850nm 700mW VCSEL Diode
LD0850-B700-9080RP-3535

Features

- 850nm Multimode VCSEL
- Low wavelength drift
- Oxide isolation technology
- Low threshold current
- High reliability
- Easy to collimate

Applications

- 3D sensors
- Lidars
- IR illuminations
- Medical applications
- Proximity sensors
- Military applications

PRODUCT IDENTIFY

Part Number	Description
LD0850-B700-9080RP-3535	850nm 700mW VCSEL Diode

Ⅰ. Absolute maximum ratings

| Parameter	Symbol	Rating	Unit
Case Operating Temp	Top	-20 to 85	℃
Storage Temp	Tsto	-40 to 105	℃
Reflow Soldering Temperature	Tsdr	260℃(<5s)	℃
Reverse Voltage	Vr	<3	V
Maximum Continuous Current	Imax	<0.9	A
ESD exposure(Human body) model	ESD	1K	V

Note：

1. Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or other conditions above those indicated in the operations section for expended periods of time may affect reliability.
2. In its maximum rating diode laser operation could damage its performance or cause potential safety hazard such as equipment failure.
3. Electrostatic discharge is the main reason for the laser fault of the diode. Take effective precautions against ESD. When dealing with laser diodes, use the wrist strap, grounding work surface and strict antistatic technology.

Ⅱ. Optical-electrical characteristics @25℃

| Parameters	Conditions	Symbol	Unit	Min.	Typ.	Max.
Optical Power	I$_f$=800 mA	P$_o$	mW	-	700	-
Threshold Current	-	I$_{th}$	mA	-	140	-
Forward Current	-	-	A	-	0.8	-
Power conversion efficiency		η	%		40	
Slope efficiency	-	-	W/A	-	1.06	-
Emission Area	-	-	um	-	500× 500	-
Peak Wavelength	P$_o$=700 mW	-	nm	840	850	860
Laser Forward Voltage	I$_f$=800 mA	V$_F$	V	2.10	2.20	2.30
Series Resistance	I$_f$=800 mA	R	Ω	-	2.625	2.875
Beam Angle	I$_f$=800 mA	-	Degrees	-	90×80	-
Wavelength Temp. drift	I$_f$=800 mA	-	nm/℃	-	0.07	-
Soldering Temperature	-	-	℃	-	-	260(5s)
Substrate	AlN					

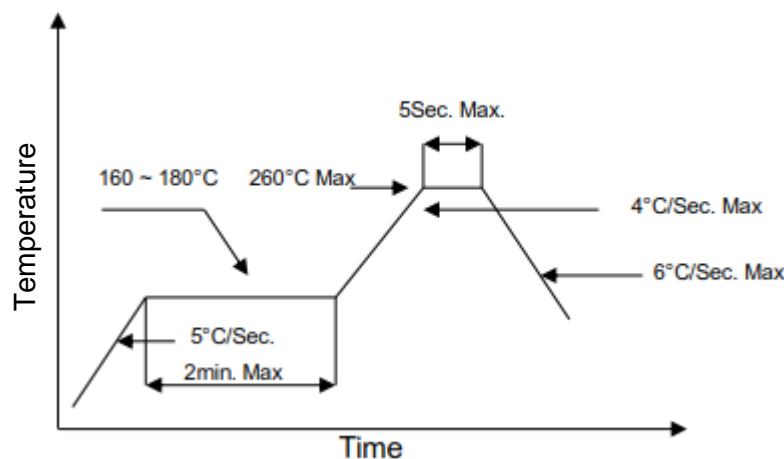## Ⅲ. LIV Graph and Wavelength
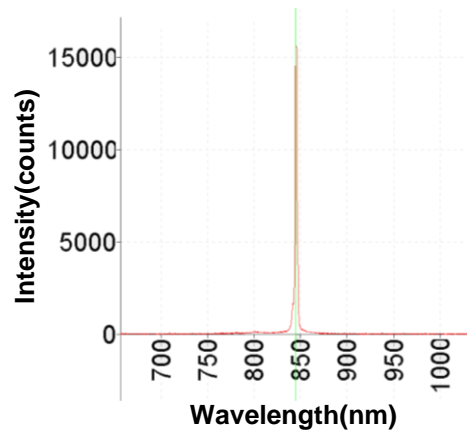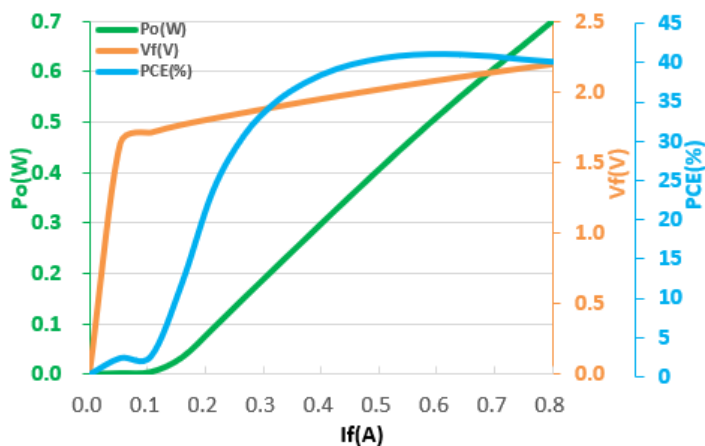
Ⅳ. Mechanical Schematics (unit:mm)
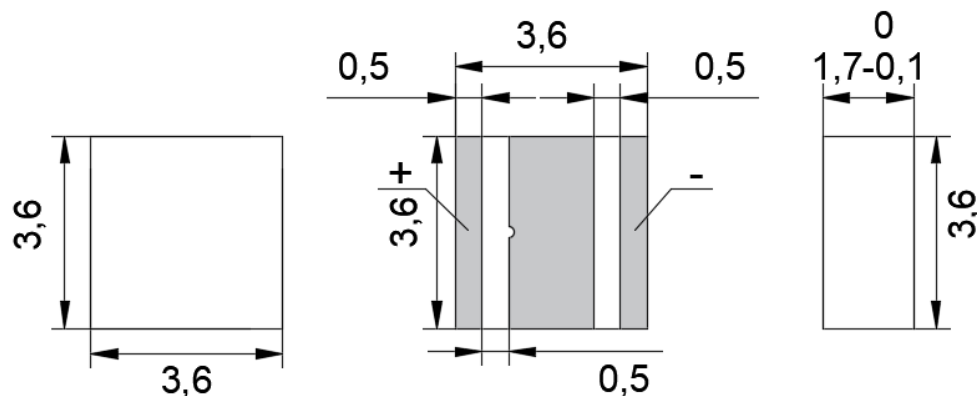
Note：There may be some changes between sample and drawing， thus，the actual spec please refer to the sample that you received. And if any question please contact us.

