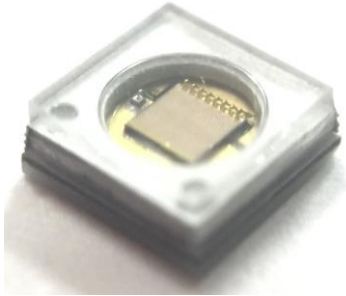


3939 VCSEL IR Quartz LED

3939 Quartz LED Series



Outline :

120° : 3.9*3.9*1.53mm

- ◆ High PCE (Power Conversion Efficiency)
- ◆ Good Thermal Dissipation
- ◆ Optional Optical Quartz Lens

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Features

- ROHS and REACH-compliant
- MSL 4 qualified according to J-STD 020
- ESD \geq 8KV
-

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■ Maximum rating (Ta : 25°C)

Characteristics	Symbol	Min.	Typical	Max.	Unit
DC Forward Current ¹	I _F	---	4	---	mA
Pulse Current(@1/10 duty) ²	I _p	---	9	---	mA
Forward Voltage	V _F	2.4	---	2.6	V
Reverse Voltage	V _R	---	---	-5	V
Leakage Current (5V)	I _R	---	---	10	μA
Junction Temperature ³	T _j	---	85	---	°C
Storage Temperature Range	T _{sto}	-40	—	80	°C
Soldering Temperature	T _{sol}		---	260	°C
Thermal Resistance Junction / Solder Point	R _{th}	---	TBD	---	°C/W
Beam Angle	2θ _{1/2}	---	24	---	Deg

◇ Notes:

1. For other ambient, limited setting of current will depend on de-rating curves.
2. D=0.01s duty 1/10.
3. When driving at maximum current the T_j must be kept below 110 °C
4. Viewing angle(2θ_{1/2}) ± 10°

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■ Peak-Wavelength

Peak Wavelength			unit: nm@9mA
Type	Min	Max	
W68	680	690	

◇ Notes:

1. Wavelength tolerance $\pm 2\text{nm}$

■ Voltage Binning

Voltage			unit: V@9mA
Bin Code	Min	Max	
V1	2.4	2.6	

◇ Notes:

1. Voltage tolerance $\pm 0.12\text{V}$

■ Radiant flux (Power) Binning

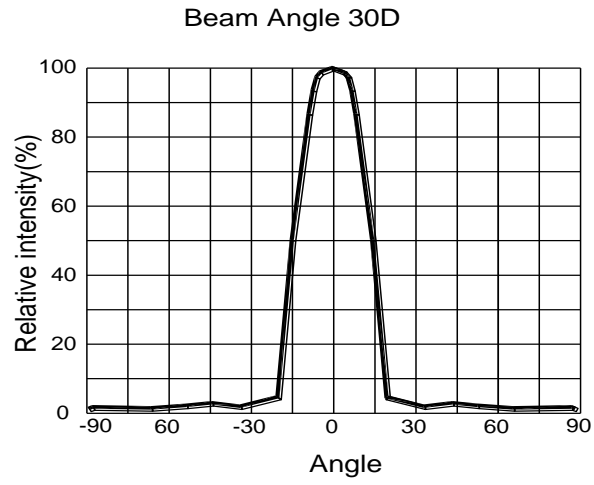
Radiant flux (Power)				unit: mw@9mA
Peak Wavelength	Bin Code	Min	Max	
680~690nm	P1	4	8	

◇ Notes:

1. Power tolerance $\pm 10\%$

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■ Characteristics



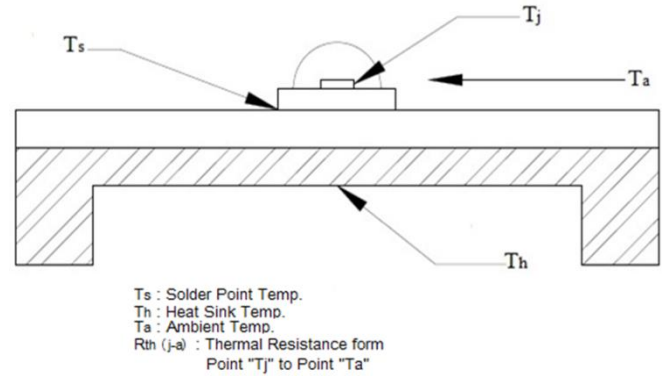
◇ Notes:

