

Vertical Cavity Surface Emitting Laser in Plastic Lateral Package



OPV282

Features

- 850nm VCSEL Technology
- High thermal stability
- Low drive current/high output intensity
- Plastic Lateral Flat convex lens for extra narrow beam angle.

Description

The OPV282 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 |



Additional laser safety information can be found on the Optek website. See application #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.

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OPV282 Technical Data

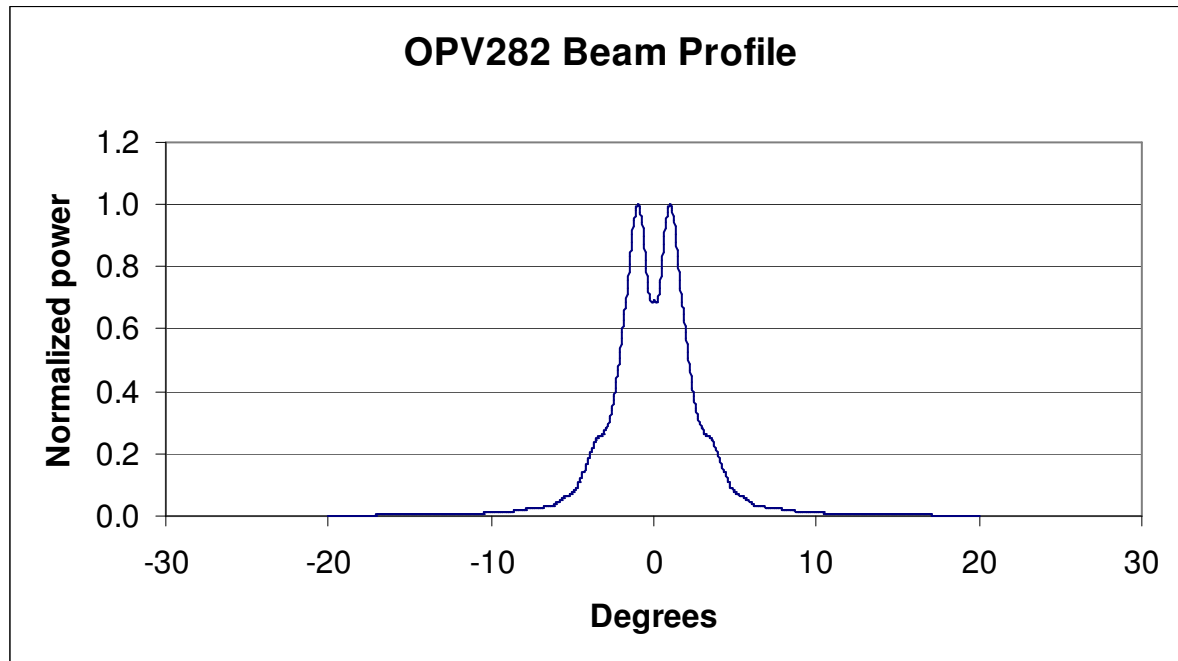


Electrical/Optical Characteristics (at 25 °C unless otherwise specified)

| 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 | | 6 | | 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.

