



## VCC-81A150H

### 810nm 150mW VCSEL Chip

## Description

The Lasermate VCC-81A150H is an 810nm wavelength, 150mW output power, multi-emitter, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

## Features

- 810nm multi-emitter VCSEL chip
- Typical 150mW output power at 300mA
- Number of emitters: 82
- Chip size: 610 x 610 ± 15 μm
- Chip thickness: 150 ± 15 μm
- Electrode side: Gold alloy on both anode P (emission side) and cathode N (backside)

## Applications

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

## Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Storage Temperature	$T_{stg}$	-40 to 85	°C	
Operating Temperature	$T_{op}$	-20 to 85	°C	
Maximum package SMT solder reflow temperature	-	260	°C	10 seconds
Forward Current	$I_f$	300	mA	

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.

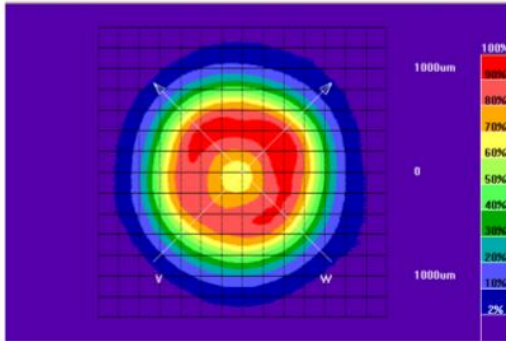
Electro-Optical Characteristics ( $T_a=25^\circ\text{C}$ unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	$I_{th}$		100		mA	
Slope Efficiency	$\eta$		0.6		W/A	$I_f=300\text{mA}$
Optical Output Power	$P_o$	130	150		mW	$I_f=300\text{mA}$
		250	275			$I_f=500\text{mA}$
Center Wavelength	$\lambda_c$	800	810	820	nm	$I_f=300\text{mA}$
Beam Divergence	$\Theta$		25		°	$I_f=300\text{mA}$ (FWHM)
Forward Voltage	$V_f$	1.6	2.0	2.4	V	$I_f=300\text{mA}$
		1.8	2.0	2.4		$I_f=500\text{mA}$

### Notes:

- Forward Voltage ( $V_f$ ) measurement allowance is ±0.1V.
- Center Wavelength ( $\lambda_c$ ) measurement allowance is ±1.5nm.
- Others measurement allowance is ±10%.
- All parameters except mentioned are measured at  $I_f=300\text{mA}$ ,  $T_a=25^\circ\text{C}$ , CW.

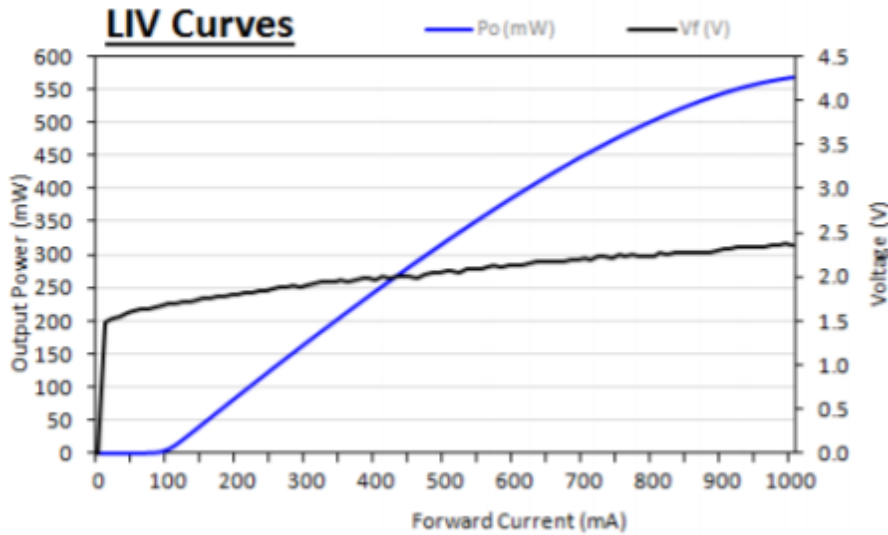
## Typical Characteristics

### Beam Divergence



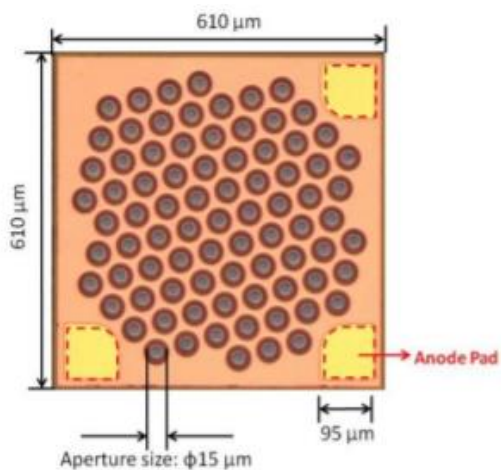
FWHM: 25°

### LIV Graph at 25°C



Note: Data measure at ambient temperature 25°C.

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



Specification	Min.	Typ.	Max.
Number of emitters		82	
Chip width	595	610	625
Chip length	595	610	625
Chip thickness	135	150	165
Emitter surface area diameter opening	-	15	-
Bond pad width	-	95	-

## 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.