



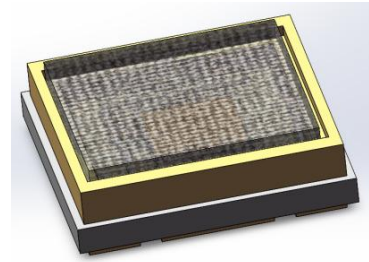
DOMI Co., Ltd.

domisensor.com

DMP300KP
VCSEL Product Specification

Features:

- Size(mm): 5.2x5.2x1.55mm
- AlN ceramic package
- Peak wavelength 905nm
- Peak Output Power 300W(Pulsed)
- 40*30deg rectangle emitting spot
- High reliability



Applications:

- Night vision
- TOF
- gesture recognition
- People flow statistics
- Volume measurement, 3D scanning
- Avoidance
- AR/VR



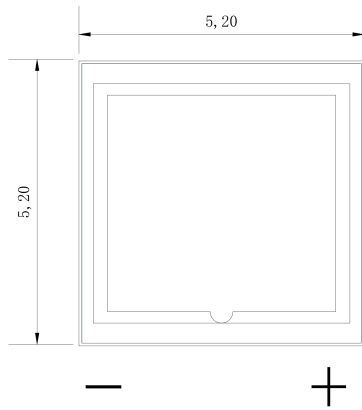
Absolute Maximum Ratings

Parameter	Symbol	Values
Operation temperature	T_{OPR}	-20°C to 85°C
Storage temperature	T_{stg}	-40°C to 85°C
Pulse duration	T_p	50ns
Duty cycle	DC	0.05%
Soldering Temperature	T_{STG}	260°C for 5s

Electro-Optical Characteristics

Electro-optical characteristics (Ts = 25°C)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Peak Wavelength	λ_p	IF = 61A, Tp=5ns, DC=0.025%	895	905	915	nm
Threshold Current	I_{tc}	-	-	1.5	4.5	A
Forward Voltage	V_f	IF = 61A, Tp=5ns, DC=0.025%	-	25	30	V
Output Power	Φ_e	IF = 61A, Tp=5ns, DC=0.025%	-	300	-	W
Slope Efficiency	SE	IF = 61A, Tp=5ns, DC=0.025%	4.5	5	-	W/A
Power Conversion Efficiency	PCE	IF = 61A, Tp=5ns, DC=0.025%	-	20	-	%
Beam Divergence H	θ_H	IF = 61A, Tp=5ns, DC=0.025%	-	40	-	Deg
Beam Divergence V	θ_V	IF = 61A, Tp=5ns, DC=0.025%	-	30	-	Deg
Spectral Width	$\Delta\lambda$	IF = 61A, Tp=5ns, DC=0.025%	-	-	4	nm
Wavelength coefficient	$d\lambda/dT$	IF = 61A, Tp=5ns, DC=0.025%	0.06	0.07	-	nm/°C

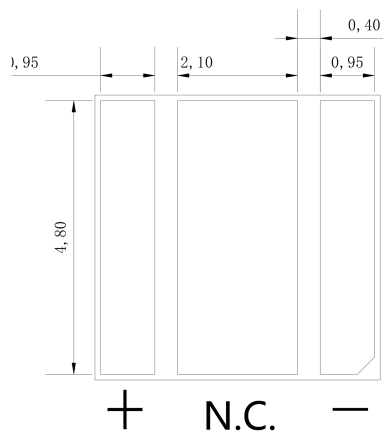
Package Outline



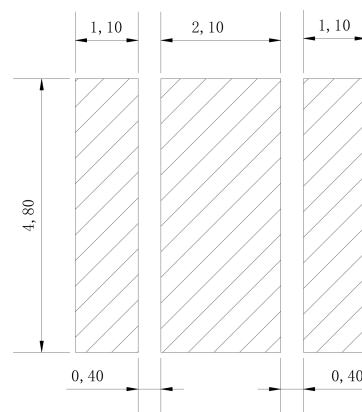
Top View



Side View



Bottom View



Recommended
soldering pad

Note:

