



## 940nm 22mW VCSEL Chip



### VCC-94A22H

#### Description

The Lasermate VCC-94A22H is an 940nm wavelength, 22mW output power, multi-emitter Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

#### Features

- 940nm multi-emitter VCSEL chip
- Typical 22mW at 40mA
- Number of emitters: 5
- -20 to 85 °C operating temperature
- Chip size: 180 x 180 ± 15 μm

#### Applications

- Sensor light source
- Consumer electronics

#### 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>	64	mA	
Maximum package SMT solder reflow temperature	-	260	°C	10 seconds

Notes:

- Test and quality management are all mounted on TO-can package (TO-46).
- 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.

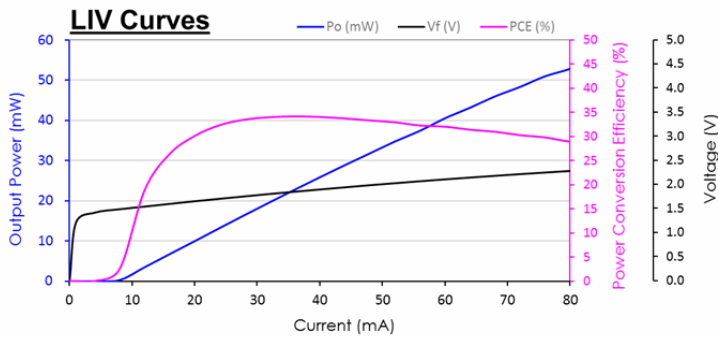
Electro-Optical Characteristics (T <sub>a</sub> =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I <sub>th</sub>		10		mA	CW
Slope Efficiency	η		0.7		W/A	I <sub>f</sub> = 40mA
Optical Output Power	P <sub>o</sub>	17	22	27	mW	I <sub>f</sub> = 40mA
Center Wavelength	λ <sub>c</sub>	930	940	950	nm	I <sub>f</sub> = 40mA
Beam Divergence	Θ		18		degree	Full Width 1/e <sup>2</sup>
Operating Voltage	V <sub>f</sub>	1.6	1.8	2.0	V	I <sub>f</sub> = 40mA

Notes:

- All parameters except mentioned are measured at I<sub>f</sub> = 40mA, 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 ±5%.

**Typical Characteristics**

**LIV Graph at 25 °C**



**Outline Dimensions (unit: μm)**



Specification	Unit	Min.	Typ.	Max.	Condition
Number of emitters	ea		5		
Length (X), Width (Y)	μm	165	180	195	
Thickness	μm	165	180	195	
Emitter surface area diameter	μm	85	100	115	
Anode pad size (Bond pad)	μm	-	16	-	Emitter side
Cathode pad size	μm	-	100	-	Backside

Note: Dimension tolerance ± 3μm unless specified otherwise.

**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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