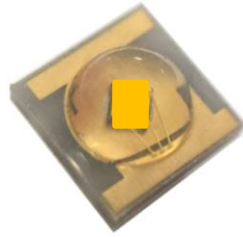


3535 VCSEL 680nm



- 120D Dome Lens Outline : 3.5*3.5*2.0mm
- Ceramic substrate
- Good thermal dissipation

Features

- ROHS and REACH-compliant
- VCSEL Laser chip

3535 VCSEL 680nm

◆ Product List & Binning

Color	Radiometric Power (mW)			Center Wavelength (nm)	Forward Voltage (V)		Part Number
	Group	Min	Max		Min	Max	
VCSEL Laser	P1	2	4	670-690	2.2	2.8	3535F68001G000
	P2	4	6				
	P3	6	8				

Notes:

1. Binning Current 10mA
2. Forward voltage (V_F) $\pm 0.1V$,
3. Radiometric Power (P_o) $\pm 10\%$.
4. Center Wavelength allowance $\pm 1.5nm$

◆ Maximum Rating

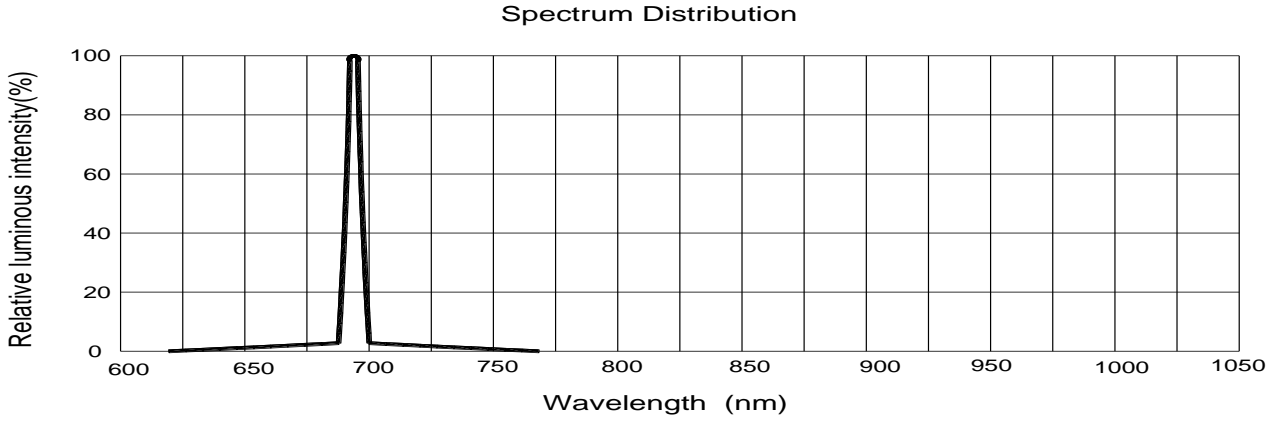
Characteristics	Symbol	Min.	Typical	Max.	Unit
DC Forward Current ¹	I _F	---	10	---	mA
Forward Voltage	V _F	2.2	2.5	2.8	V
Reverse Voltage	V _R	---	---	-5	V
Leakage Current (5V)	I _R	---	---	10	μA
Junction Temperature ³	T _j	---	115	---	°C
Storage Temperature Range	T _{sto}	-40	–	100	°C
Soldering Temperature	T _{sol}		---	260	°C
Beam Angle	2θ _{1/2}	---	25	---	Deg

Notes:

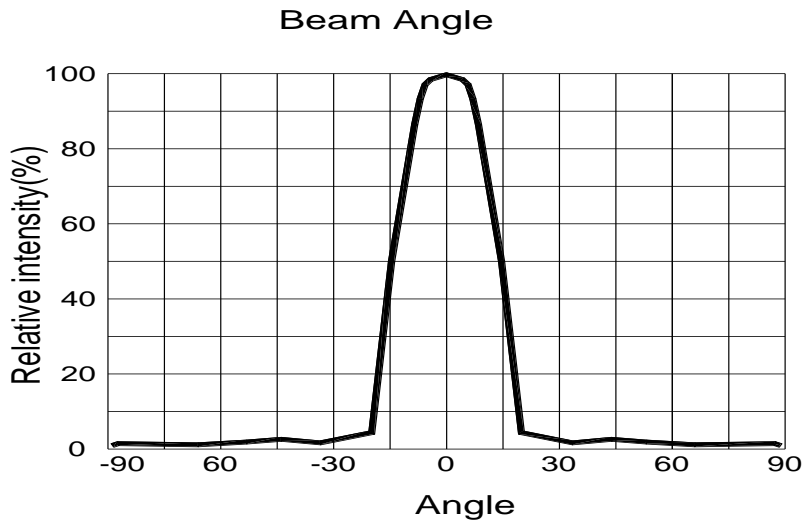
1. For other ambient, limited setting of current will depend on de-rating curves.
2. D=0.01s duty 1/100.
3. When drive on maximum current , T_j must be kept below 115°C
4. Viewing angle(2θ_{1/2}) ± 5°