1. Unit: mm;
2. Tolerance: $\pm 0.15\text{mm}$
3. The middle pad(with N.C. mark) can be used for thermal pad.

Typical Optical Characteristics Curves

Fig.1-Radiation Characteristics of VCSEL

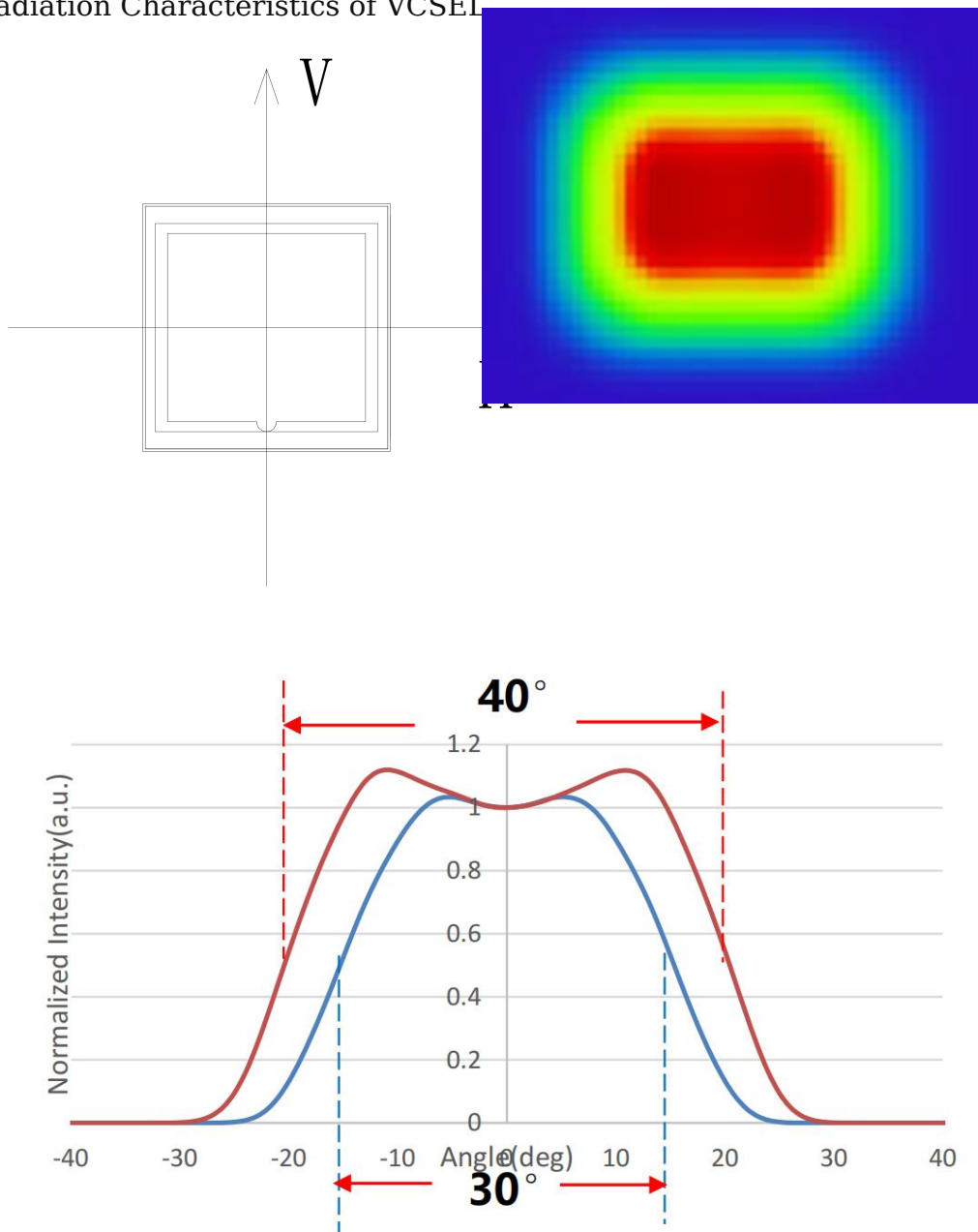


Fig.2-Output Power vs. Forward Current of VCSEL(Ts=25°C)

