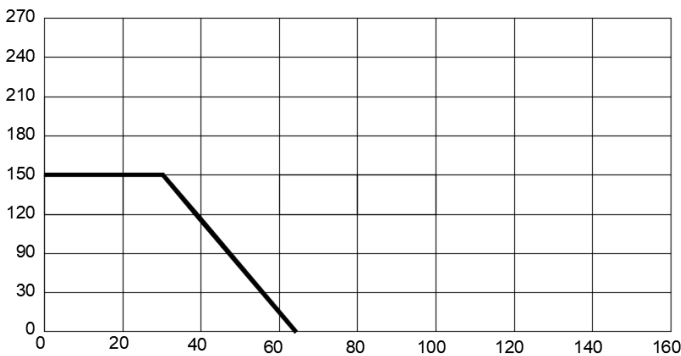
◇ Notes:

Viewing angle($2\theta_{1/2}$) $\pm 10^\circ$

■ Thermal design for de-rating

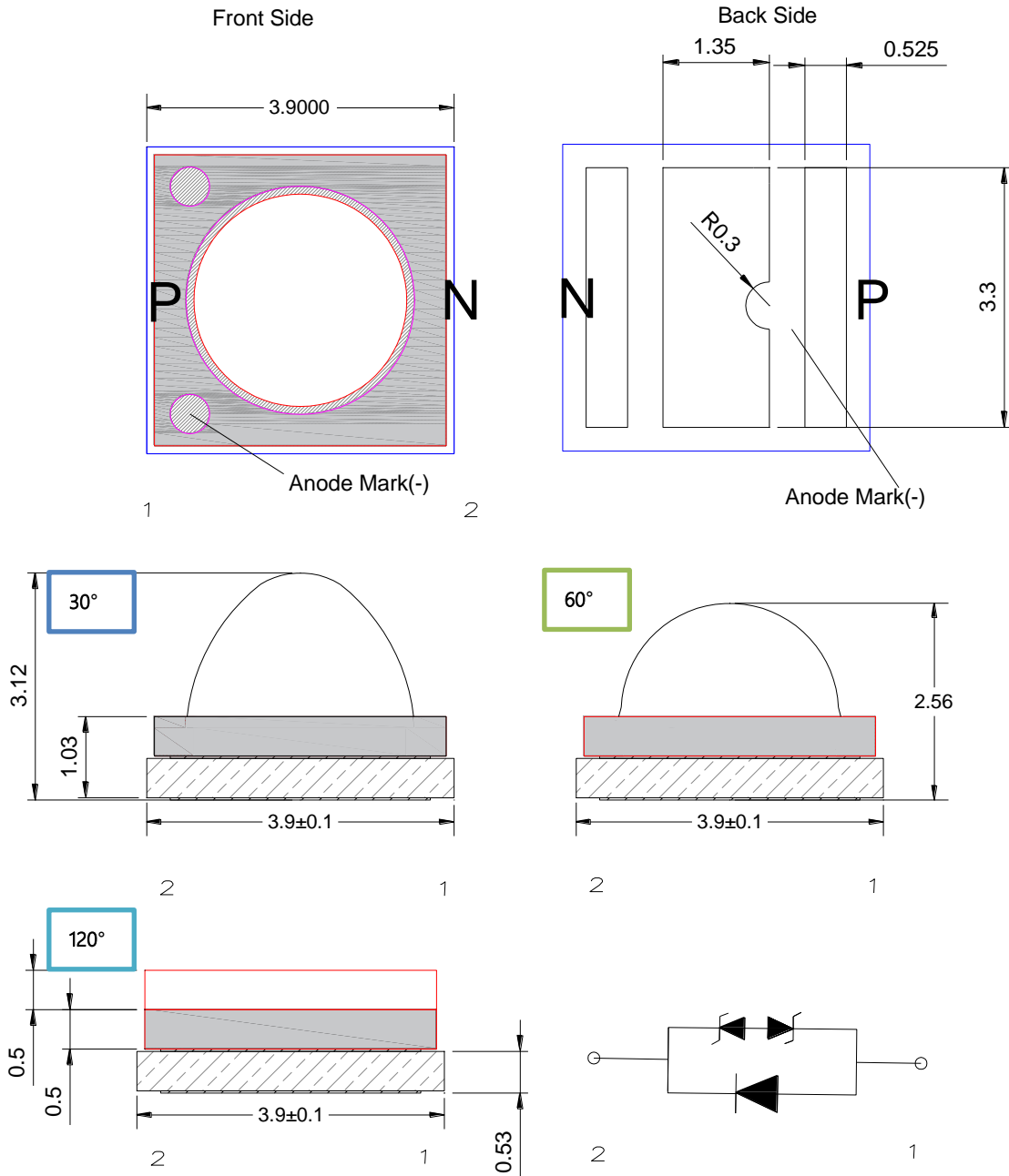
The maximum forward current is determined by the thermal resistance between the LED junction and solder point. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the junction to the solder point order to optimize LED life and optical characteristics.

