



850nm 700mW VCSEL Chip

VCC-85A700H

Description

The Lasermate VCC-85A700H is an 850nm wavelength, 700mW output power, multi-emitter, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

Features

- 850nm multiple emitter VCSEL chip
- Single longitudinal mode
- Power Conversion Efficiency (PCE): 38%
- Typical 700mW output power at 11.2mA
- Number of emitters: 113
- Chip size: 470x470um
- Chip thickness: 100um

Applications

- 3D sensors
- Lidars
- IR illumination
- Medical application
- Proximity sensor

Specifications

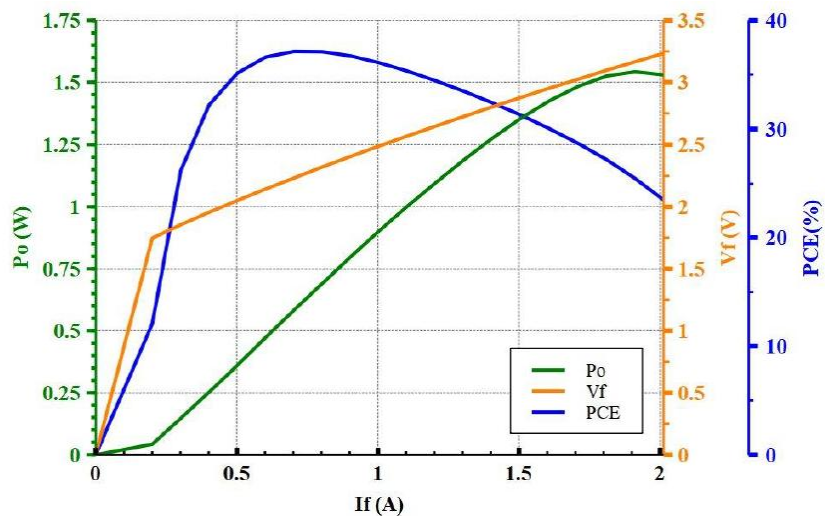
Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Case Operating Temperature	Top	-25 to 85	°C	
Storage Temperature	Tstg	-40 to 105	°C	
Reflow Soldering Temperature	Tsol	320	°C	10 seconds
Reverse Voltage	Vr	4	V	
Maximum Continuous Current	I _{max}	2	A	
ESD Exposure (Human Body) Model	ESD	2K	V	

Electro-Optical Characteristics (T _{op} =25°C, pulse width 0.3ms, duty cycle 1%)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical Output Power	P _o	-	1.0		W	I _F =800mA
Threshold Current	I _{th}	-	0.2	-	A	
Forward Current	I _F	-	0.8	-	A	
Power Conversion Efficiency	PCE	-	38	-	%	I _F =800mA
Slope Efficiency	η	-	1.15	-	W/A	P _o =700mW
Peak Wavelength	λ _P	840	850	860	nm	I _F =800mA
Forward Voltage	V _F	-	2.3	-	V	I _F =800mA
Series Resistance	R _S	-	0.9	-	Ohm	I _F =800mA
Wavelength Temperature Drift	Δλ _P / ΔT	-	0.07	-	nm/°C	I _F =800mA
Beam Divergence	FWHM _B	-	23	25	deg	
Emission Area			470x470		um ²	
Number of Emission Aperture		-	113	-		

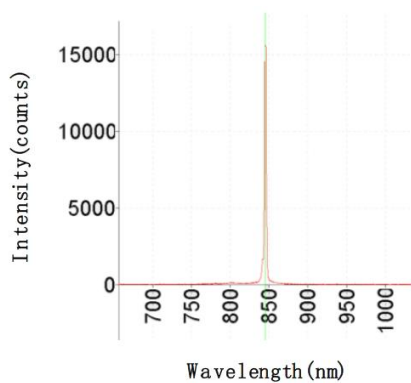
Note: Electro-optical characteristic with a package or diffuser would require further evaluation. Values are based on limited sample size and estimated values.

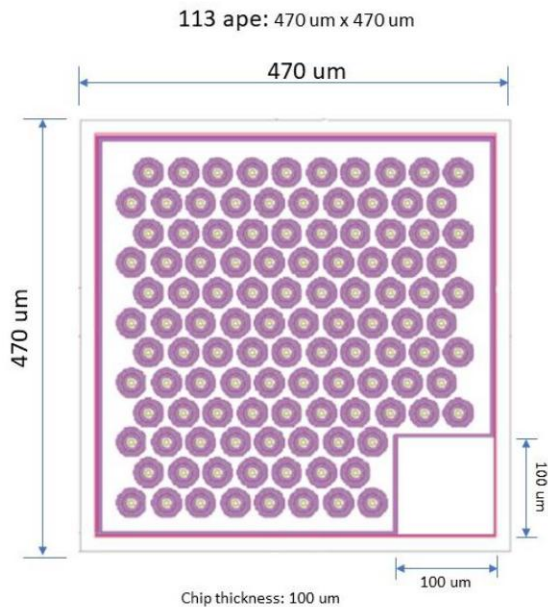
Typical Characteristics

LIV Graph



Typical Spectral Width



Outline Diagram (unit: μm)**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.