



## VCC-85A1G-OSL

### 850nm Single Mode VCSEL Chip for Sensor

#### Description

The Lasermate VCC-85A1G-OSL is an 850nm wavelength, single mode, Vertical Cavity Surface Emitting Laser (VCSEL) chip designed for use in sensing applications.

#### Features

- 850nm single emitter VCSEL chip
- Single transverse mode and longitudinal mode
- Size: 240x240um
- Low current operation
- High reliability
- High resistance to ESD

#### Applications

- Consumer electronics
- Laser mouse
- Laser printer
- Safety sensor
- Engine management system

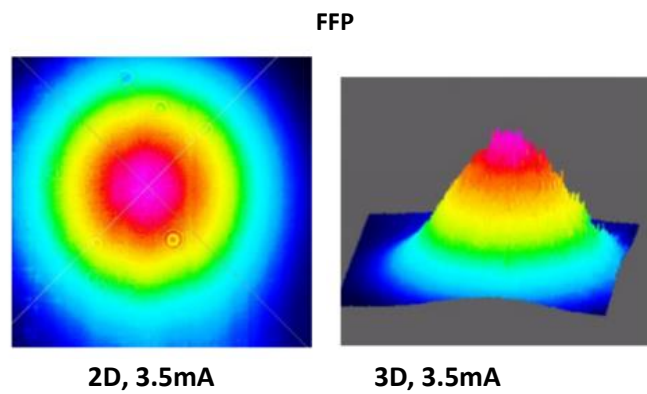
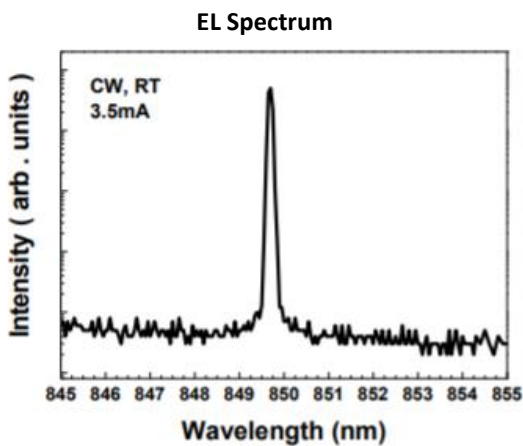
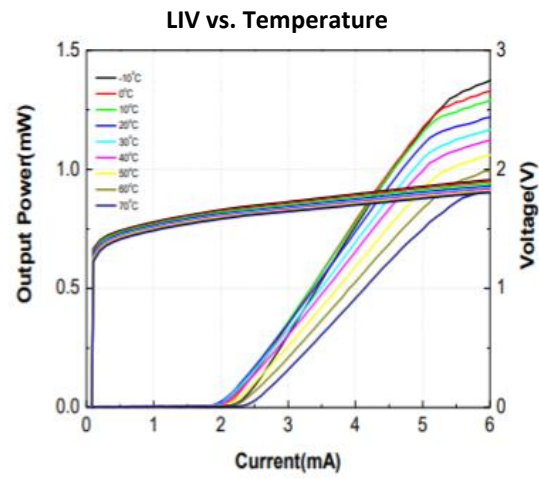
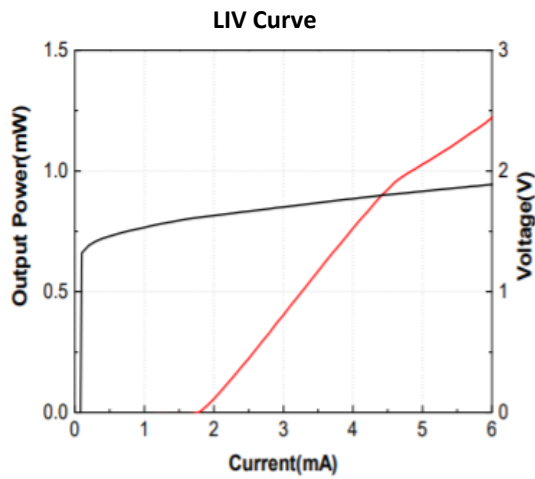
#### Specifications

Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	85	°C	
Operating Temperature	-10	70	°C	
Continuous Forward Current		6	mA	
Continuous Reverse Voltage		5	V	10uA

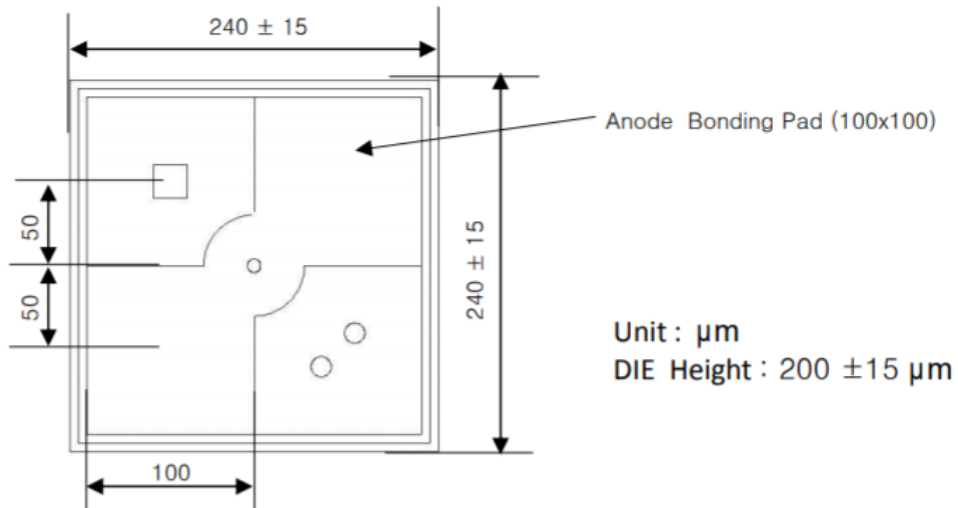
Electro-Optical Characteristics (T <sub>a</sub> =25°C unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I <sub>th</sub>		2	3	mA	CW
Slope Efficiency	η	0.2	0.35		W/A	I <sub>f</sub> =3.5mA
Optical Output Power	P <sub>o</sub>	0.25	0.5		mW	I <sub>f</sub> =3.5mA
Peak Wavelength	λ <sub>p</sub>	840	850	860	nm	I <sub>f</sub> =3.5mA
Beam Divergence	Θ	6	8		°	P <sub>o</sub> =0.5mW, (Full Width, 1/e <sup>2</sup> )
Forward Voltage	V <sub>f</sub>		1.8	2.1	V	I <sub>f</sub> =3.5mA
Breakdown Voltage	V <sub>b</sub>		-10		V	
Dynamic Resistance	R <sub>d</sub>		70	90	Ohm	I <sub>f</sub> =3.5mA
Side Mode Suppression Ratio	SMSR	15	30		dB	I <sub>f</sub> =3.5mA
			10			I <sub>f</sub> =4.0mA

Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I <sub>th</sub> Temperature Variation	ΔI <sub>th</sub>		1.5		mA	T <sub>a</sub> =-10 to 70°C
η Temperature Coefficient	Δη/ΔT		-0.5		%/°C	T <sub>a</sub> =-10 to 70°C, I <sub>f</sub> =3.5mA
λ Temperature Coefficient	Δλ/ΔT		0.06		nm/°C	T <sub>a</sub> =-10 to 70°C, I <sub>f</sub> =3.5mA

Typical Characteristics



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



### 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.