808nm 3000mW VCSEL Chip
VCC-80A3WH

Data Sheet

Features

- 808nm multi-emitter VCSEL chip
- Number of emitters: 306
- High Power Conversion Efficiency (PCE): 43%
- Low threshold current
- Typical 3W output power at 3.2A
- Chip size: 854um x 904um; Chip thickness: 100um

Applications

- 3D sensors
- Lidars
- IR illuminations
- Medical application
- Solid-state pump source
- Sensing i.e. Proximity

Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Case Operating Temperature	Top	-40 to 85	°C	
Storage Temperature	Tstg	-40 to 105	°C	
Reflow Soldering Temperature	Tsol	320	°C	10 seconds
Reverse Voltage	Vr	4	V	
Maximum Continuous Current	Imax	6	A	
ESD Exposure (Human Body) Model	ESD	2k-4k (Class 2)	V	
ESD Exposure (Machine) Model	ESD	200-400 (Class B)	V	

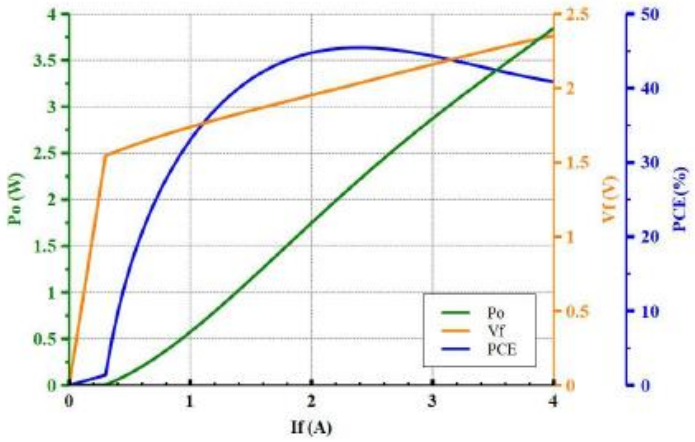
Electro-Optical Characteristics (T_{op}=25°C, Pulse width 0.1ms, duty cycle 1%)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical Output Power	P_o	-	3	-	W	I_F=3.2A
Forward Current	I_F	-	3.2	-	A	
Threshold Current	I_{th}	-	0.6	-	A	
Forward Voltage	V_F	-	2.2	-	V	I_F=3.2A
Power Conversion Efficiency	PCE	-	43	-	%	I_F=3.2A
Slope Efficiency	η	-	1.19	-	W/A	P_o=3W
Peak Wavelength	λ_P	800	808	816	nm	I_F=3.2A
Differential Resistance	R	-	0.2	-	Ohm	I_F=3.2A
Wavelength Temperature Drift	$\Delta\lambda_P/\Delta T$	-	-	0.07	nm/°C	I_F=3.2A
Beam Angle	$FWHM_B$	-	20	-	deg	
	(1/e^2)	-	25	-		
Emission Area			684x634		um^2	
Number of Emission Aperture		-	306	-		
Soldering Temperature		-	-	320	°C	10 seconds

Notes:

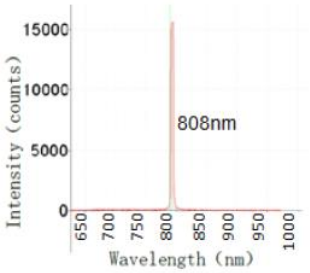
1. Electro-optical characteristic with a package or diffuser would require further evaluation. Values are based on limited sample size and estimated values.
2. Forward Voltage (V_F) measurement allowance is +/-0.1V.
3. Peak Wavelength (λ_P) measurement allowance is +/-1.5nm.
4. Others measurement allowance is +/-10%.

Typical Characteristics

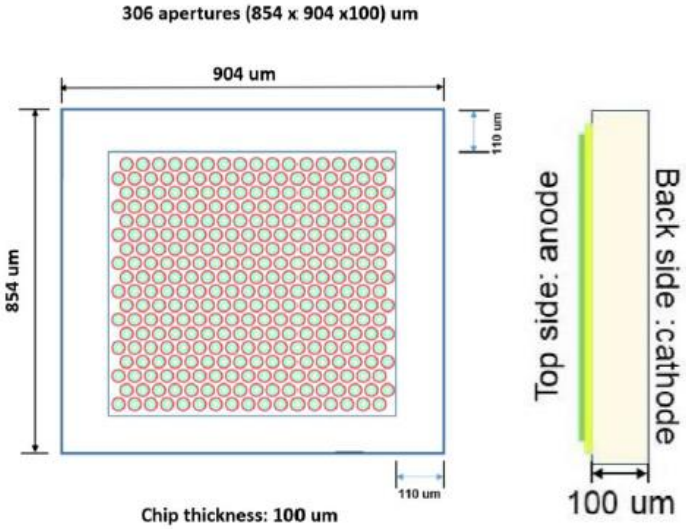
LIV Graph



Typical Spectral Width



Outline Diagram (unit: um)



- Chip size: 854um x 904um
- Chip thickness: 100um
- No. emission aperture: 306

Additional Notes

- 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 expanded periods of time may affect reliability.
- In its maximum rating diode laser operation could damage its performance or cause potential safety hazard such as equipment failure.
- Electrostatic discharge is the main reason for laser fault of the diode. Take effective precautions against ESD. When dealing with laser diodes, use wrist strap, grounding work surface and strict antistatic technology.
- The inherent design of this component causes it to be sensitive to electrostatic discharge (ESD). To prevent ESD-induced damage and/or degradation to equipment, take normal ESD precautions when handling this product.
- Specifications are subject to change without notice.