

Vertical Cavity Surface Emitting Laser in Pill Package TX & TXV versions



OPV320, OPV320TX, OPV320TXV

Features:

- 850NM VCSEL technology
- High thermal stability
- Low drive current
- High Output power
- Narrow Beam Angle



Description

The OPV320 is a Vertical Cavity Surface Emitting Laser (VCSEL) packaged in a flat lens pill package. VCSELs offer many advantages in sensing applications when compared to infrared LEDs. These devices require substantially lower drive currents to obtain the same amount of output power as LEDs. This feature allows VCSELs to be used in low power consumption applications such as battery operated equipment.

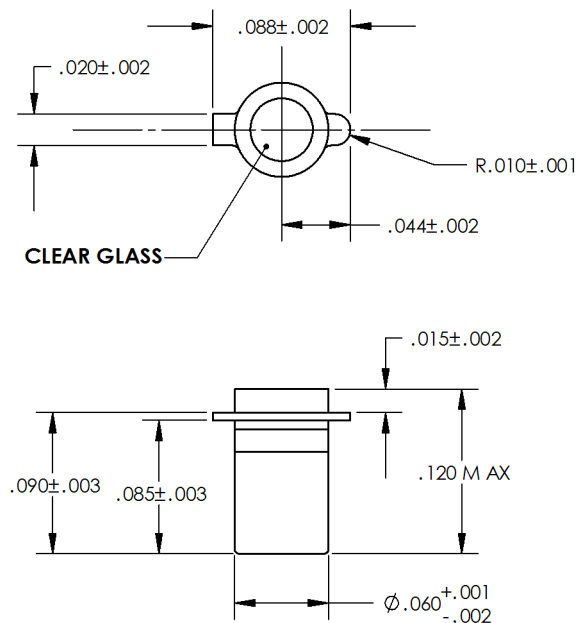
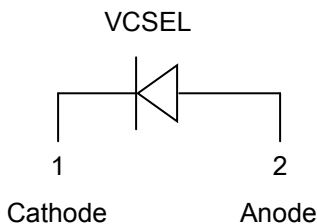
TX and TXV versions are processed per MIL-PRF-19500.

The flat lens packaging allows the device to be used with secondary optics to create custom beam profiles. The OPV320 is optically and spectrally compatible with Optek's standard detector products such as the OP600 series phototransistors, OP300 series photodarlington and the OP900 series photodiodes.

For custom processing and or opto-electrical characteristics, contact your OPTEK sales representative.

Applications

- Non-contact position sensing
- Photoelectric sensors
- Optical encoders
- Light curtains



RoHS



Additional laser safety information can be found on the Optek website. See application bulletin #221. Classification is not marked on the device due to space limitations. See package outline for centerline of optical radiance. Operating devices beyond maximum rating may result in hazardous radiation exposure.

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ unless otherwise noted

Storage Temperature Range	-40° to +100° C
Operating Temperature Range	-40° to +85° C
Soldering Temperature [1/16 inch (1.6mm) from case for 5 sec with soldering iron]	260° C ⁽¹⁾
Maximum Forward Peak Current	20 mA
Maximum Reverse Voltage	5 V

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	CONDITIONS
P_{OT}	Total Power Out	1.5			mW	$I_F = 7\text{ mA}$
I_{TH}	Threshold Current			3.0	mA	Note 2
V_F	Forward Voltage			2.2	V	$I_F = 7\text{ mA}$
I_R	Reverse Current			100	nA	$V_R = 5\text{ V}$
R_S	Series Resistance	20		55	ohms	Note 3
η	Slope Efficiency	0.28			mW/mA	Note 4
λ	Wavelength	830		860	nm	
$\Delta\lambda$	Optical Bandwidth		0.85		nm	
θ	Beam Divergence		20		Degrees	
$\Delta\eta/\Delta T$	Temp Coefficient of Slope Efficiency		-0.50		%/°C	(0° - 70°C), Note 4
$\Delta\lambda/\Delta T$	Temp Coefficient of Wavelength		0.06		nm/°C	(0° - 70°C)
$\Delta I_{TH}/\Delta T$	Temp Coefficient of Threshold Current		± 1.0		mA	(0° - 70°C), Note 2
$\Delta V_F/\Delta T$	Temp Coefficient for Forward Voltage		-2.5		mV/°C	(0° - 70°C)

NOTES:

- (1) RMA flux is recommended. Solder dwell time can be increased to 10 seconds when flow soldering.
- (2) Threshold Current is based on the two line intersection method specified in Telcordia GR-468-Core. Line 1 from 4 mA to 6 mA. Line 2 from 0 mA to 0.5 mA.
- (3) Series Resistance is the slope of the Voltage-Current line from 5 to 8 mA.
- (4) Slope efficiency, is the slope of the best fit LI line from 5 mA to 8 mA with 0.25mA test intervals.

