



VCx-660P2A

660nm 2mW Pulsed VCSEL Diode

Data Sheet

Features

- 660nm red VCSEL diode
- Output power: 2mW (pulsed mode)
- Available in SMD or TO-can package options

Applications

- Proximity sensing
- Consumer electronics
- Pulse oximetry
- Medical diagnostics
- Wearable health monitoring

Ordering Information

Part Number	Description
VC20A-660C2A	660nm 2mW Pulsed VCSEL Diode, SMD 2016 Package
VCT5-660C2A	660nm 2mW Pulsed VCSEL Diode, TO-56 Package

* Additional package configurations may be available upon request.

Absolute Maximum Ratings

Parameters	Symbol	Rating	Unit	Conditions
Case Operating Temperature	Top	-25 to 70	°C	
Storage Temperature	Tstg	-40 to 85	°C	
Reflow Soldering Temperature	Tsol	260	°C	10 seconds
Reverse Voltage	Vr	4	V	
Maximum Pulse Current	Imax	12	mA	
ESD Exposure (Human Body) Model	ESD	2K-4K (Class 2)	V	
ESD Exposure (Machine) Model	ESD	200-400 (Class B)	V	

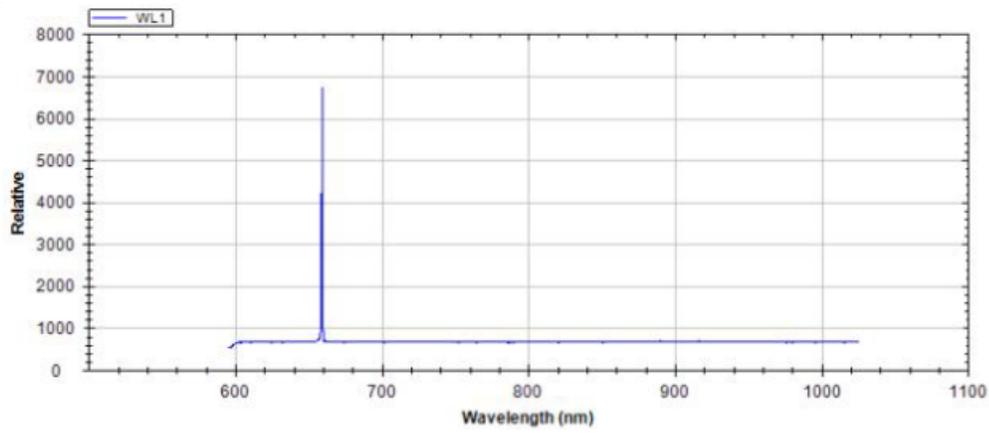
Electro-Optical Characteristics (T_{op}=25°C, 0.1ms pulse width, 1% duty cycle)

Parameters	Symbol	Min.	Typ.	Max.	Unit	Conditions
Optical Output Power	P _o	-	2	-	mW	I _F =10mA
Threshold Current	I _{th}	-	3.2	-	mA	
Forward Current	I _F	-	10	-	mA	
Power Conversion Efficiency	PCE	-	12	-	%	
Slope Efficiency	η	-	0.35	-	mW/mA	
Peak Wavelength	λ _P	655	660	665	nm	P _o =2mW
Forward Voltage	V _f	-	2.5	-	V	I _F =10mA
Emission Diameter		-	φ22	-	um	
Beam Angle (1/e ²)	Θ	-	20	-	deg	I _F =10mA
Wavelength Temperature Drift	Δλ _P / ΔT	-	0.045	-	nm/°C	I _F =10mA
Soldering Temperature	Tsol			260	°C	10 seconds

Note: Electro-optical characteristics with a package or diffuser would require further evaluation. Values are based on limited sample size and estimated values.

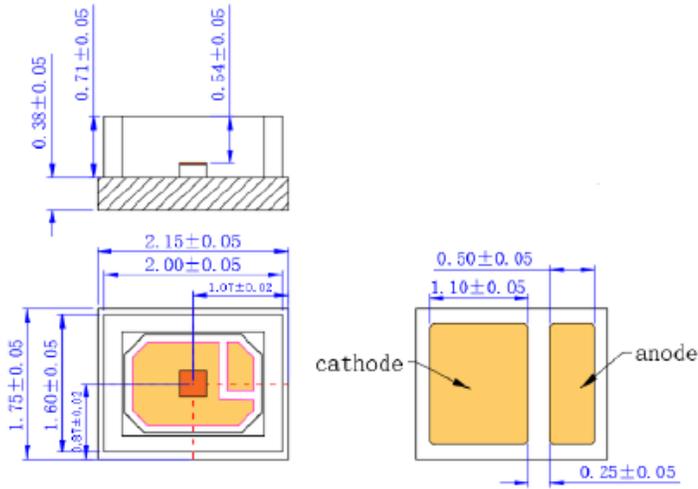
Typical Characteristics

Spectral Wavelength

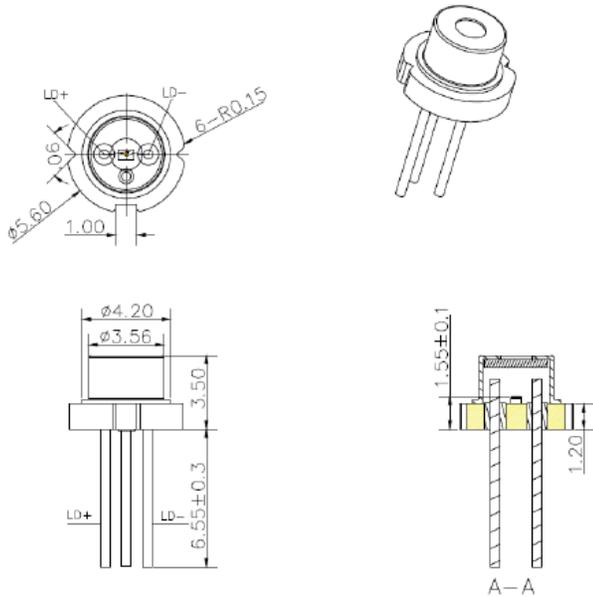


Outline Dimensions (unit: mm)

SMD 2016 Package



TO-56 Package



SMT Reflow Soldering Curve



Note: Reflow soldering can be operated only one time. During the temperature ramp-up, no forces may be exerted on the LD which would deform or damage them. After soldering is completed, please do not process until the product temperature ramps down to room temperature.

Additional Notes

1. Stresses exceeding those listed in Absolute Maximum Ratings may cause permanent damage to the device. These ratings are stress limits only and do not imply functional operation under such conditions. Exposure to conditions beyond recommended operating limits may affect device reliability.
2. Operation at or near maximum ratings may degrade performance and may create potential safety risks, including device failure.
3. The device is sensitive to electrostatic discharge (ESD). Proper ESD precautions, including grounded wrist straps, antistatic work surfaces, and ESD-safe handling procedures, must be followed during handling and assembly.
4. Adequate thermal management must be provided. The VCSEL device should be properly mounted to ensure efficient heat transfer to the package or system thermal path to maintain stable optical performance.
5. Avoid direct exposure of laser radiation to human eyes or skin. Follow applicable laser safety regulations and system-level safety design practices.
6. The emitting surface of the VCSEL should not be touched or contaminated. Mechanical contact or contamination may degrade optical performance or damage the device.
7. Use appropriate pick-and-place handling tools, such as ceramic or ESD-safe vacuum nozzles, to prevent mechanical or electrostatic damage during assembly.
8. Specifications are subject to change without notice.