Thermal Design for De-rating



T_s : Solder Point Temp.
 T_h : Heat Sink Temp.
 T_a : Ambient Temp.
 $R_{th(j-a)}$: Thermal Resistance from Point "Tj" to Point "Ta"

■ Dimensions & Polarity



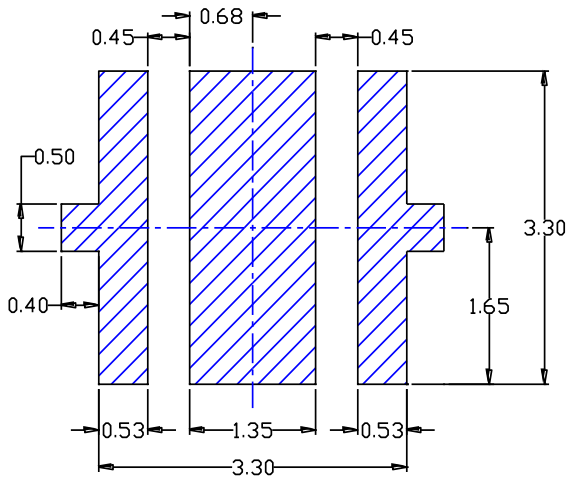


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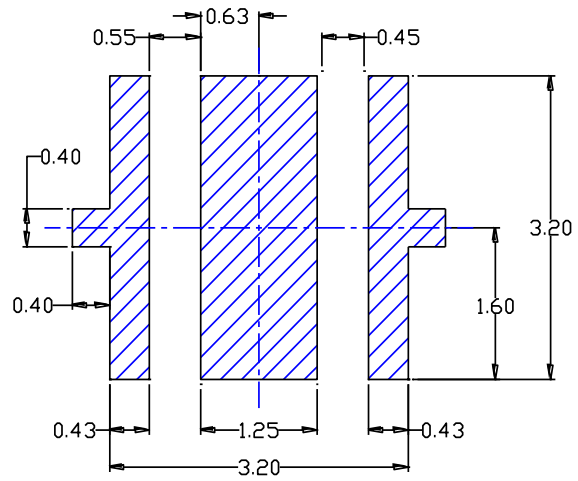
■ Reliability Test

No.	Test Item	Test Hours/Cycles	Test Conditions	Sample Size	Ac/Re
1	Resistance to Soldering Heat	3 times	Tsld=260±5°C, (pre treatment 60°C, 24 hours)	22pcs	0/1
2	High Temperature Storage	1000Hrs.	Temp: 100°C	22pcs	0/1
	Low Temperature Storage	1000Hrs.	Temp: -40°C	22pcs	0/1
3	Room Temperature Operating Life	1000Hrs.	Ta=25°C, IF=350mA	22pcs	0/1
4	High Operating Temperature	1000Hrs.	Ta=50°C, IF=350mA	22pcs	0/1
5	Low Operating Temperature	1000Hrs.	Ta=-40°C, IF=350mA	22pcs	0/1

■ Suggest stencil pattern (Recommendations for reference)



