

V00013

Assy; 2222; 680; Q; 3R; S6AP, BP, CP; 1mW; 0.17X0.24; PLCC; 3020; 2L; Encaps; ESD



PRODUCT DESCRIPTION

A Quasi-single mode (Gaussian beam shape; with a Multimode spectral profile) 680nm VCSEL, with linear polarized emission. The red wavelength is ideal for applications requiring beam visibility such as aligning sensors & high-resolution applications requiring a small spot size.

Major Applications:

- Laser Printing
- Medical devices
- Bar code scanners
- Holography

Features:

- Low operating current
- Low divergence angle
- Circular beam profile
- Linear polarization orientated along chip edge



COMPLIES WITH IEC 60825-1, 2nd Edition 2007. COMPLIES WITH 21 CFR 1040.10 AND 1040-10.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO.50 DATED 27 MAY 2001.

1 Subject to change without notification March 28, 2019

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Absolute Maximum Ratings

Parameter	Rating	Notes		
Storage Temperature	-40 to 125 °C			
Operating temperature (VCSEL)	-20 to 50 °C			
Lead solder temperature	260°C, 10 seconds			
CW current (VCSEL)	3 mA	(Note 1) at room temperature		
Laser reverse voltage	5 V			

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Functional operation of the device beyond the Absolute Maximum Ratings for extended periods of time may affect device reliability.

Note 1: The maximum CW laser current in the Absolute Maximum Ratings is valid for the operating temperature noted at the table above. The maximum CW laser current decreases with increasing temperature.

Note 2: For some applications, a burn-in period for VCSEL die is recommended to stabilize the output power. Please contact Vixar for a recommendation.

Electro-Optical Characteristics

VCSEL Operating Temp (Tv) =25°C & Operating Current=3mA unless otherwise stated)

Parameter	Symbol	Units	Minimum	Typical	Maximum	Notes
Threshold current	Ith	mA		0.8		
Operating voltage	Vf	Volts		2.5		
Series resistance (VCSEL)	Rs	Ohms		175		
Slope efficiency	SE	mW/mA		0.5		
Quasi Single mode behavior		mA			3.0	For Gaussian beam
Optical output power	Lop	mW		1.2		
Reverse breakdown voltage		V	10			$Ir \leq 1nA$
Operating wavelength	λορ	nm	670	680	690	
Beam divergence FWHM	FWHM	deg	12	14	16	
Wavelength temp. coefficient		nm/°C		0.045		



Typical Performance



L-I-V of I0-0680Q-0000-X002 vs Temperature



Spectral Wavelength of I0-0680Q-0000-X002 vs Current

3 Subject to change without notification August 2019



Beam Profile





ORDERING INFORMATION

Description	Part Number		
Die; 680; Q; S6AP,BP,CP; 1.2mW; .24mm X 0.17mm;	I0-0680Q-0000-A002		

Note: For some applications, a burn-in period for VCSEL die is recommended to stabilize the output power. Please contact Vixar for a recommendation.





Opto Semiconductors

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