



# 850nm 380mW VCSEL Chip

## VCC-85A380H



### Description

The Lasermate VCC-85A380H is an 850nm wavelength, 380mW output power, multi-emitter, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

### Features

- 850nm VCSEL chip
- >380mW output power at 700mA
- Number of emitters: 82
- -10 to 85°C operating temperature
- Beam Divergence typ. 25 degree at FWHM
- Chip size: 584 x 584 ± 15 μm

### Applications

- Infrared illumination light source
- Night vision lighting
- Consumer electronics
- Gesture sensor light source

### Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Storage Temperature	T <sub>stg</sub>	-40 to 125	°C	
Operating Temperature	T <sub>op</sub>	-10 to 85	°C	
Forward Current	I <sub>f</sub>	700	mA	
Junction Temperature	T <sub>j</sub>	≤ 120	°C	

Note: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the table above. Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

Electro-Optical Characteristics (T <sub>a</sub> =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I <sub>th</sub>		120		mA	
Slope Efficiency	η		0.6		W/A	I <sub>f</sub> =700mA
Optical Output Power	P <sub>o</sub>	380	400	450	mW	I <sub>f</sub> =700mA
Center Wavelength	λ <sub>c</sub>	840	850	860	nm	I <sub>f</sub> =700mA
Variation in Output Power	Δ P <sub>o</sub>		1		%/°C	T <sub>a</sub> =25 to 85°C
Beam Divergence	Θ		25		°	I <sub>f</sub> =700mA (FWHM)
Forward Voltage	V <sub>f</sub>	1.8	2.4	2.6	V	I <sub>f</sub> =700mA
ESD Threshold	V <sub>ESD</sub>		4000		V	Human Body Model/3 pulse

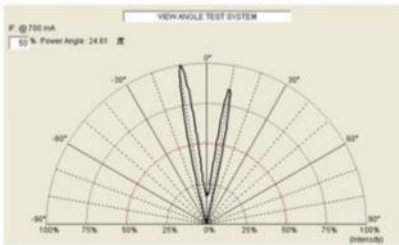
Notes:

- All parameters except mentioned are measured at I<sub>f</sub>=700mA, T<sub>a</sub>=25°C, CW.
- Forward Voltage (V<sub>f</sub>) measurement allowance is ±0.1V.
- Center Wavelength (λ<sub>c</sub>) measurement allowance is ±1.5nm.
- Others measurement allowance is ±10%.

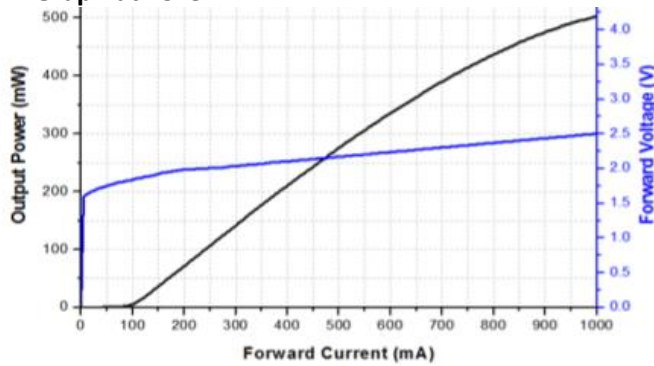
## Typical Characteristics

### Beam Divergence

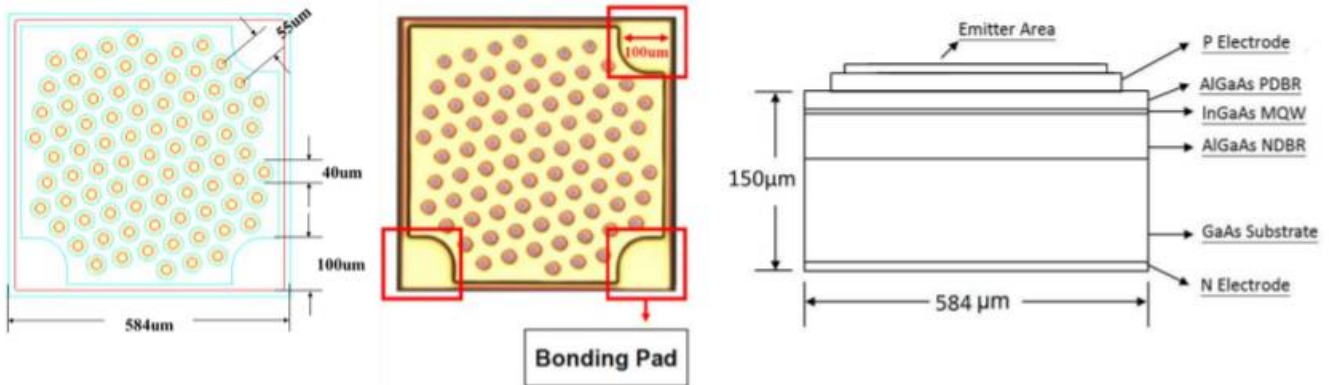
50% Power Angle: 24.61 deg.



### LIV Graph at 25°C



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



Specification	Min.	Typ.	Max.
Chip width	569	584	599
Chip length	569	584	599
Chip thickness	135	150	165
Bond pad width	-	100	-

**Additional Notes**

- 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.



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