RECOMMENDED PCB SOLDER PAD



RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

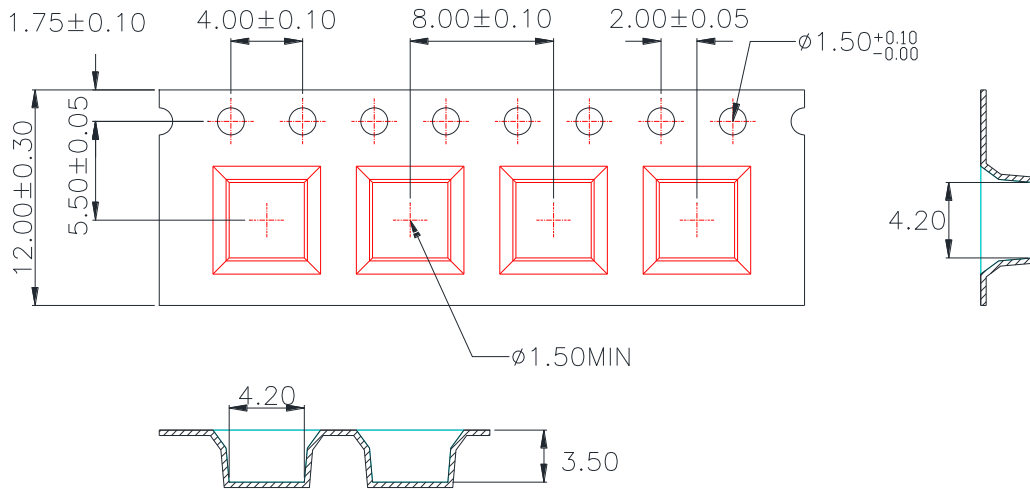
§ Suggest stencil $t = 0.12$ mm

◇ **Note:**

§ All dimensions are in millimeters.

§ Tolerance is ± 0.13 mm unless other specified.

■ Packing 3939-30°



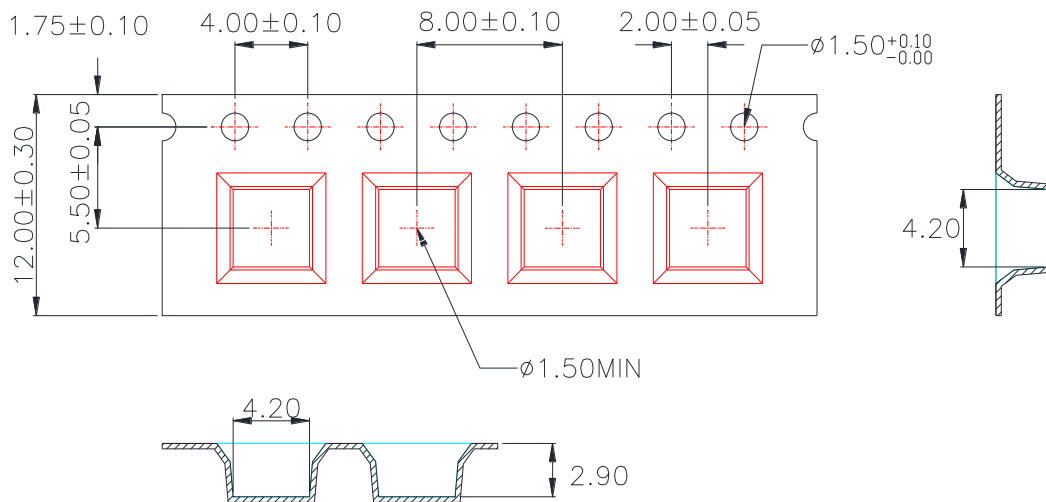
1. 10 sprocket hole pitch cumulative tolerance ± 0.20 .
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30 ± 0.05 mm.
6. Packing length per 22 " reel : 62.5 Meters(1:3).
7. Component load per 13" reel : 2500 pcs.