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

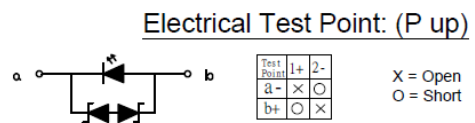
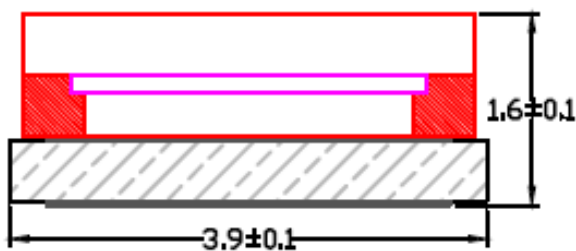
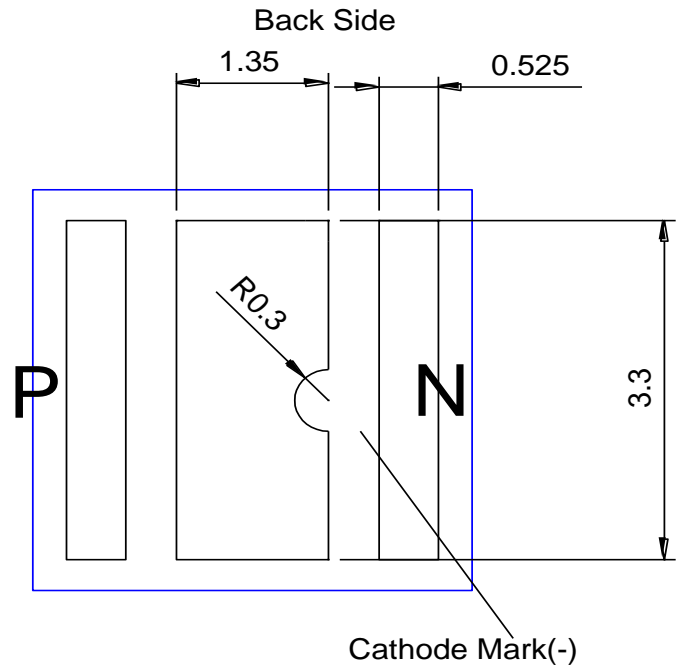
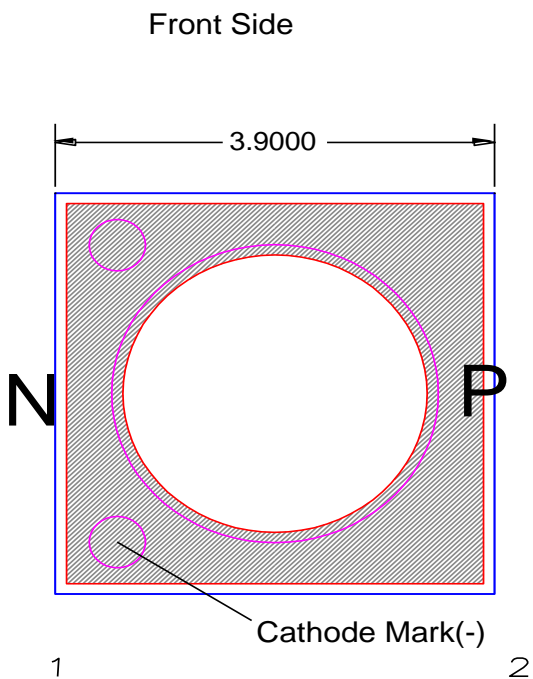
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Thermal design for de-rating

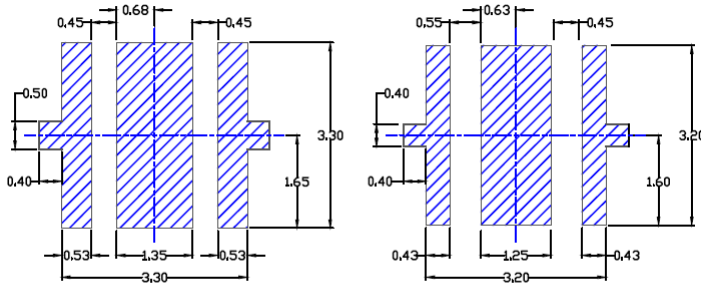
The maximum forward current is determined by the thermal resistance between the LED junction and solder point. It is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the junction to the solder point order to optimize LED life and optical characteristics.



