

Vertical Cavity Surface Emitting Laser in Ceramic SOT-23 Package



OPV240

Features

- 850nm VCSEL Technology
- High thermal stability
- Low drive current/high output intensity
- Narrow and concentric beam angle
- Ceramic SOT-23 Style Flat Lens Package

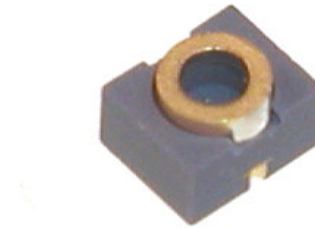
Description

The OPV240 is a high performance 850nm VCSEL packaged for sensing applications. This product's combination of features including high speed, high output power and concentric beam makes it an ideal transmitter for integration into all types of position sensing equipment.

Applications include:

- ◆ Photoelectric Sensors
- ◆ Light Curtains
- ◆ Position Sensors
- ◆ Encoders

Technical Data



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Maximum Forward Peak Current	30 mA
Maximum Reverse Voltage	5 Volts
Storage Temperature	-40 to +125°C
Operating Temperature	-40 to +85°C
Soldering Lead Temperature	260°C for 10 Seconds
Max. Continuous Optical Power at 70°C	1.1 mW



This product is classified as 1M per EN/IEC60825-1/A2:2001. The output from class 1M products must not be viewed directly using optical magnifiers within a distance of 100mm (4 inches). Additional laser safety information can be found on the Optek website. See application bulletin #221.

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OPV240 Technical Data



Electrical/Optical Characteristics (at 25 °C unless otherwise specified)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITION
P_{OT}	Total Power Out	1.4		4.5	mW	$I_F = 12 \text{ mA}$
I_{TH}	Threshold Current	2.0		5.5	mA	Note 1
V_F	Forward Voltage			2.15	V	$I_F = 12 \text{ mA}$
I_R	Reverse Current			30	nA	$V_R = 5 \text{ V}$
R_S	Series Resistance	14		40	ohms	Note 2
η	Slope Efficiency	0.17			mW/mA	Note 3
λ	Wavelength	830		860	nm	
$\Delta\lambda$	Optical Bandwidth			0.85	nm	
$\Delta\eta/\Delta T$	Temp Coefficient of Slope Efficiency		-0.40		%/°C	
θ	Beam Divergence		12		Degree	
$\Delta\lambda/\Delta T$	Temp Coefficient of Wavelength		0.06		nm/°C	(0° - 70° C)
$\Delta I_{TH}/\Delta T$	Temp Coefficient of Threshold Current		± 1.5		mA	(0° - 70° C)
N_{ri}	Relative Intensity Noise		-123		dB/Hz	
$\Delta V_F/\Delta T$	Temperature Coefficient for V_F		-2.5		mV/°C	

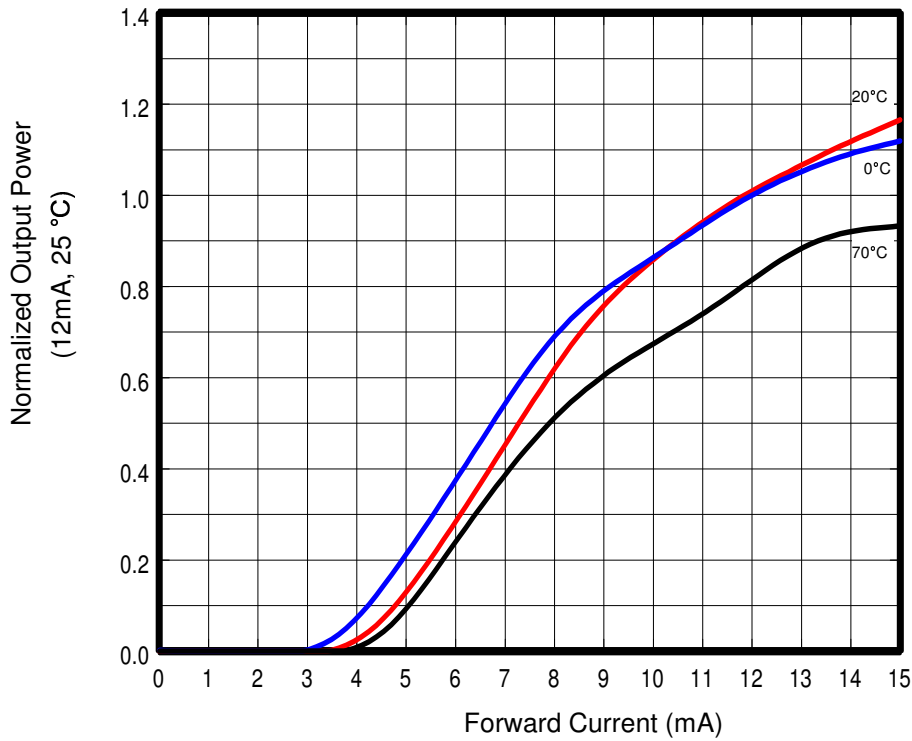
NOTES:

- (1) Threshold Current is based on the two line intersection method specified in Telcordia GR-468-Core. Line 1 from 6 mA to 8 mA. Line 2 from 0 mA to 2 mA.
- (2) Series Resistance is the slope of the Voltage-Current line from 8 to 12 mA.
- (3) Slope efficiency, is the slope of the best fit LI line from 8 mA above threshold to 12 mA.