Taiwan Patent No : 157713
China Patent No : 01224591.7

W	12.00±0.30
A0	4.20±0.10
B0	4.20±0.10
K0	3.50±0.10

3939 120° / 60°

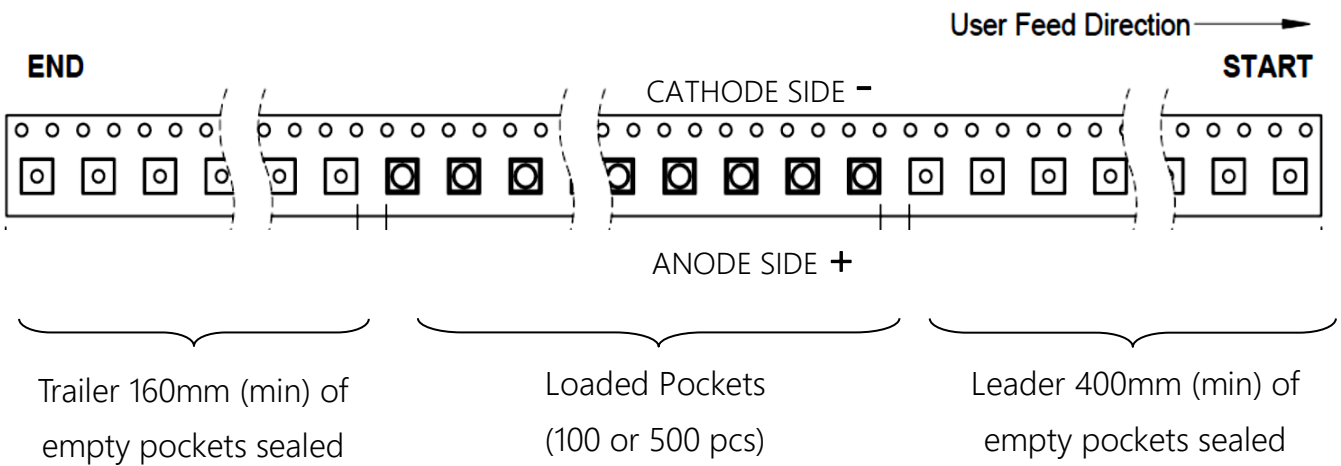


1. 10 sprocket hole pitch cumulative tolerance ± 0.20 .
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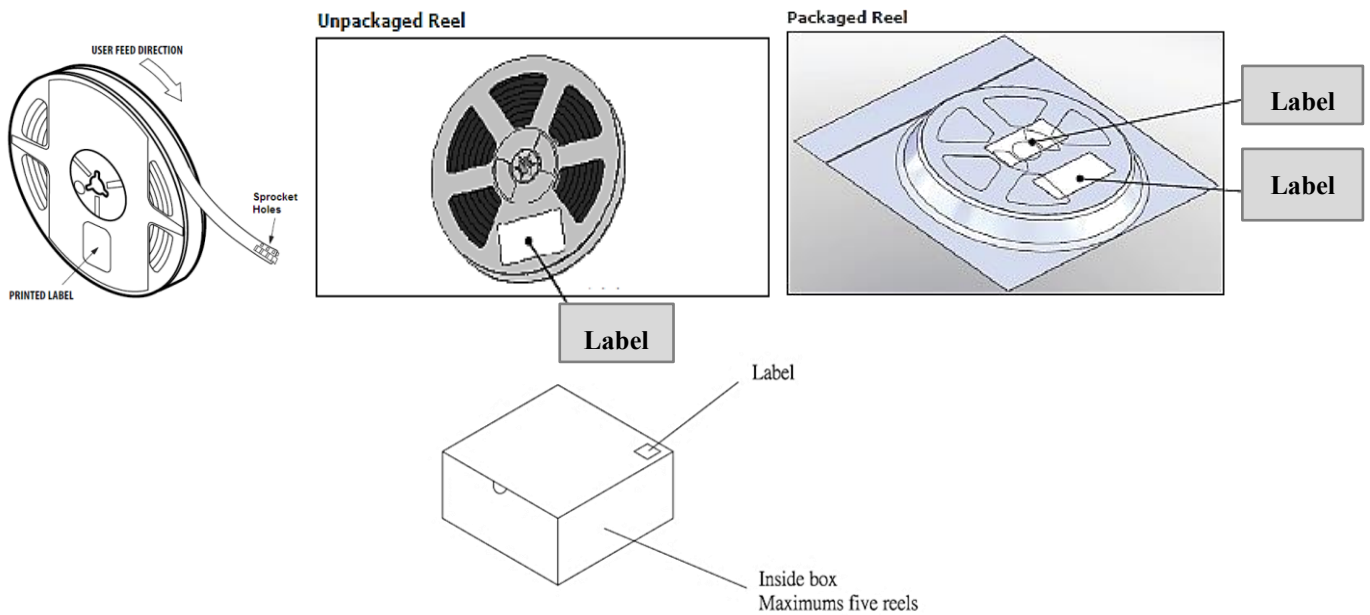
W	12.00±0.30
A0	4.20±0.10
B0	4.20±0.10
K0	2.90±0.10



