



## VCC-80A350H

### 808nm 350mW VCSEL Chip

#### Description

The Lasermate VCC-80A350H is an 808nm wavelength, 350mW output power, multi-emitter, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in 3D sensors, lidars, IR illumination, medical, solid-state pump source applications.

#### Features

- 808nm multi-emitter VCSEL chip
- Number of emitters: 39
- Power Conversion Efficiency (PCE): 26%
- Low threshold current
- Typical 350mW output power at 475mA
- Chip size: 294um x 278um
- Chip thickness: 100um

#### Applications

- 3D sensors
- Lidars
- IR illuminations
- Medical application
- Solid-state pump source

#### Specifications

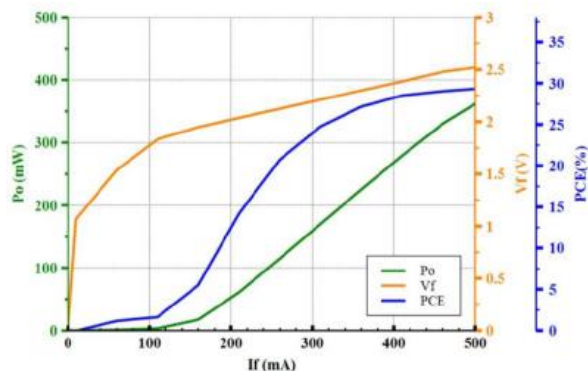
Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Case Operating Temperature	Top	-40 to 85	°C	
Storage Temperature	Tstg	-40 to 105	°C	
Reflow Soldering Temperature	Tsol	320	°C	10 seconds
Reverse Voltage	Vr	5	V	
Maximum Continuous Current	I <sub>max</sub>	750	mA	
ESD Exposure (Human Body) Model	ESD	2K	V	

Electro-Optical Characteristics (T <sub>op</sub> =25°C, Pulse width 0.1ms, duty cycle 1%)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical Output Power	P <sub>o</sub>	-	350	-	mW	I <sub>F</sub> =475mA
Forward Current	I <sub>F</sub>	-	475	-	mA	
Threshold Current	I <sub>th</sub>	-	60	-	mA	
Forward Voltage	V <sub>F</sub>	-	2.5	-	V	I <sub>F</sub> =475mA
Power Conversion Efficiency	PCE	-	26	-	%	I <sub>F</sub> =475mA
Slope Efficiency	η	-	1.09	-	mW/mA	P <sub>o</sub> =350mW
Peak Wavelength	λ <sub>p</sub>	800	808	816	nm	I <sub>F</sub> =475mA
Series Resistance	R <sub>s</sub>	-	1.74	-	Ohm	I <sub>F</sub> =475mA
Wavelength Temperature Drift	Δλ <sub>p</sub> / ΔT	-	0.07	-	nm/°C	I <sub>F</sub> =475mA
Beam Divergence	FWHM <sub>B</sub>	-	25	-	deg	
Emission Area			231x210		um <sup>2</sup>	
Number of Emission Aperture		-	38	-		

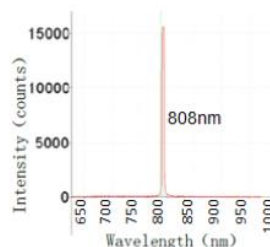
Note: Electro-optical characteristic with a package or diffuser would require further evaluation. Values are based on limited sample size and estimated values.

## Typical Characteristics

### LIV Graph

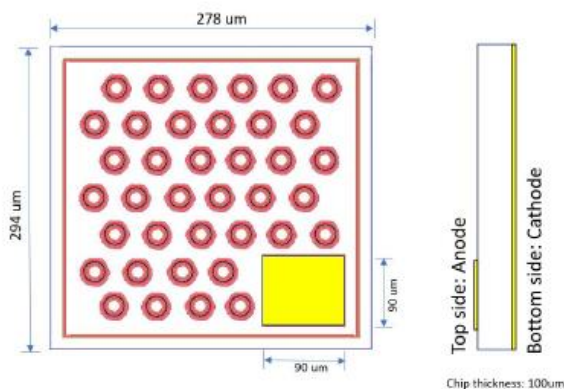


### Typical Spectral Width



## Outline Diagram (unit: $\mu\text{m}$ )

38 ape: 294 $\mu\text{m}$  x 278 $\mu\text{m}$



- Chip size: 294 $\mu\text{m}$  x 278 $\mu\text{m}$
- Chip thickness: 100 $\mu\text{m}$
- No. emission aperture: 38

## 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.