3535 VCSEL 680nm

◆ Spectrum

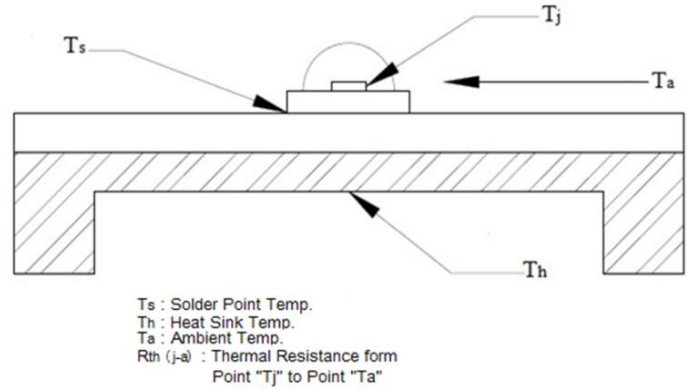
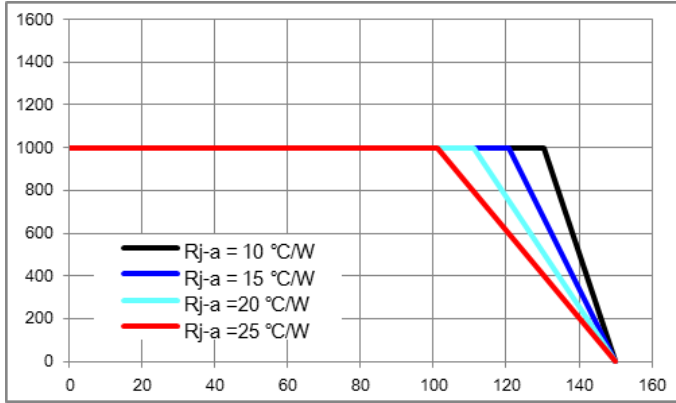


