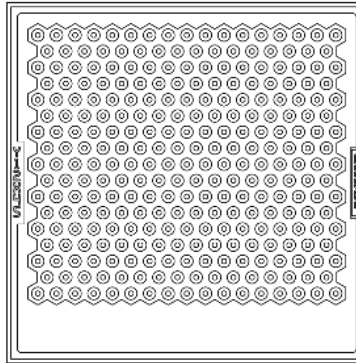


Part Number V00081
Die; 940; MM; G10X36; 3W; 0.9mm X 1.0mm;



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

Model: Multi Mode Array VCSEL
Center wavelength: 940nm
Optical power without diffuser: 3 Watts

Applications

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



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.

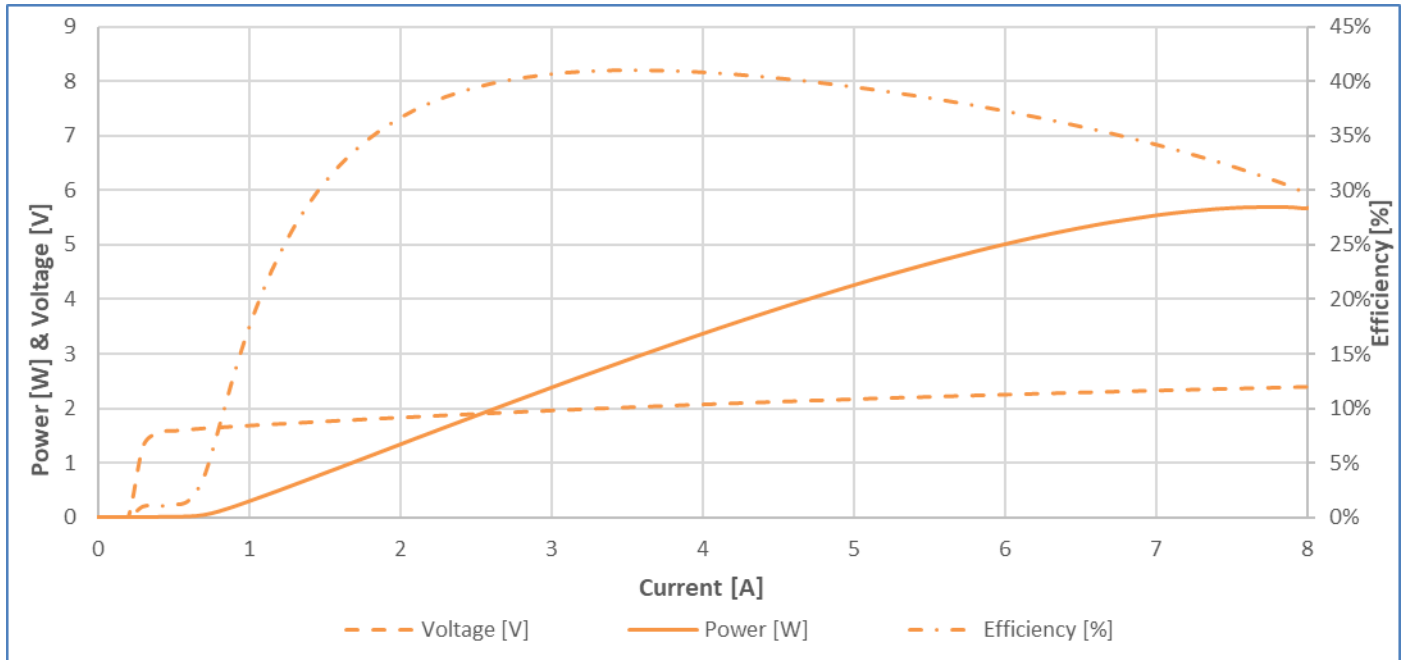
Absolute Maximum Ratings

Parameter	Rating	Notes
Storage temperature	-40 to 110 °C	
Operating temperature (VCSEL)	-40 to 110 °C	
Maximum package SMT solder reflow temperature	260°C, 10 seconds	
Maximum pulsed current	8 A	≤ 200 μs pulse width, ≤ 10% duty cycle, Temp ≤ 40 °C, Note 1
Laser reverse voltage	5 V	Note 1

Note 1 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.

