850nm Single Mode VCSEL Chip for Sensor
VCC-85A1G-OSL

Data Sheet

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

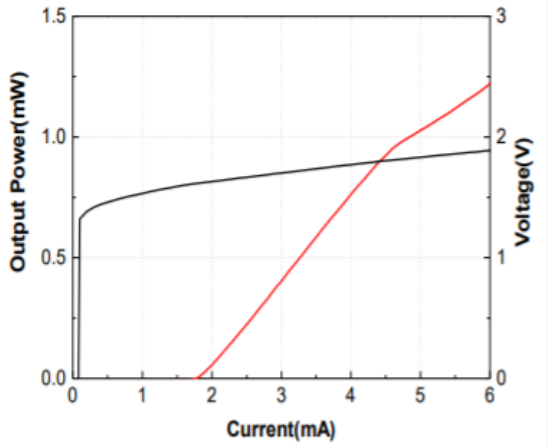
Absolute Maximum Ratings				
Parameters	Min.	Max.	Unit	Conditions
Storage Temperature	-40	85	°C	
Operating Temperature	-10	70	°C	
Continuous Forward Current		6	mA	
Continuous Reverse Voltage		5	V	10uA

Electro-Optical Characteristics (T_a=25ºC unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Threshold Current	I_{th}		2	3	mA	CW
Slope Efficiency	η	0.2	0.35		W/A	I_f=3.5mA
Optical Output Power	P_o	0.25	0.5		mW	I_f=3.5mA
Peak Wavelength	λ_P	840	850	860	nm	I_f=3.5mA
Beam Divergence	Θ	6	8		°	P_0=0.5mW, (Full Width, 1/e^2)
Forward Voltage	V_f		1.8	2.1	V	I_f=3.5mA
Breakdown Voltage	V_b		-10		V	
Dynamic Resistance	R_d		70	90	Ohm	I_f=3.5mA
Side Mode Suppression Ratio	SMSR	15	30		dB	I_f=3.5mA
			10			I_f=4.0mA

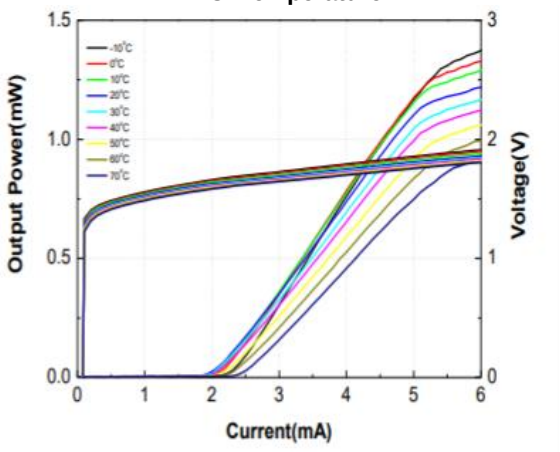
Thermal Characteristics						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
I_{th} Temperature Variation	ΔI_{th}		1.5		mA	T_a=-10 to 70°C
η Temperature Coefficient	$\Delta\eta/\Delta T$		-0.5		%/°C	T_a=-10 to 70°C, I_f=3.5mA
λ Temperature Coefficient	$\Delta\lambda/\Delta T$		0.06		nm/°C	T_a=-10 to 70°C, I_f=3.5mA

Typical Characteristics

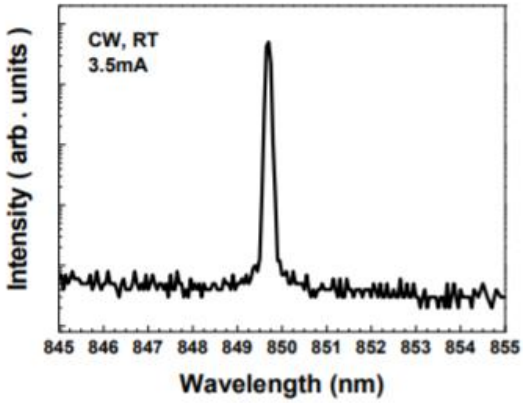
LIV Curve



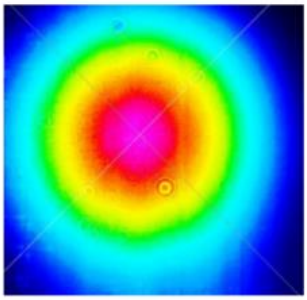
LIV vs. Temperature



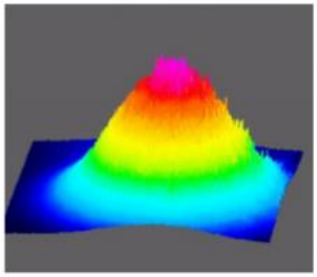
EL Spectrum



FFP

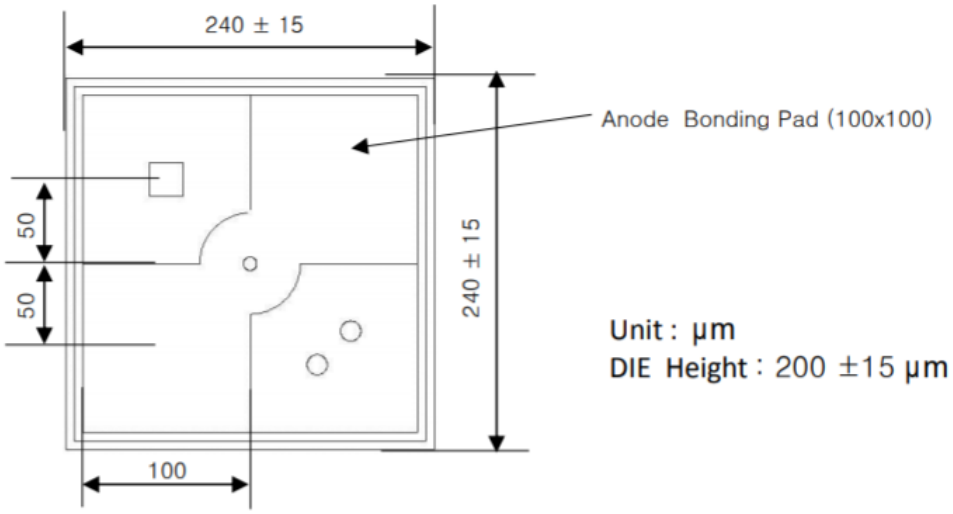


2D, 3.5mA



3D, 3.5mA

Outline Dimensions (unit: μm)



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.