Dimensions & Polarity



■ Suggest stencil pattern (Recommendations for reference)



RECOMMENDED PCB SOLDER PAD

RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

§ Suggest stencil $t = 0.12$ mm

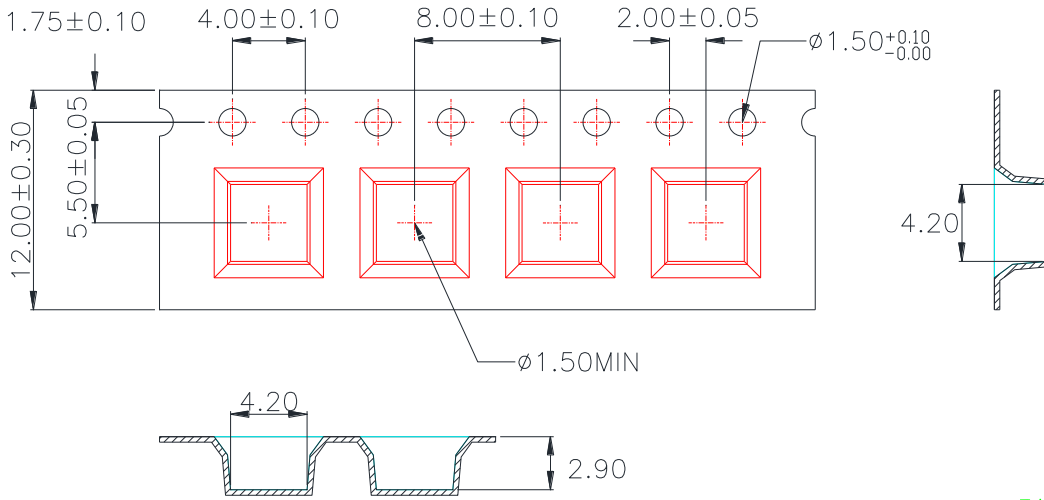
◇ Note:

§ All dimensions are in millimeters.

§ Tolerance is ± 0.13 mm unless other specified.

