



## 810nm 150mW VCSEL Chip

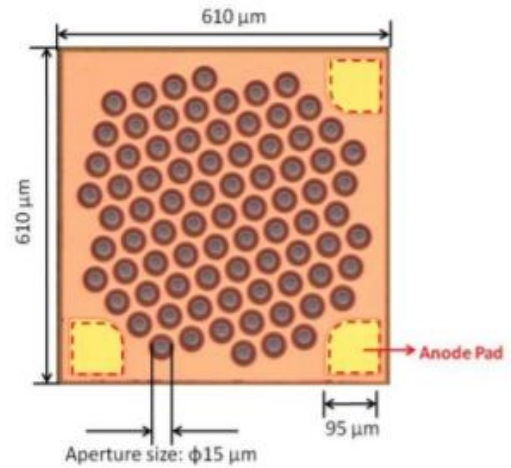
Part No. VCC-81A150H

### Features

- 810nm multi-emitter VCSEL chip
- Typical 150mW output power at 300mA
- 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 <sub>stg</sub>	-40 to 85	°C	
Operating Temperature	T <sub>op</sub>	-20 to 85	°C	
Maximum package SMT solder reflow temperature	-	260	°C	10 seconds
Forward Current	I <sub>f</sub>	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 <sub>a</sub> =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I <sub>th</sub>		100		mA	
Slope Efficiency	η		0.6		W/A	I <sub>f</sub> =300mA
Optical Output Power	P <sub>o</sub>	130	150		mW	I <sub>f</sub> =300mA
		250	275			I <sub>f</sub> =500mA
Center Wavelength	λ <sub>c</sub>	800	810	820	nm	I <sub>f</sub> =300mA
Beam Divergence	Θ		25		°	I <sub>f</sub> =300mA (FWHM)
Forward Voltage	V <sub>f</sub>	1.6	2.0	2.4	V	I <sub>f</sub> =300mA
		1.8	2.0	2.4		I <sub>f</sub> =500mA

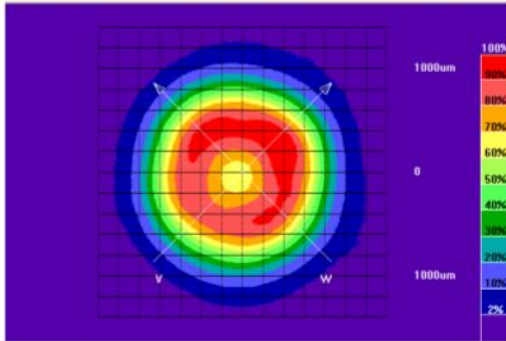
Notes:

- 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%.
- All parameters except mentioned are measured at I<sub>f</sub>=300mA, T<sub>a</sub>=25°C, CW.



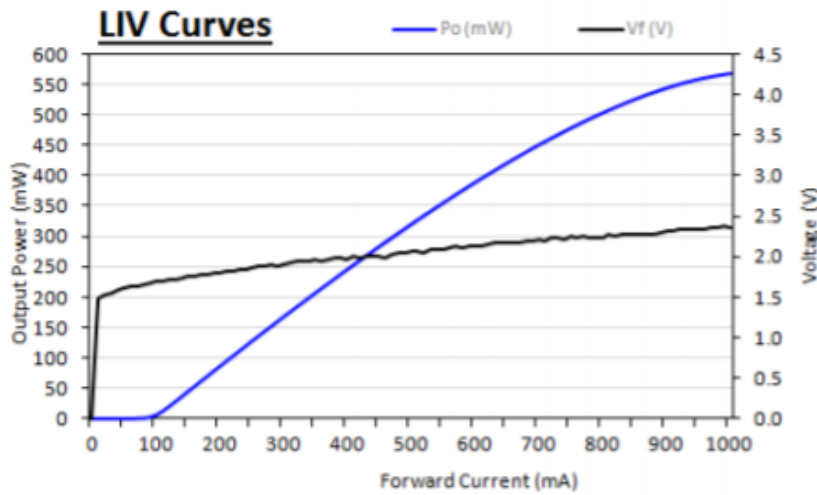
**Typical Characteristics**

**Beam Divergence**



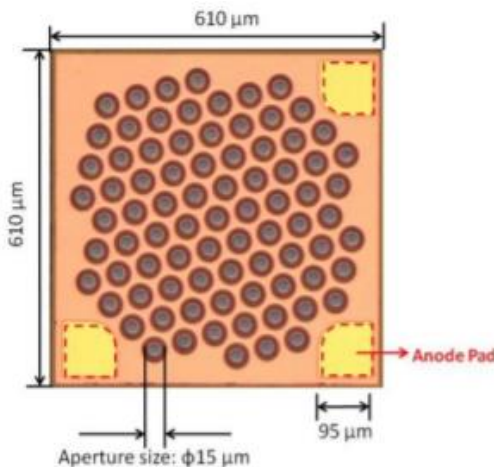
FWHM: 25°

**LIV Graph at 25°C**



Note: Data measure at ambient temperature 25°C.

**Outline Dimensions (unit: µm)**

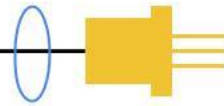


Specification	Min.	Typ.	Max.
Number of emitters		82	
Chip width	595	610	625
Chip length	595	610	625
Chip thickness	135	150	165
Emitter surface area diameter opening	-	15	-
Bond pad width	-	95	-



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#### **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.

**Lasermate Group, Inc.**

19608 Camino De Rosa, Walnut, CA 91789, USA

Tel: (909)718-0999 | Fax: (909)718-0998 | E-mail: [info@lasermate.com](mailto:info@lasermate.com) | URL: <http://www.lasermate.com>