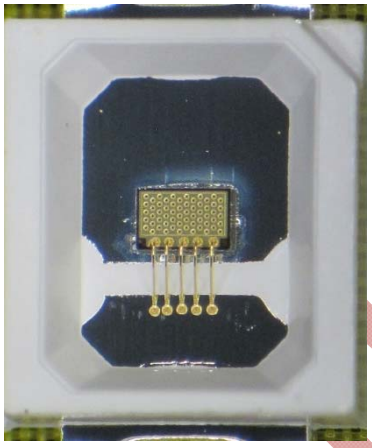
940nm Power Array VCSEL with power emission of ~0.5W at CW, room temperature in a PLCC 2835 package



940PA on a PLCC 2835 package

Near Infra-Red Vertical Cavity Surface Emitting Laser (VCSEL)
Model: 940nm Multi Mode Array VCSEL

Applications

- 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 2835 package (shipped in tape on reel for minimum quantities of 2000 pcs) with an encapsulant. The PLCC package is compatible with standard SMT solder reflow processing.

REACH COMPLIANT

RoHS COMPLIANT

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 60 °C	
Maximum package SMT solder reflow temperature	260°C, 10 seconds	
CW current (VCSEL)	1.0 A	(Note 1)
Maximum pulsed current	1.8 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.

