



## VCC-85A120H

### 850nm 120mW VCSEL Chip

## Description

The Lasermate VCC-85A120H is an 850nm wavelength, 120mW output power, multi-emitter, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

## Features

- 850nm multi-emitter VCSEL chip
- Typical 130mW output power at 200mA
- Number of emitters: 20
- Chip size: 336 x 307 ± 15 μm  
Chip thickness: 150 ± 15 μm

## Applications

- Sensor light source
- Consumer electronics
- Security camera light source

## Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Storage Temperature	T <sub>stg</sub>	-40 to 150	°C	
Operating Temperature	T <sub>op</sub>	-20 to 85	°C	
Forward Current	I <sub>f</sub>	200	mA	
Maximum package SMT solder reflow temperature	-	260	°C	10 seconds

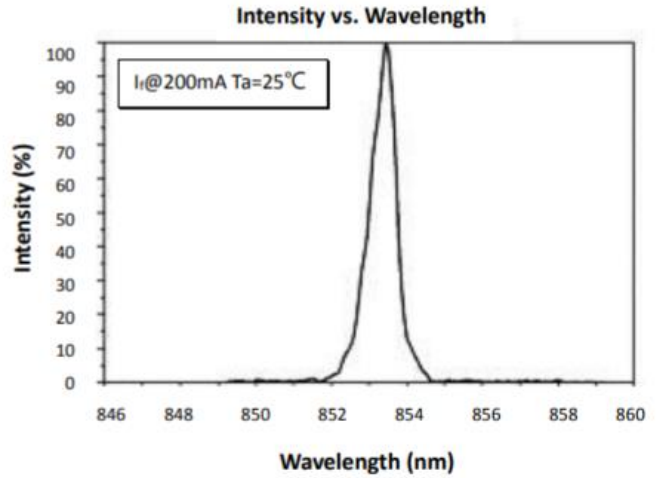
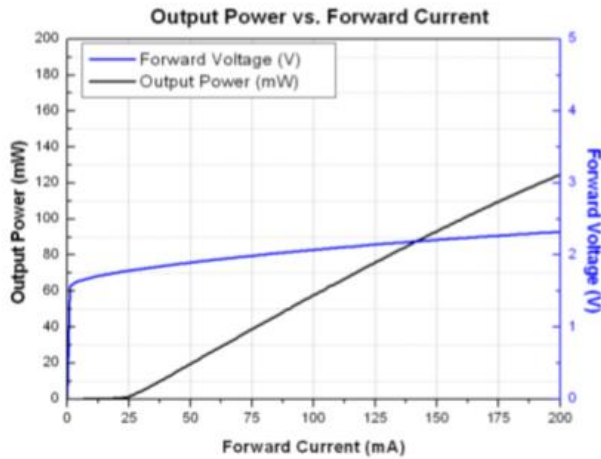
Note: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the table above. Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.

Electro-Optical Characteristics (T <sub>a</sub> =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Slope Efficiency	η		0.55		W/A	I <sub>f</sub> =200mA
Optical Output Power	P <sub>o</sub>	120	130		mW	I <sub>f</sub> =200mA
Center Wavelength	λ <sub>c</sub>	840	850	860	nm	I <sub>f</sub> =200mA
Beam Divergence	Θ		36		°	I <sub>f</sub> =200mA
Forward Voltage	V <sub>f</sub>		2.4	2.6	V	I <sub>f</sub> =200mA
Variation in Output Power	Δ P <sub>o</sub>		-0.4		%/°C	T <sub>a</sub> =-20 to 85°C
ESD Threshold	V <sub>ESD</sub>		3000		V	Human body model
Reverse Current	I <sub>r</sub>			0.5	uA	V <sub>r</sub> =5V

Notes:

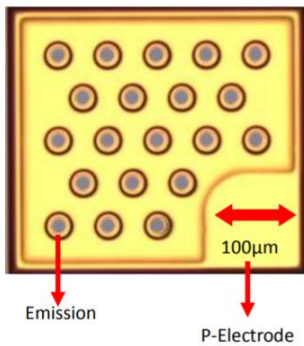
- Forward Voltage (V<sub>f</sub>) measurement resolution is ±0.1V.
- Center Wavelength (λ<sub>c</sub>) measurement resolution is ±1.5nm.
- Output Power (P<sub>o</sub>) measurement resolution is ±10%.

## Typical Characteristics



Note: Data measure at ambient temperature 25°C.

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



Parameter	Min.	Typ.	Max.
Chip width	292	307	322
Chip length	321	336	351
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.