Trailer 160mm (min) of empty pockets sealed

Loaded Pockets (100 or 500 pcs)

Leader 400mm (min) of empty pockets sealed



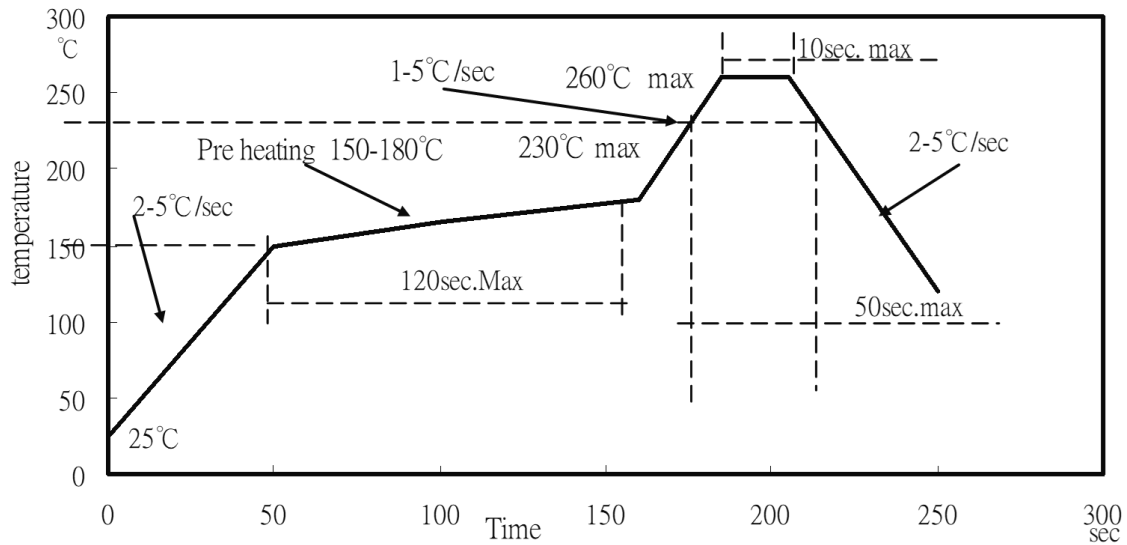
Notes:

1. Each Reel (minimum number of pieces is 100 and maximum is 500 is packed in a moisture-proof bag along with 1 packs of desiccant and a humidity indicator card;
2. A maximum of 6 moisture-proof bags are packed in an inner box (size: 240mm x 200mm x 105mm ±5mm)
3. A maximum of 4 inner boxes are put in an outer box (size: 410mm x 255mm x 230mm ±5mm)
4. Part No., Lot No., quantity should be indicated on the label of the moisture-proof bag and the cardboard box.

