



# VCC-94A20SM

## 940nm 20mW Single Mode VCSEL Chip

Data Sheet

### Features

- 940nm multi-emitter VCSEL chip
- Single longitudinal mode, single transverse mode
- Typical 20mW output power at 30mA
- Gaussian beam profile
- Chip size: 230um x 230um
- Chip thickness: 150um

### Applications

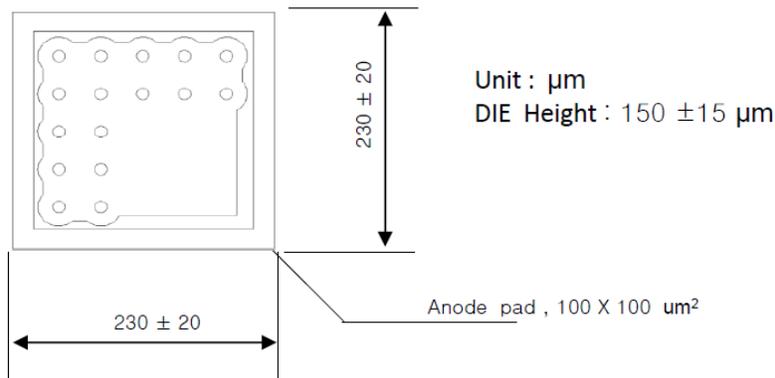
- Proximity sensor
- Consumer electronics
- Illumination light source
- Safety sensor

### Specifications

Absolute Maximum Ratings				
Parameters	Symbol	Rating	Unit	Conditions
Case Operating Temperature	Top	-10 to 70	°C	
Storage Temperature	Tstg	-40 to 85	°C	
Continuous Forward Current	I <sub>F</sub>	40	mA	

Electro-Optical Characteristics (T <sub>op</sub> =25°C, unless otherwise stated)						
Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical Output Power	P <sub>o</sub>	-	20	-	mW	I <sub>F</sub> =30mA
Threshold Current	I <sub>th</sub>	-	7.0	-	mA	CW
Slope Efficiency	η	-	0.9	-	W/A	I <sub>F</sub> =30mA
Peak Wavelength	λ <sub>P</sub>	930	940	950	nm	I <sub>F</sub> =30mA
Operating Voltage	V <sub>F</sub>	-	2.1	2.4	V	I <sub>F</sub> =30mA
Breakdown Voltage	V <sub>b</sub>	-10	-	-	V	
Dynamic Resistance	R <sub>d</sub>	-	80	-	Ohm	I <sub>F</sub> =30mA
I <sub>th</sub> Temperature Variation	Δ I <sub>th</sub>		3.0		mA	T <sub>A</sub> =-10 to 70°C
Wavelength Temperature Drift	Δλ <sub>P</sub> / ΔT	-	0.06	-	nm/°C	I <sub>F</sub> =30mA
Beam Divergence	θ	-	20	-	deg	P <sub>o</sub> =20mW (FWHM)

## Outline Diagram



## Additional Notes

- Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or other conditions above those indicated in the operations section for expanded periods of time may affect reliability.
- In its maximum rating diode laser operation could damage its performance or cause potential safety hazard such as equipment failure.
- Electrostatic discharge is the main reason for laser fault of the diode. Take effective precautions against ESD. When dealing with laser diodes, use wrist strap, grounding work surface and strict antistatic technology.
- 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.