Ⅴ. Typical laser spot & Beam profile
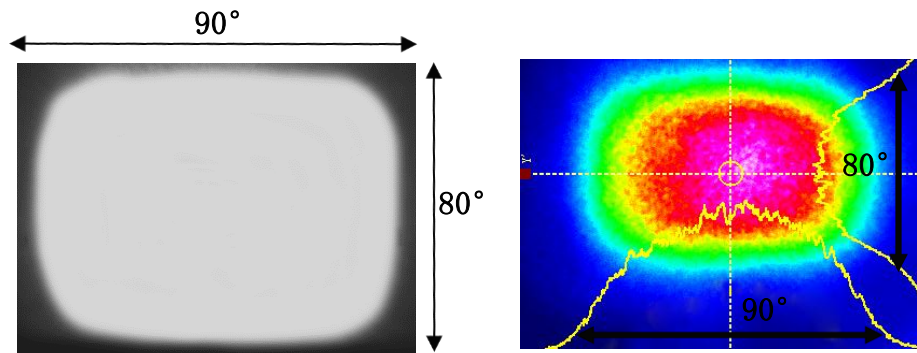
Ⅵ. SMT reflow soldering curve

Note: Reflow soldering can be operated only one time. During the temperature ramp-up, no forces may be exerted on the LD which could deform or damage them. After soldering completed, please also do not process until the product temperature ramp down to room temperature.

Ⅶ. Treatment and protection measures

Soldering precautions

The temperature of soldering iron must be controlled under 300℃ during manual soldering. Also, VCSEL can be only soldered one time with the soldering time less than 3s. But, It is very hard to control the soldering temperature and homogenize solder paste because of the smaller size of VCSEL. In addition, it is easy to damage VCSEL structure even causes VCSEL losing efficacy. So, we advise you to use re-flow soldering machine for operation.

Storage precautions

Our products were sealed by aluminum foil bag attaching packed desiccant, they are moistureproof and anti-static.Please handle these gently to avoid damage. At the same time, please be ready for storage and take some moisture-proof measures to keep VCSEL away from dampness that may causes reliability failure.

Before opening, VCSEL must be saved for at least 90 days below 30℃ with 60%RH.

After opening, VCSEL must be kept in an environment that temperature lower than 30℃ and humidity lower than 60%RH and used up within 24 hours. When the storage humidity reaches and exceeds 60%, the products must be dehumidified at 60°C for more than 24hours before use.

Others

1. Use solder paste to cure the laser diode.
2. Make sure that the heat of LD has been completely conducted to metal shell, to avoid affecting the optical power output.
3. This LD can be only used in constant voltage and current.
4. Operating voltage and current, refer to the table in paragraph Ⅱ.
5. Do not aim the laser to people or animal.
6. You can observe the laser spot through a image monitoring equipment.
7. Do not touch LD surface by naked hands or squeez the sealant on LD surface,or it may cause wrong optical angle and distorted laser spot, even damage the LD.
8. Please use ceramic suction nozzle to absorb the LD, so as to avoid LD sticking to the nozzle.
9. Please add a 0.02s blowing action after locating the laser diode to aluminum substrate.

Ⅷ. Revision history

Revision	Date	Description
V.01	2019/04/23	The first official edition