◆ Beam Angle



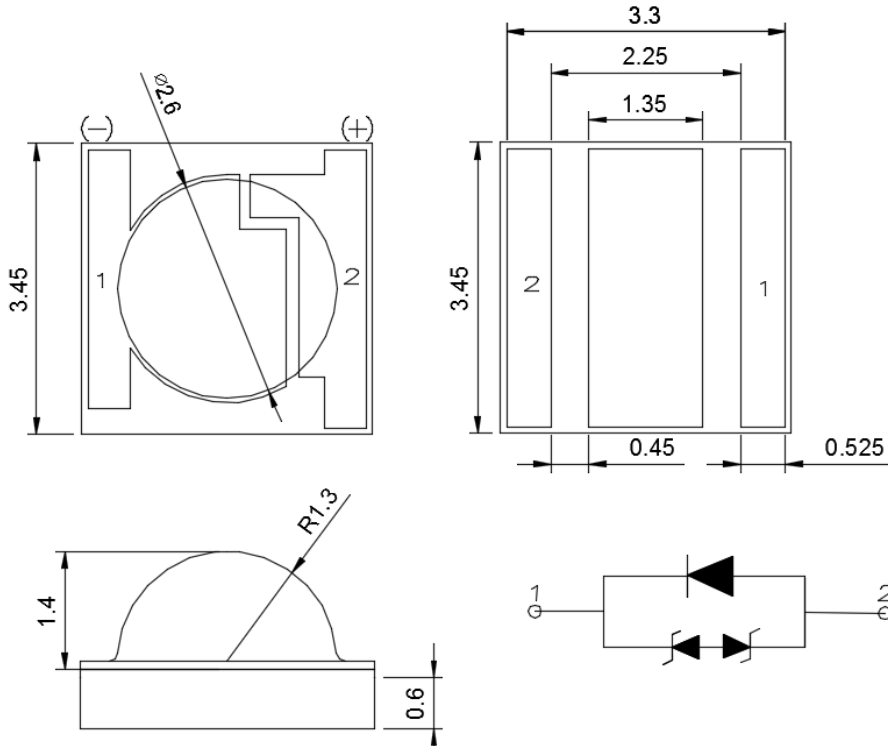
◆ Thermal Design for De-rating

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



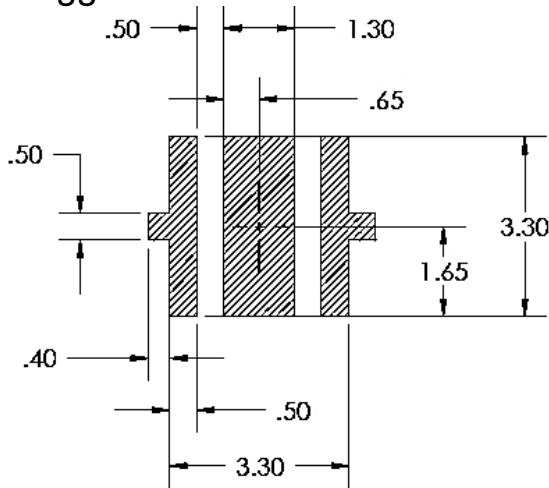
3535 VCSEL 680nm

◆ Dimensions

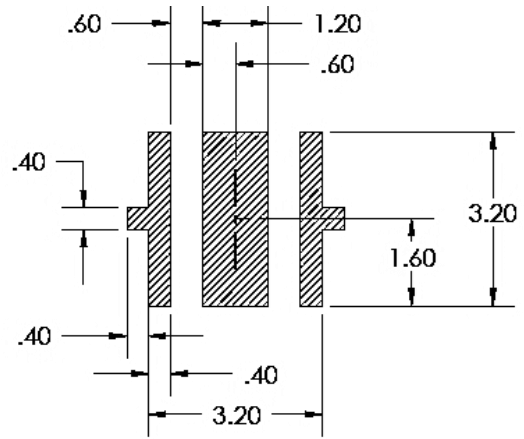


§ All dimensions are in millimeters.
 § Tolerance is $\pm 0.05\text{mm}$ unless other specified.

◆ Suggest Stencil Pattern



RECOMMENDED PCB SOLDER PAD

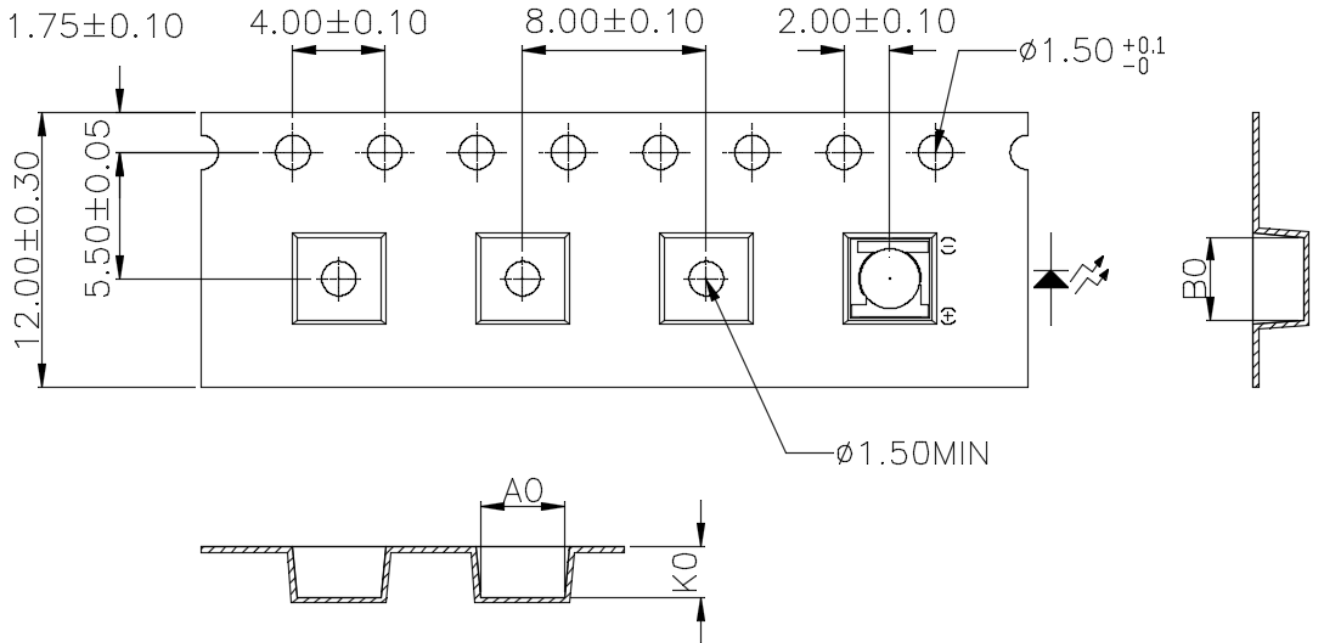


RECOMMENDED STENCIL PATTERN
(HATCHED AREA IS OPENING)