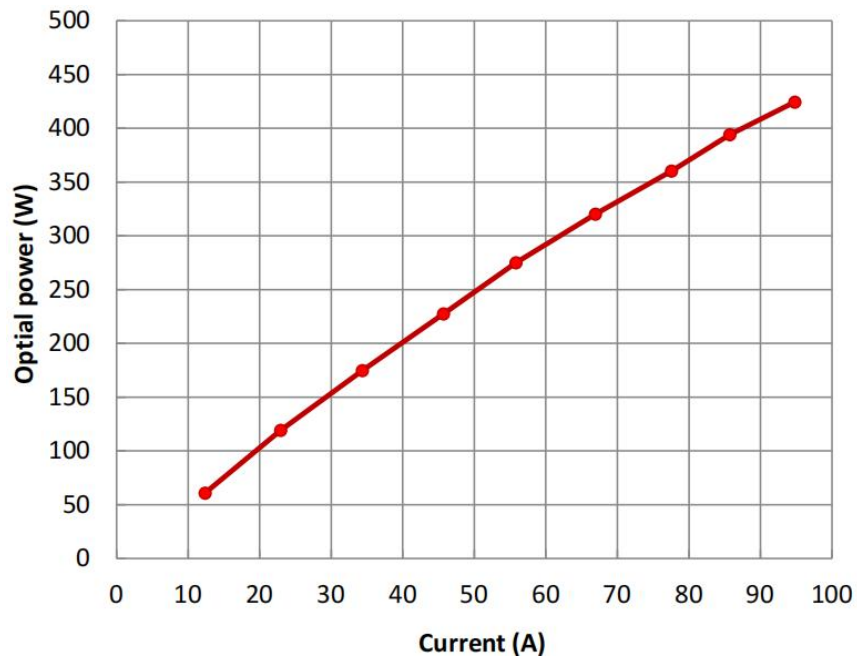
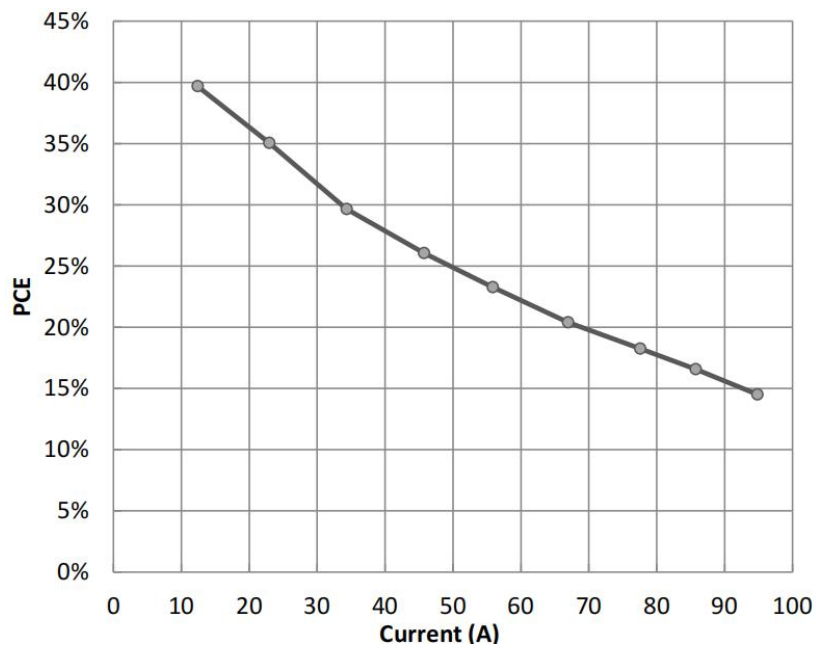
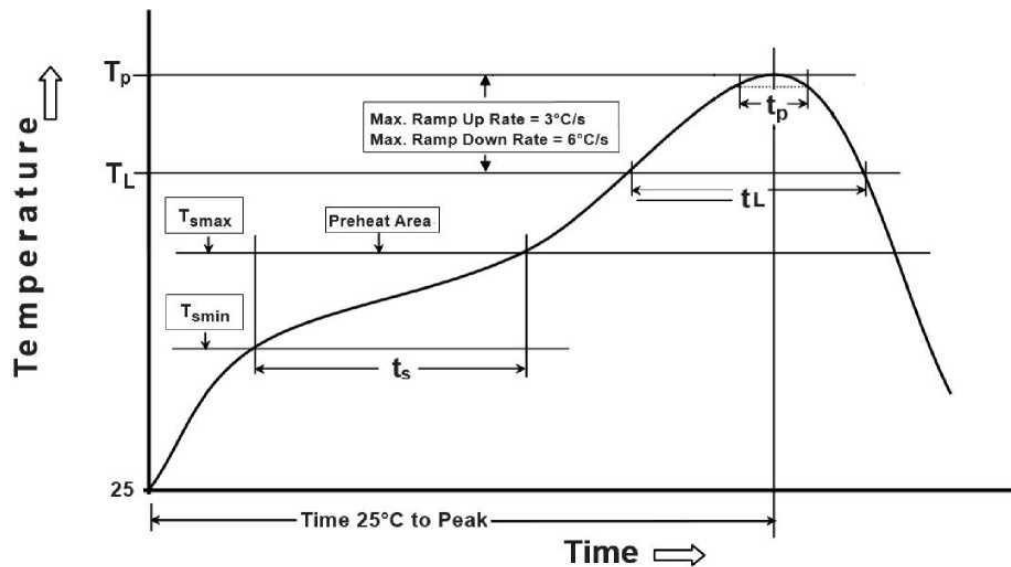


Fig.3-Forward Voltage vs. Forward Current of VCSEL(Ts=25°C)



Reflow Soldering Characteristics:



Profile Feature	Pb-Free (SnAgCu) Assembly
Preheat/Soak Temperature Min (T_{smin}) Temperature Max (T_{smax}) Time (t_s) from (T_{smin} to T_{smax})	150°C 200°C 60-120 seconds
Ramp-up rate (T_L to T_p)	3°C/second max.
Liquidous temperature (T_L) Time (h) maintained above T_L	217°C 60-150 seconds
Peak package body temperature (T_p)	260°C
Time within 5°C of actual Peak Temperature (t_p)	30 seconds
Ramp-down rate (T_p to T_L)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

Other Caution:

- VCSEL is very sensitive to Electrostatic discharge (ESD) and Electrical over stress (EOS), excessive ESD/EOS have damage the chip and result in performance degradation. Please make sure during the whole usage and installation process does not exist to affect the VCSEL.
- VCSEL can also be damaged by electrical surge, please make sure any driving electrical circuits are equipped with surge protection.
- During the installation process, please make sure all the equipment and personnel are grounded properly and production environment should make use of ion-blowers, ESD protection equipment such as anti-static gloves, anti-static wrist bands, anti-static mats, anti-static clothes, anti-static shoes and anti-static containers.