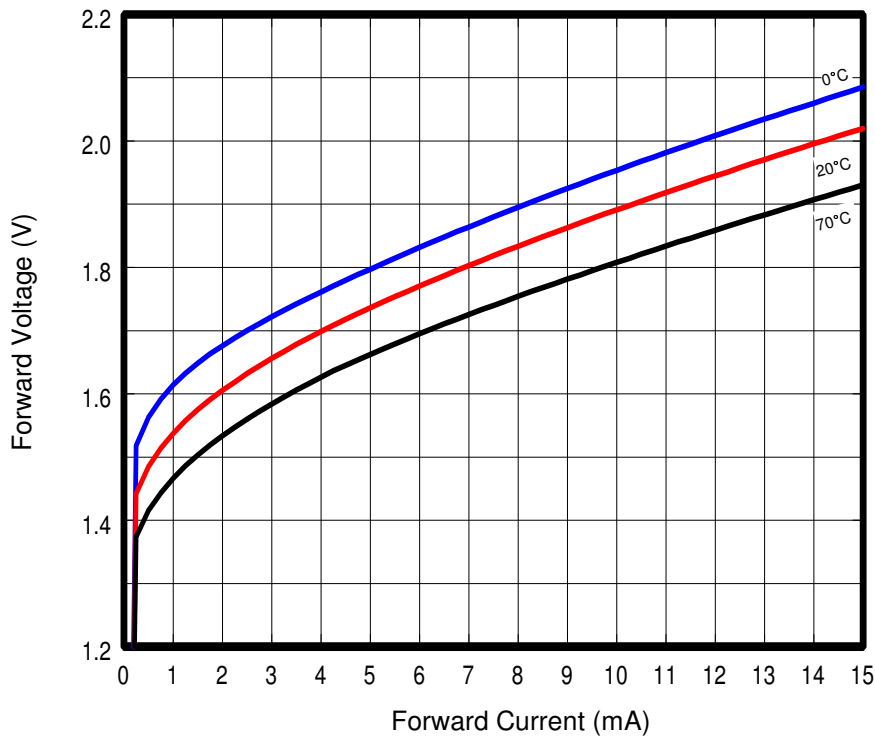
OPV240 Technical Data



Output Power vs. Forward



Forward Voltage vs. Forward Current

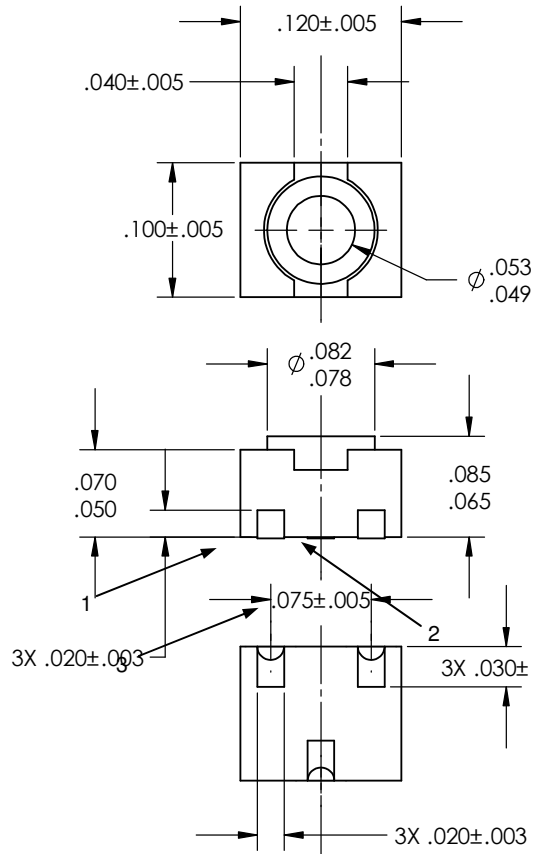


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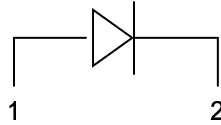
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Mechanical Dimensions:



VCSEL



OPV240	
Pin	Connection
1	VCSEL Anode
2	VCSEL Cathode