§ Suggest stencil $t = 0.12\text{ mm}$

3535 VCSEL 680nm

◆ Packing

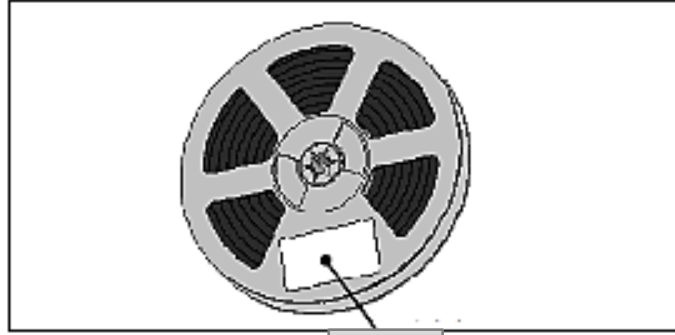


1. 10 sprocket hole pitch cumulative tolerance ± 0.20 .
2. Carrier camber is within 1 mm in 250 mm.
3. Material : Black Conductive Polystyrene Alloy.
4. All dimensions meet EIA-481-D requirements.
5. Thickness : 0.30 ± 0.05 mm.

T	0.30 ± 0.05
A0	3.80 ± 0.1
B0	3.80 ± 0.1
K0 (60D LENS)	2.90 ± 0.1
K0 (120D LENS)	2.20 ± 0.1

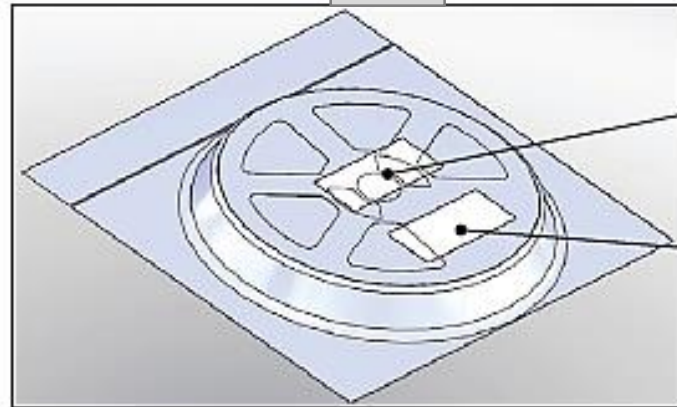
3535 VCSEL 680nm

Unpackaged Reel



Reel Dimension (D x H)
180mm x 15mm

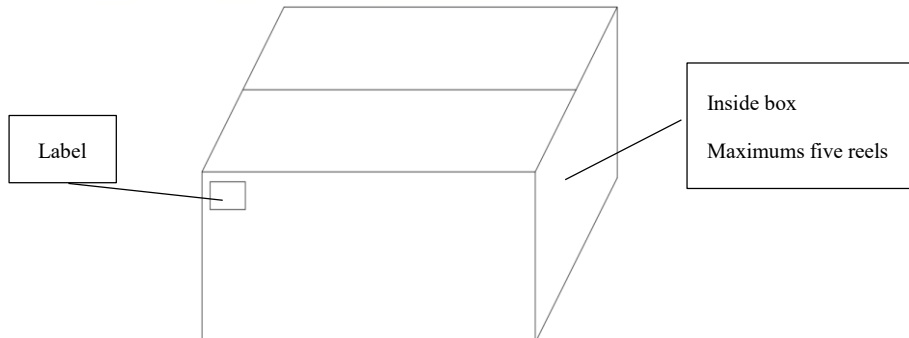
Packaged Reel



Label

Label

Packaged Dimension (L x W)
232mm x 262mm



Label

Inside box

Maximums five reels

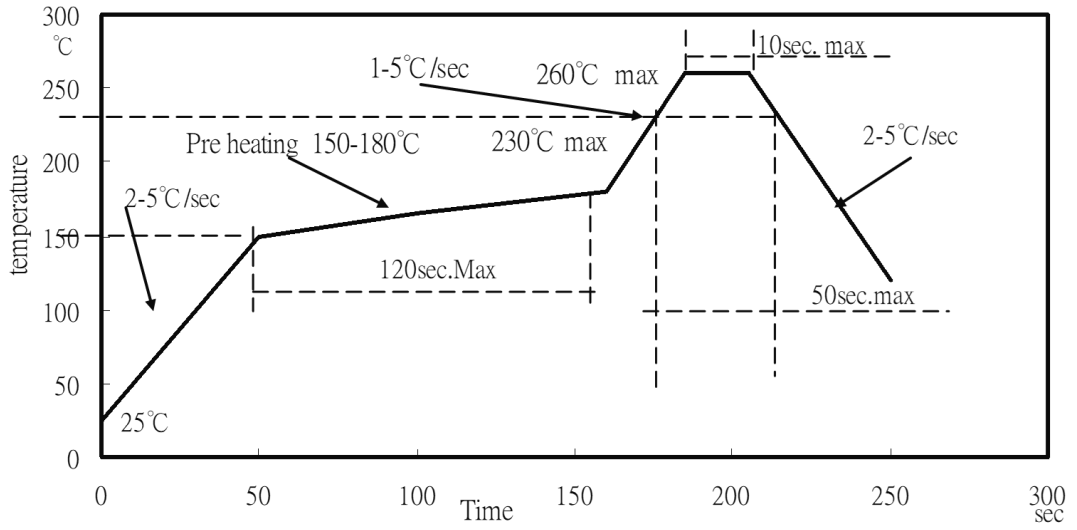
Notes:

1. Each Reel (minimum number of pieces is 100 and maximum is 500(60D)/1000(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.

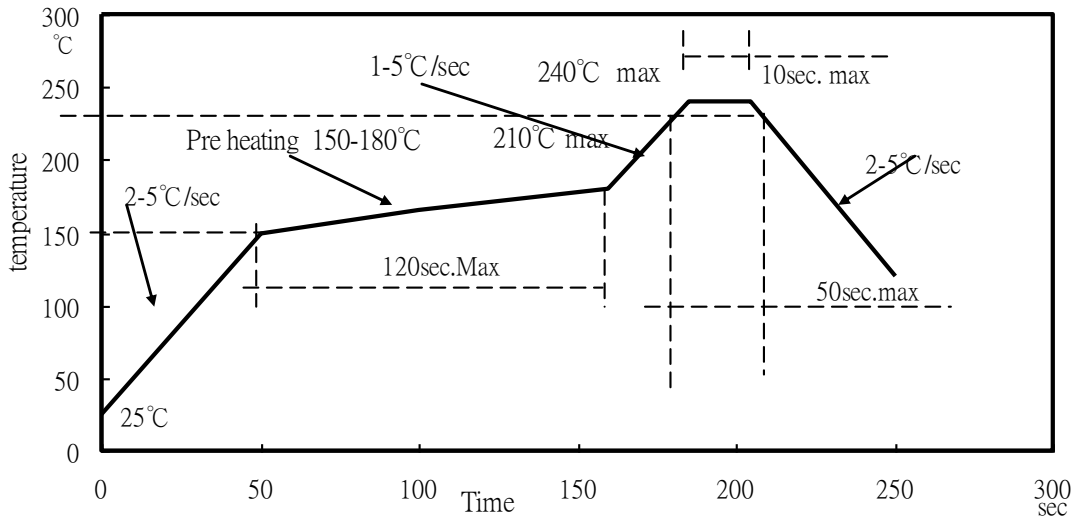
3535 VCSEL 680nm

◆ **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.

