

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



OPV322, OPV322TX, OPV322TXV

Features:

- 850nm VCSEL technology
- High thermal stability
- Low drive current
- High output power
- Narrow Beam Angle



Description

The OPV322 is a Vertical Cavity Surface Emitting Laser (VCSEL) packaged in a dome lens pill package. VCSEL 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.

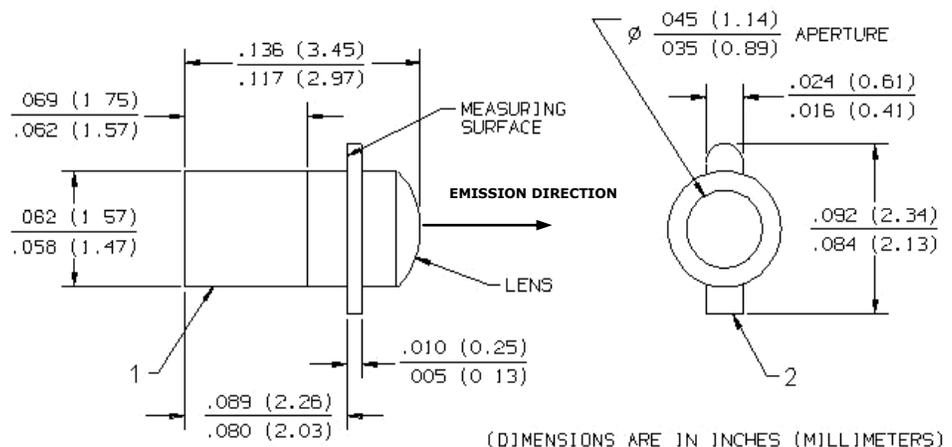
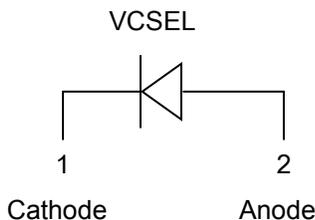
TX and TXV versions are processed per MIL-PRF-19500.

The dome lens packaging creates a narrow beam angle from the device. Long distance applications may benefit from this feature as secondary optics may be eliminated, reducing total system cost. The OPV322 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



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					
	OPV322, OPV322TX, OPV322TXV	1.5	-	-	mW	$I_F = 7\text{ mA}, T_A = 25^\circ\text{C}$
	OPV322TX, OPV322TXV	1.5	-	-		$I_F = 7\text{ mA}, T_A = 0^\circ\text{C}$
OPV322TX, OPV322TXV	1.5	-	-	$I_F = 7\text{ mA}, T_A = 70^\circ\text{C}$		
I_{TH}	Threshold Current			3.0	mA	Note 2
V_F	Forward Voltage				V	
	OPV322, OPV322TX, OPV322TXV	-	-	2.2		$I_F = 7\text{ mA}, T_A = 25^\circ\text{C}$
	OPV322TX, OPV322TXV	-	-	2.2		$I_F = 7\text{ mA}, T_A = 0^\circ\text{C}$
	OPV322TX, OPV322TXV	-	-	2.2	$I_F = 7\text{ mA}, T_A = 70^\circ\text{C}$	
I_R	Reverse Current			100	nA	$V_R = 5\text{ V}$
R_S	Series Resistance	20		55	ohms	Note 3
h	Slope Efficiency	0.28			mW/mA	Note 4
λ	Wavelength	830		860	nm	
DI	Optical Bandwidth		0.85		nm	
q	Beam Divergence		6		Degrees	
Dh/DT	Temp Coefficient of Slope Efficiency		-0.50		%/°C	($T_A = 0^\circ\text{C}$ to 70°C), Note 4
DI/DT	Temp Coefficient of Wavelength		0.06		nm/°C	($T_A = 0^\circ\text{C}$ to 70°C)
DI _{TH} /DT	Temp Coefficient of Threshold Current		±1.0		mA	($T_A = 0^\circ\text{C}$ to 70°C), Note 2
DV _F /DT	Temp Coefficient for Forward Voltage		-2.5		mV/°C	($T_A = 0^\circ\text{C}$ to 70°C)

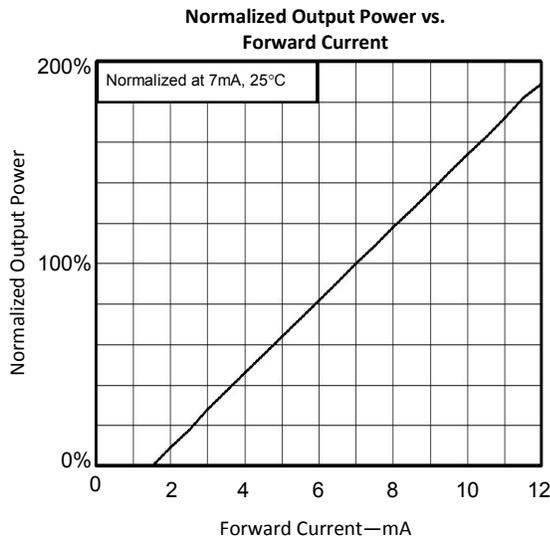
NOTES:

- (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.

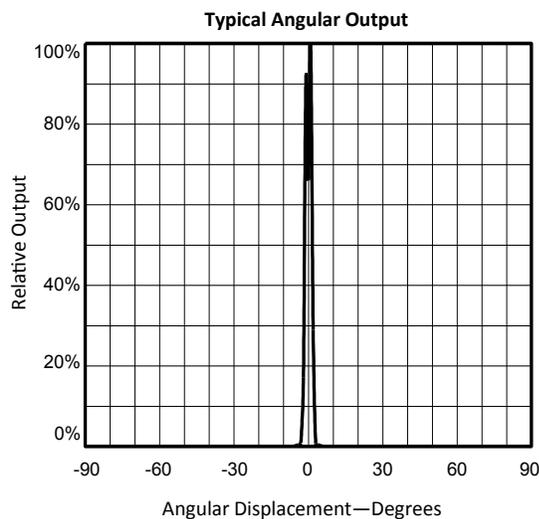
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Need:
Output Power vs Forward Current vs Temperature
with real data at: 0, 10, 20, 30, 40, 50, 60, 70°C



This product is built, tested and shipped from the USA



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