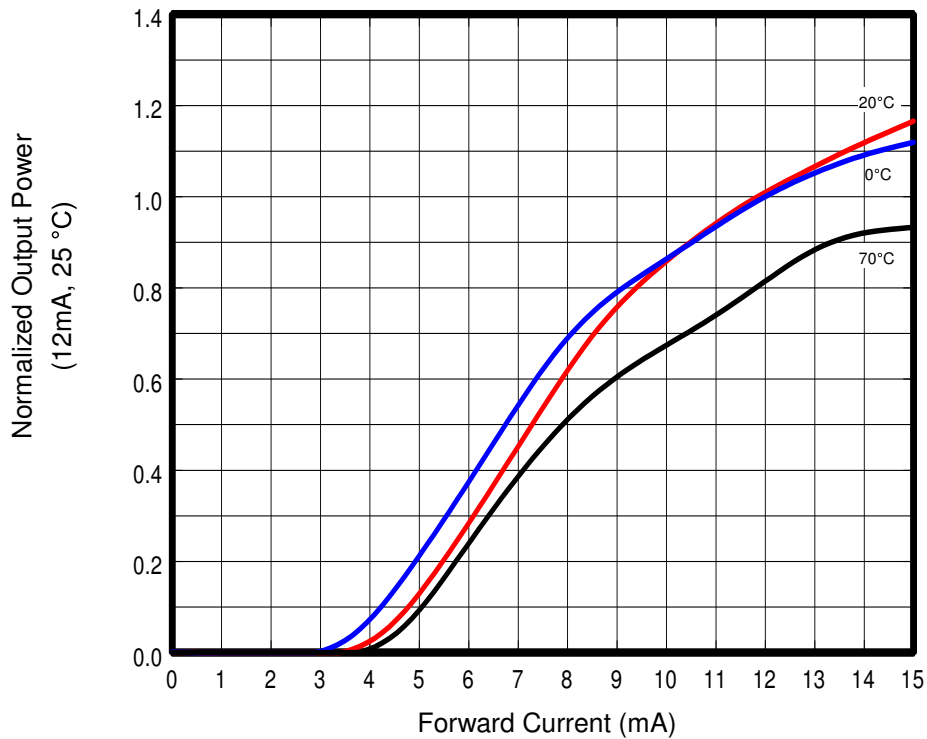


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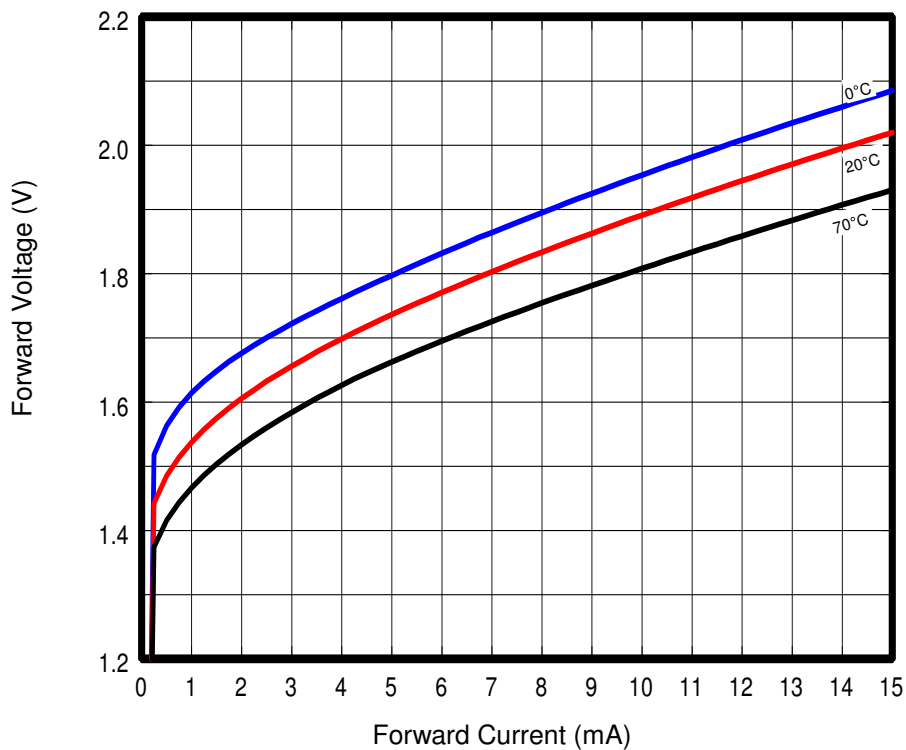
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Output Power vs. Forward Current