◆ Test Items and Results of Reliability

Test Item	Test Conditions	Duration/ Cycle	Number of Damage	Reference
Thermal Shock	-40°C 30min ↑↓5min 125°C 30min	100 cycles	0/22	AEC-Q101
High Temperature Storage	T _a =100°C	1000 hrs	0/22	EIAJ ED-4701 200 201
Humidity Heat Storage	T _a =85°C RH=85%	1000 hrs	0/22	EIAJ ED-4701 100 103
Low Temperature Storage	T _a =-40°C	1000 hrs	0/22	EIAJ ED-4701 200 202
Life Test	T _a =25°C I _f =10mA	1000 hrs	0/22	Tested with UVT standard
High Humidity Heat Life Test	85°C RH=85% I _f =10mA	1000 hrs	0/22	Tested with UVT standard
High Temperature Life Test	T _a =85°C	1000 hrs	0/22	Tested with UVT standard
ESD(HBM)	2KV at 1.5kΩ;100pf	3 Times	0/22	MIL-STD-883

Criteria for Judging the Damage

Item	Symbol	Condition	Criteria for Judgment	
			Min	Max
Forward Voltage	V _F	I _f =10mA	—	USL ¹ ×1.1
Reverse Current	I _R	V _R =5V	—	100μA
Luminous Intensity	I _v	I _f =10mA	LSL ² ×0.7	—

Notes:

1. USL: Upper specification level

2. LSL: Lower specification level