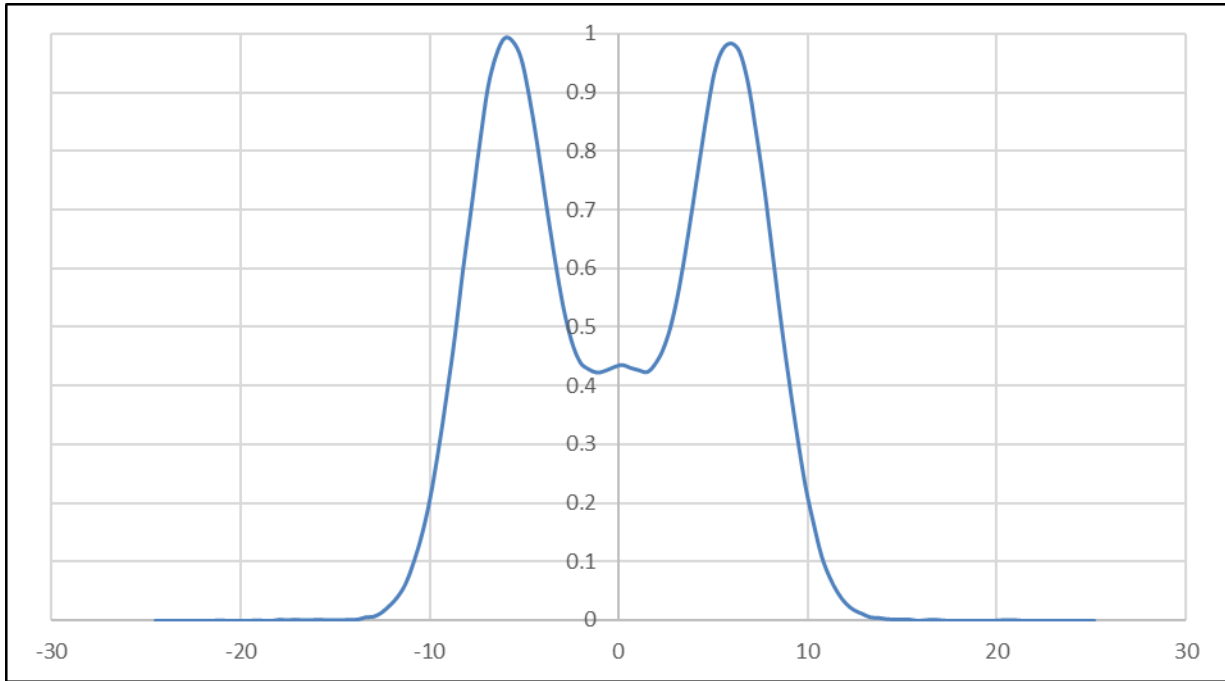
Parameter	Symbol	Units	Min	Typ.	Max	Notes
Threshold current	I _{th}	A	--	0.5	--	
Differential resistance	R _s	Ω	--	0.3	--	
Operating voltage	V _f	V	--	2.1	--	at I = 3.5 A
Optical operating power	L _{op}	W	--	3.0	--	at I = 3.5 A
Slope efficiency	SE	W/A	--	1.0	--	at I = 3.5 A
Power conversion efficiency	PCE	%	--	43	--	at I = 3.5 A
Breakdown voltage	V _{rb}	V	--	-10	-8	I _{rb} = -1 μA
Beam divergence	FWHM	deg	--	18	--	
Beam divergence	1/e ²	deg	--	22	--	
Operating peak wavelength	WL _{peak}	nm	930	940	945	
Wavelength-Temp tuning		nm/°C	--	0.066	--	
Rise time		ps	--	--	800	20%-80%, Note 1
Fall time		ps	--	--	1000	20%-80%, Note 1

Typical Performance



Typical 940nm 3W LIV at 25°C, 100µs pulse width, 1% Duty Cycle

Beam Profile

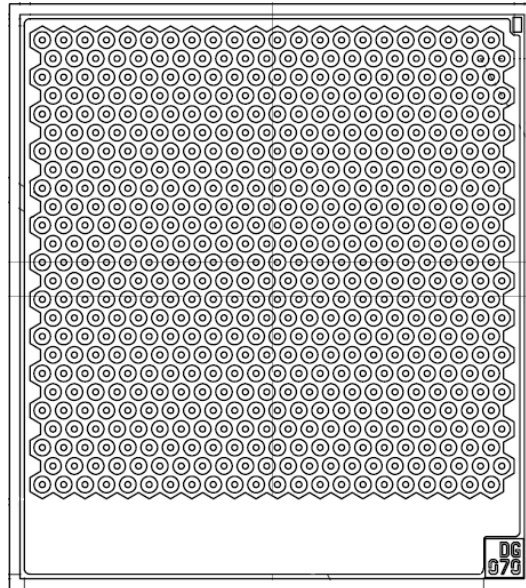


Typical beam divergence of bare die at 100 μ S, 1% Duty Cycle, 40°C at 5A



2D Beam profile

VCSEL Mechanical Specifications



Parameter	Specification
Die size (x / y) final	0.90 mm X 1.0 mm
Number of Apertures	550
Die thickness	100µm

Ordering Information

Description	Part Number
Die; 940; M; G10x36; 0.9mm x 1.0mm;	V00081

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