

940nm Power Array VCSEL with a power emission of 2W to 4W pulsed in a PLCC 5052 package

Near Infra-Red Vertical Cavity Surface Emitting Laser (VCSEL)

Model: Multi Mode Array VCSEL

Applications

- Motion Control
- Time of Flight
- Automotive Sensing
- 3D Scanning
- Motion Control
- Time of Flight
- Gesture Recognition
- IR illumination for Security

Package Details: This VCSEL array is delivered in a PLCC 5052 package (shipped in tape on reel for minimum quantities of 1000 pcs) with an encapsulant. The PLCC package is compatible with standard SMT solder reflow.



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.



Absolute Maximum Ratings

Parameter	Rating	Notes
Storage temperature	-40 to 100 °C	
Operating temperature (VCSEL)	-20 to 80 °C	
Maximum package SMT solder reflow temperature	260°C, 10 seconds	
CW current (VCSEL)	3.2 A	(Note 1)
Maximum pulsed current	5 A	100µs pulse width, 10% duty cycle, T=25°C (Note 2)

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. Contact Vixar for maximum CW laser current values at other temperatures.

Note 2: For details refer to the Vixar Application Note "Operation of VCSELs Under Pulsed Conditions". (<http://www.vixarinc.com/technology/applicationnotes.html>)

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated for extended periods of time may affect device reliability.

Electro-Optical Characteristics

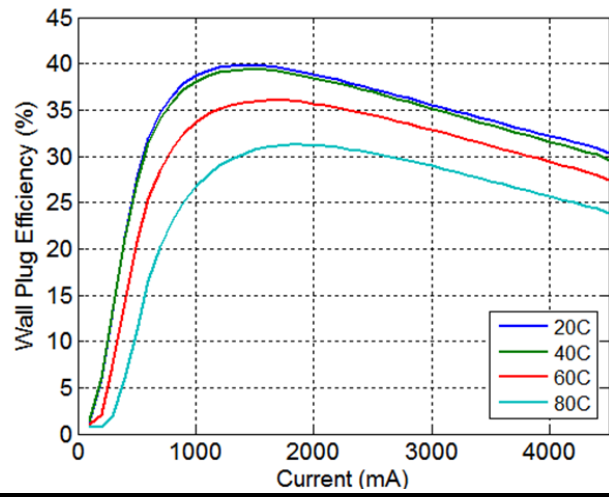
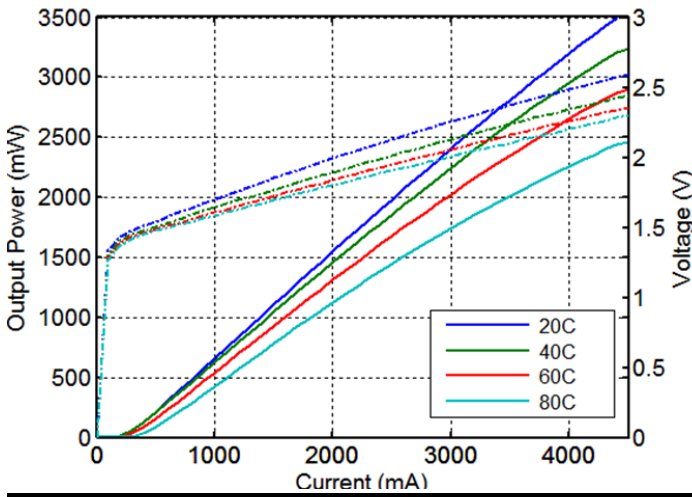
VCSEL Operating Temp (T_v) =25°C, Test condition: 100µs pulse width & 10% duty cycle unless otherwise noted

Product ID			Minimum	Typical	Maximum	Notes
Parameter	Symbol	Units				
Threshold current	I _{th}	mA	175	300	500	
Operating voltage	V _f	Volts	--	2.0	2.4	at 2.5A
Optical Operating power	L _{op}	W	1.7	2.0	--	at 2.5A
Slope efficiency	SE	W/A	--	0.8	--	at 2.5A
Power conversion efficiency	PCE	%	35	37	--	At 2.5A
Reverse breakdown voltage		V	5	--	--	I _r ≤ 1nA
Beam divergence	FWHM	deg	--	18	22	
Beam divergence	1/e ²	deg	--	25	28	
Operating wavelength	λ _{op}	nm	930	940	950	

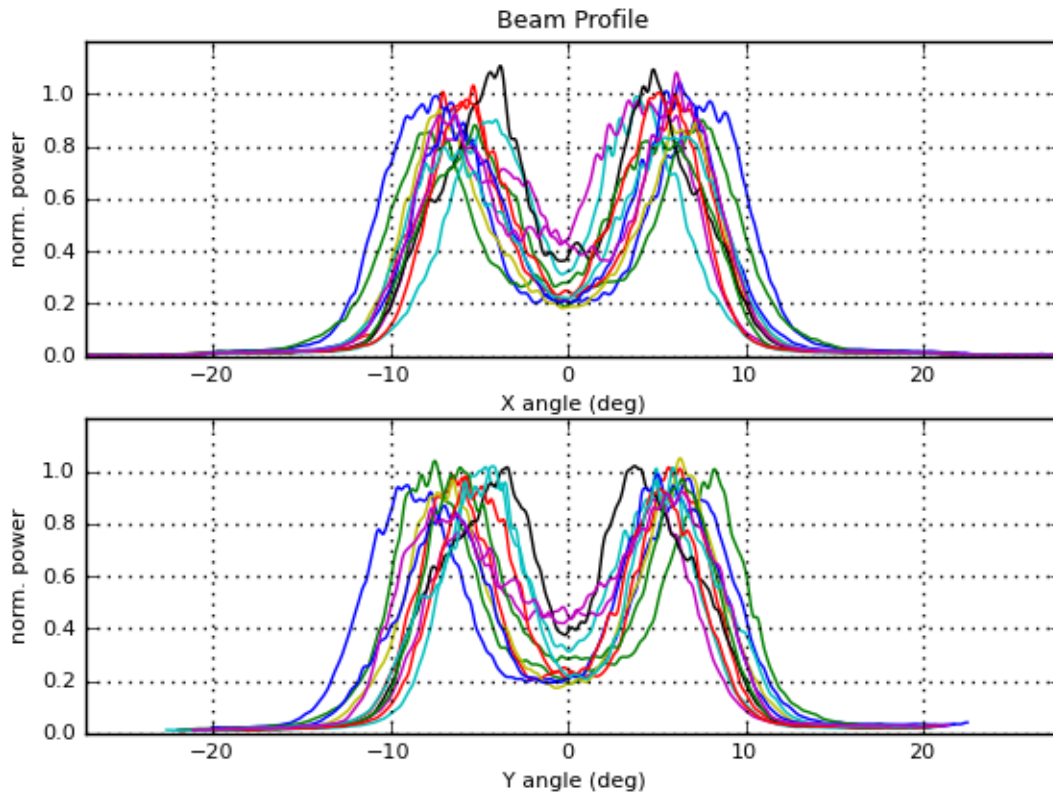


TYPICAL PERFORMANCE CURVES AT 25°C:

Sampled pulse data at 100µs pulse width & 10% duty cycle



Beam divergence data



**ORDERING INFORMATION**

Description	Package	Part Number
2 Watt 940 nm Power array VCSEL on a PLCC package with encapsulant	PLCC 5052	I0-0940M-0000-OP05
2 Watt 940 nm Power array VCSEL bare die		I0-0940M-0000-AP05



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