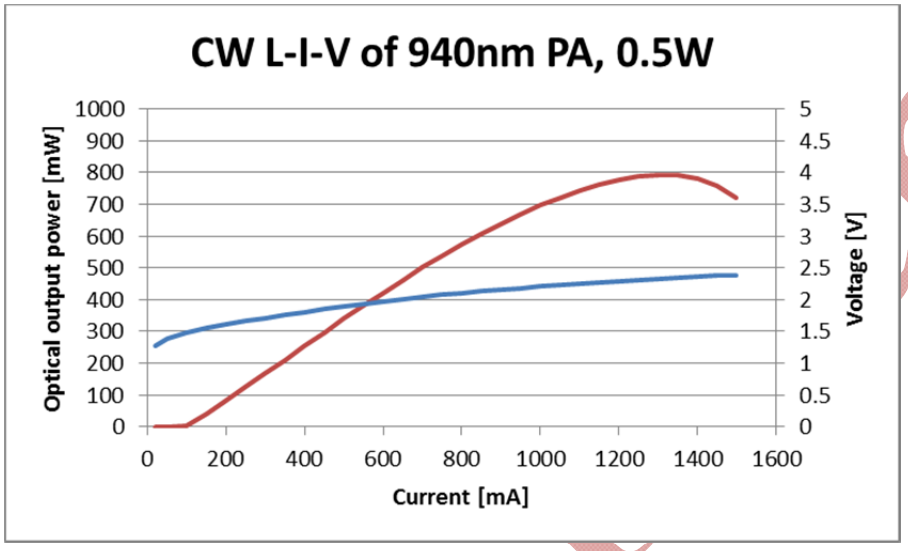
Electro-Optical Characteristics

VCSEL Operating Temp (Tv) =25°C, CW operating condition unless otherwise noted

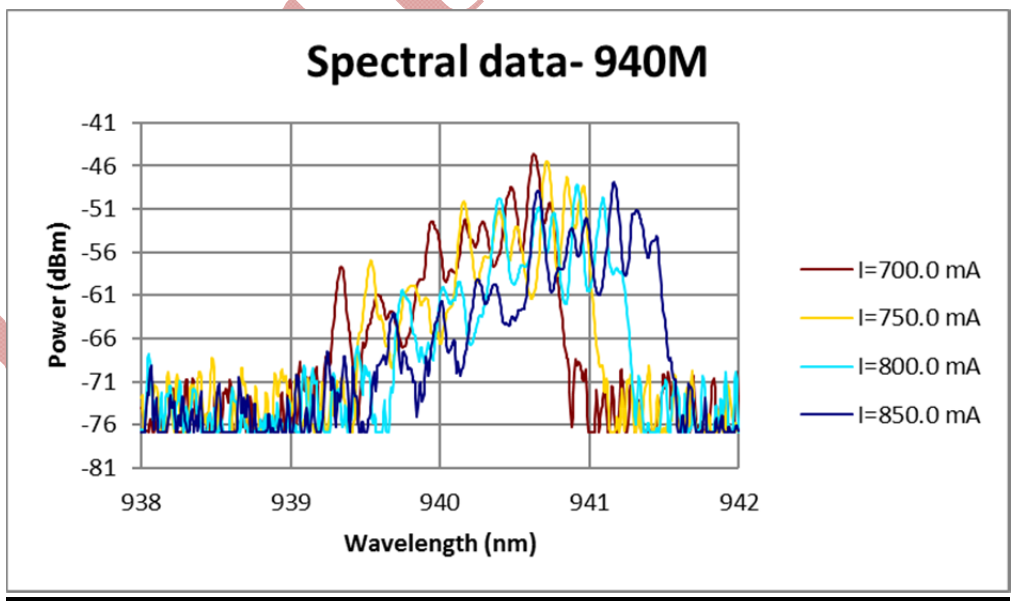
Product ID			Minimum	Typical	Maximum	Notes
Parameter	**Symbol**	**Units**				
Threshold current	Ith	mA	140	150	400	
Operating voltage	Vf	Volts	--	2.6	3.0	at 700mA
Optical Operating power	Lop	mW	350	500	--	at 700mA
Slope efficiency	SE	W/A	--	0.85	--	at 900mA
Power conversion efficiency	PCE	%	--	35	--	at 900mA
Reverse breakdown voltage		V	10	--	--	Ir ≤ 1nA
Beam divergence	FWHM	deg	18	22	26	
Operating wavelength	λop	nm	930	940	950	
Current tuning		nm/mA		0.7		
Wavelength-temp tuning		nm/°C		0.055		
Rise time		ps	--	--	500	20%-80%
Fall time		ps	--	--	500	20%-80%

TYPICAL PERFORMANCE CURVES AT 25°C:

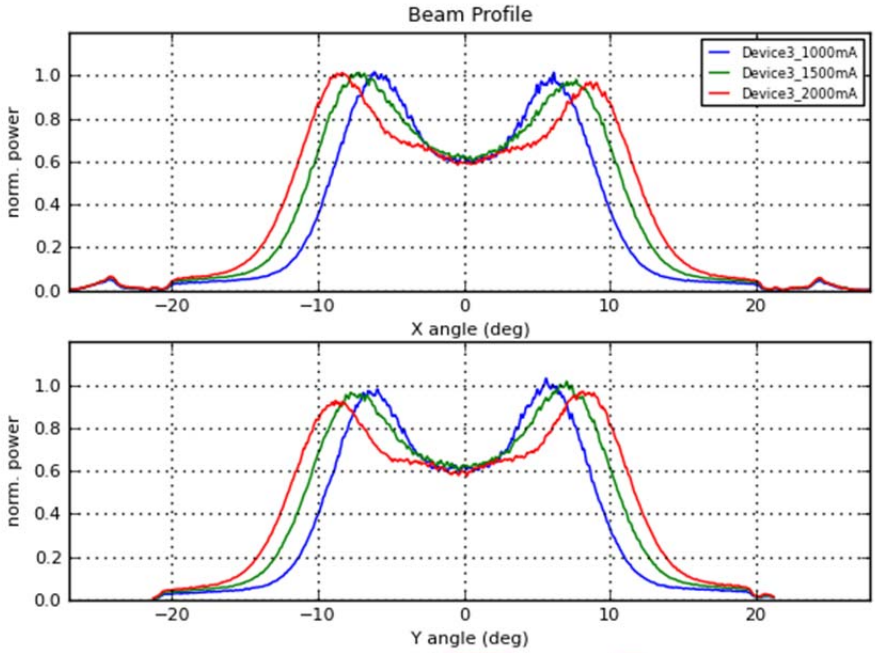
Sampled CW data at room temp



Spectral data



Beam divergence data over current



ORDERING INFORMATION

Description	Package	Part Number
0.5 Watt 940 nm Power array VCSEL on a PLCC package with encapsulant	PLCC 2835	I0-0940M-0000-KP03
0.5 Watt 940 nm Power array VCSEL bare die		I0-0940M-0000-AP03

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