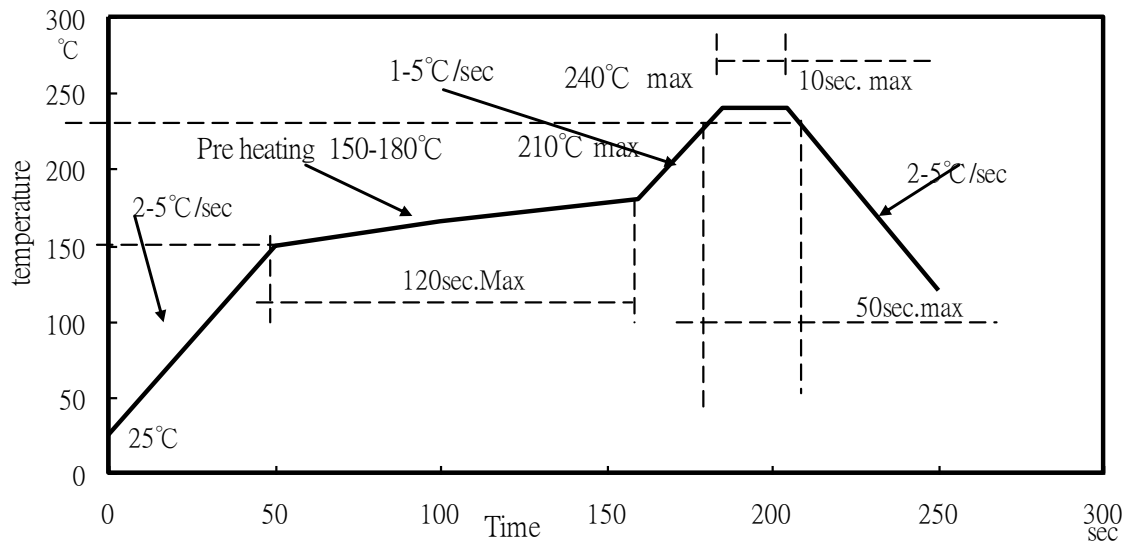
■ Reflow Profile

IR reflow soldering Profile

Lead Free solder



Lead solder



Notes:

1. The recommended reflow temperature is 240°C (±5°C). The maximum soldering temperature should be limited to 260°C.
2. Do not stress the silicone resin while it is exposed to high temperature.
3. The number of reflow process should not exceed 3 times.

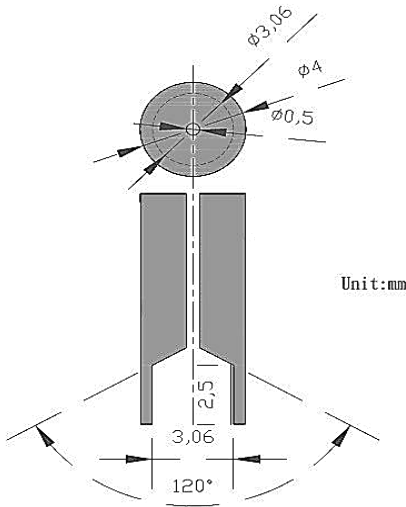
■ Precautions

1. Recommendation for using LEDs

- 1.1 The lens of LEDs should not be exposed to dust or debris. Excessive dust and debris may cause a drastic decrease in the luminosity.
- 1.2 Avoid mechanical stress on LED lens.
- 1.3 Do not touch the LED lens surface. It would affect the optical performance of the LED due to the LED lens' damage.
- 1.4 Pick & place tools are recommended for the remove of LEDs from the factory tape & reel packaging

2. Pick & place nozzle

The pickup tool was recommended and shown as below



3. Lens handling

Please follow the guideline to pick LEDs

- 3.1 Use tweezers to pick LEDs
- 3.2 Do not touch the lens by using tweezers
- 3.3 Do not touch lens with fingers
- 3.4 Do not apply more than 4N of lens (400g) directly onto the lens

4. Lens cleaning

In the case which a small amount of dirt and dust particles remain on the lens surface, a suitable cleaning solution can be applied.

- 4.1 Try a gentle wiping with dust-free cloth
- 4.2 If needed, use dust-free cloth and isopropyl alcohol to gently clean the dirt from the lens surface.
- 4.3 Do not use other solvents as they may directly react with the LED assembly
- 4.4 Do not use ultrasonic cleaning which will damage the LEDs



3939 HighPower UVB