Forward Voltage vs. Forward Current

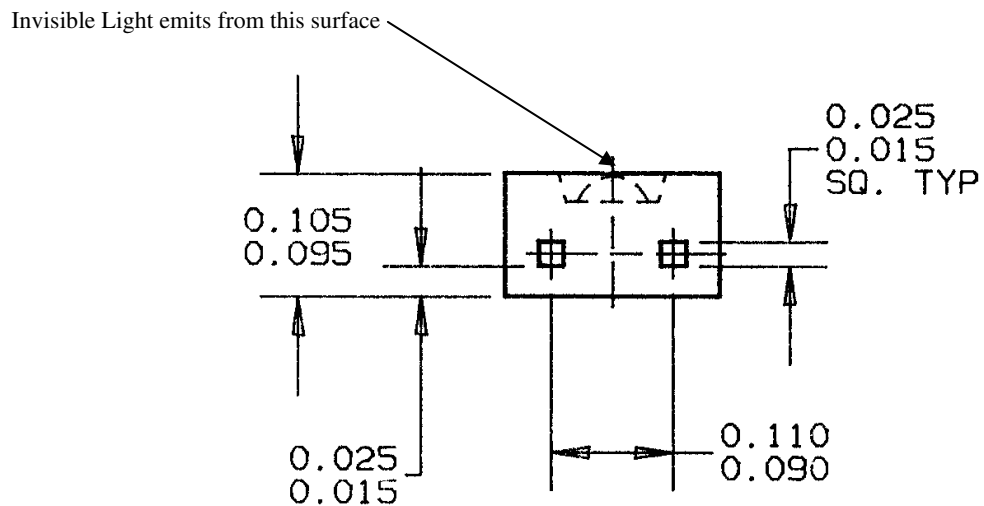
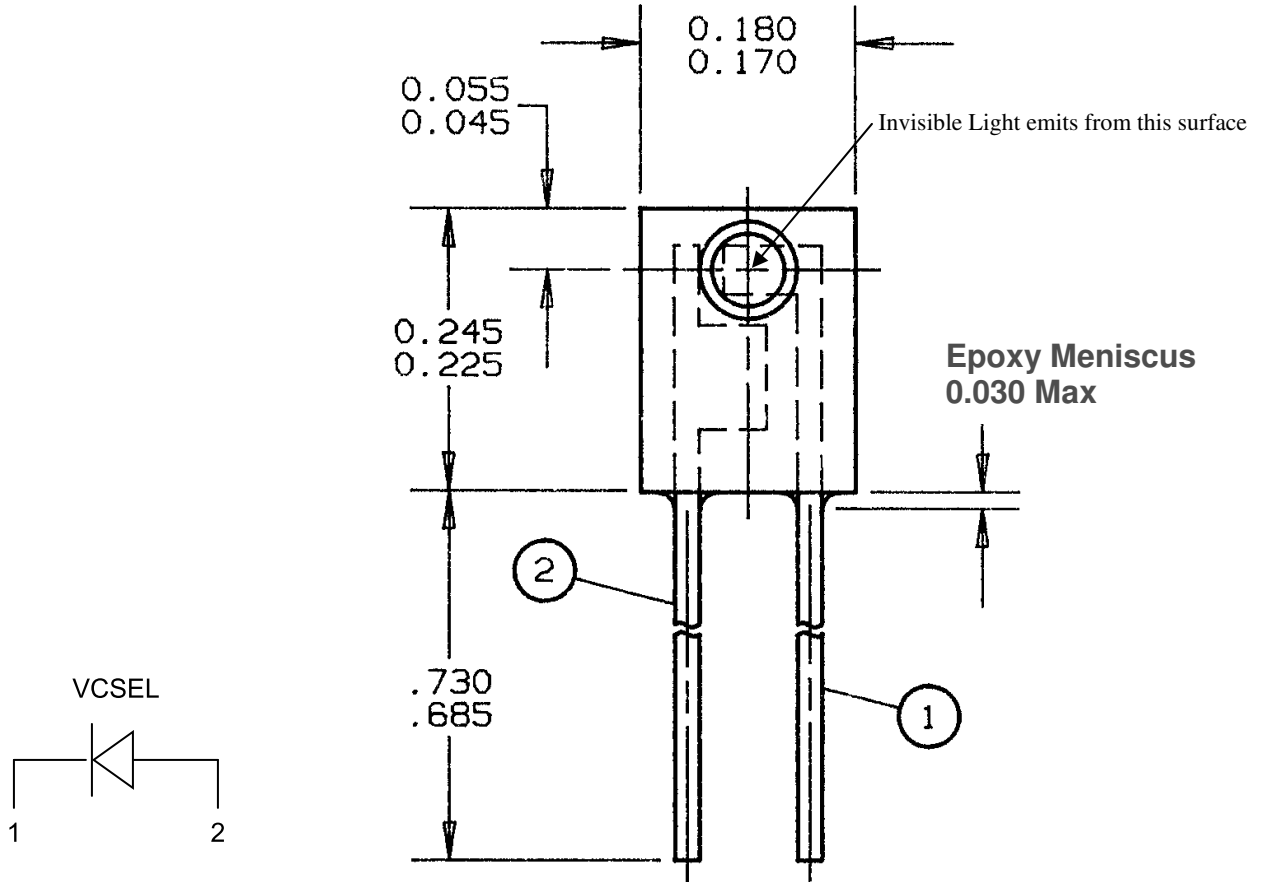


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Mechanical Dimensions:



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