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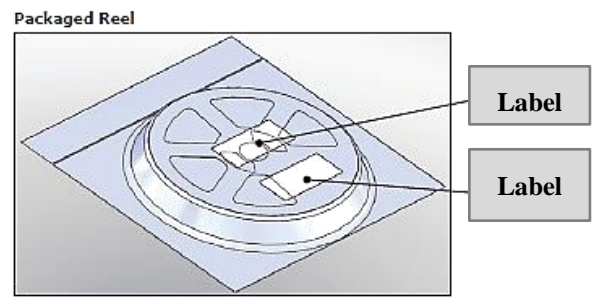
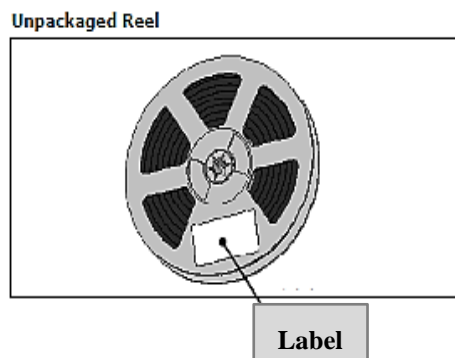
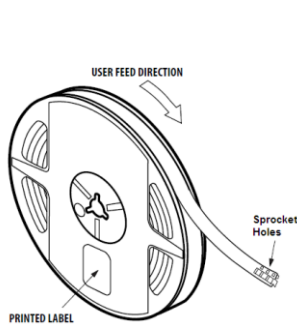
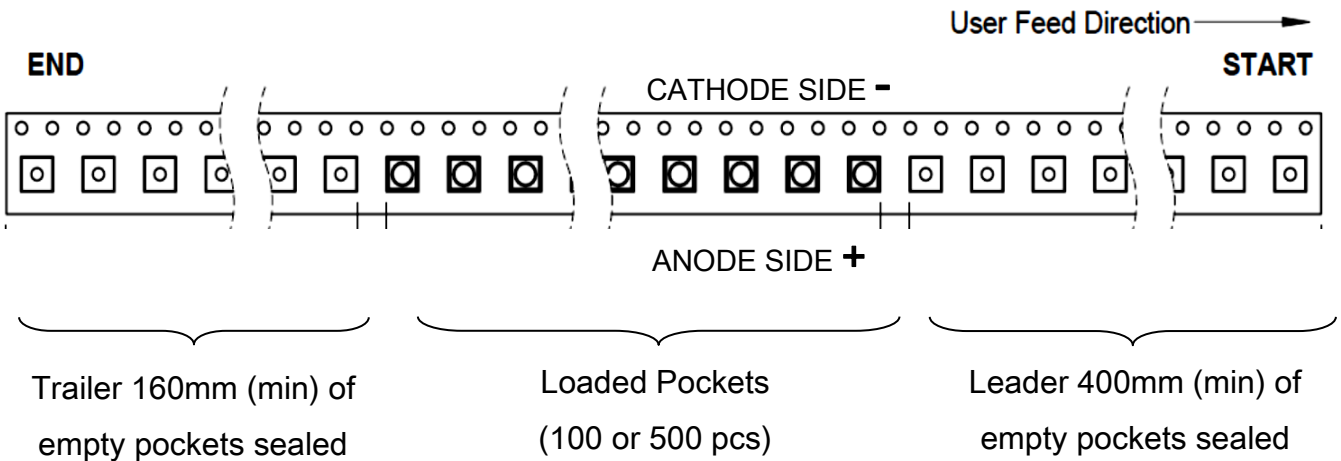
■ Packing



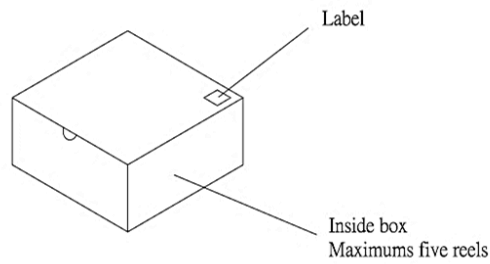
Taiwan Patent No : 157713
China Patent No : 01224591.7

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 : $0.30 \pm 0.05\text{mm}$.
6. Packing length per 22" reel : 62.5 Meters(1:3).
7. Component load per 13" reel : 2500 pcs.

W	12.00±0.30
A0	4.20±0.10
B0	4.20±0.10
K0	2.90±0.10



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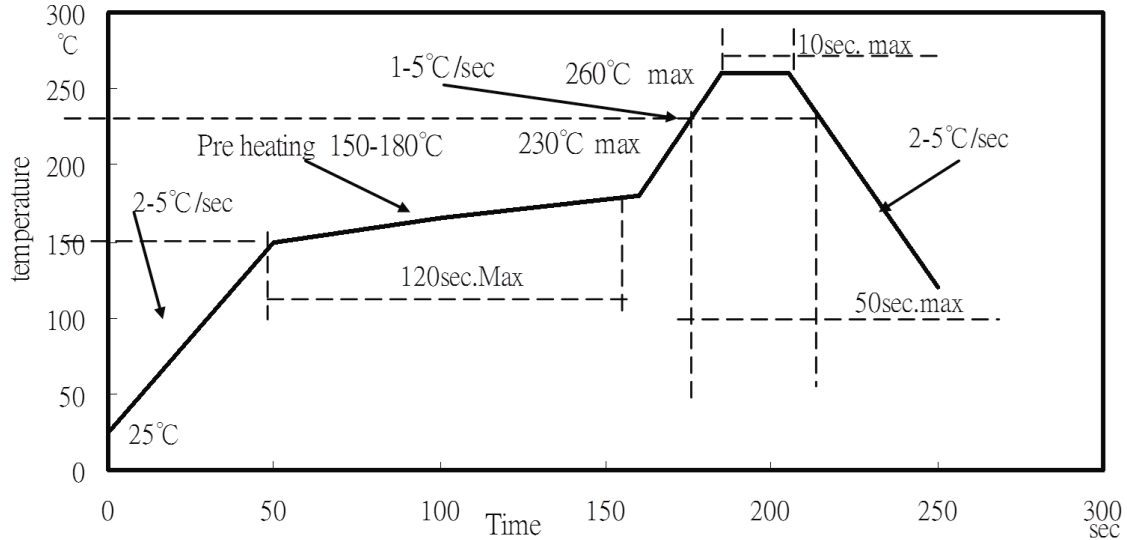
Notes:

1. Each Reel (minimum number of pieces is 100 and maximum is 500(30D)/ 500 (60D)/500 (120D) is packed in a moisture-proof bag along with 1 packs of desiccant and a humidity indicator card;
2. A maximum of 5 moisture-proof bags are packed in an inner box (size: 240mm x 200mm x 105mm \pm 5mm)
3. A maximum of 4 inner boxes are put in an outer box (size: 410mm x 255mm x 230mm \pm 5mm)
4. Part No., Lot No., quantity should be indicated on the label of the moisture-proof bag and the cardboard box.

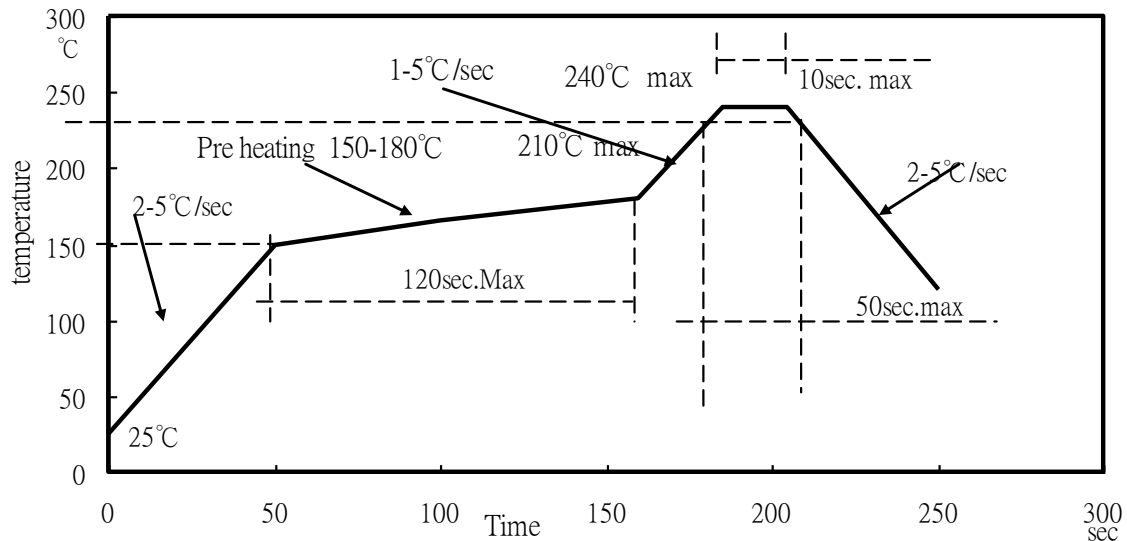
■ Reflow Profile

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.

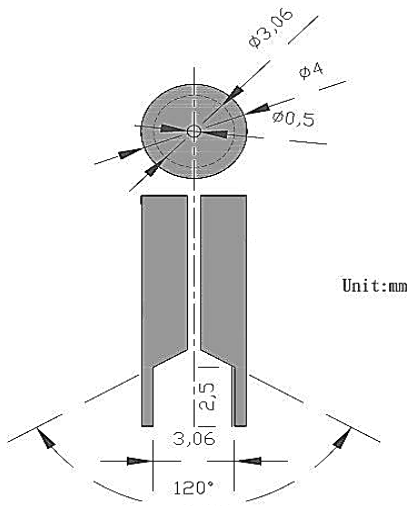
■ Precautions

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