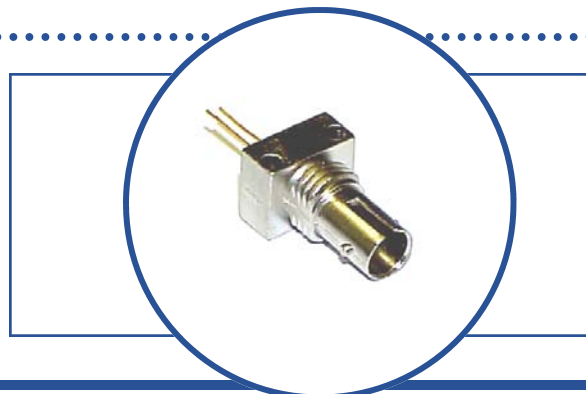


Vertical Cavity Surface Emitting Laser in ST Optical Sub-Assembly OPV315AT, OPV315BT, OPV315YAT, OPV315YBT



Features:

- 850 nm VCSEL technology
- High thermal stability
- Up to 2.5 Gbps
- Recommended for multimode fiber applications
- Microbead lens
- Pin out and attenuation options available on request
- Burned in for communication level reliability
- High optical coupling to MM fiber
- ST* style receptacle



Description:

The OPV315AT and OPV315BT are high performance 850nm VCSEL packaged for high speed communication links. OPV315AT and OPV315BT combines all the performance advantages of a VCSEL with the addition of a power monitor diode for precise control of optical power.

The OPV315YAT and OPV315YBT are identical electrically and optically and differ only in pin out. Refer to mechanical drawings for details.

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 data communications equipment.

Applications:

- Fibre Channel
- Gigabit Ethernet
- ATM
- VSR (Very Short Reach)
- Intra-system links
- Optical backplane interconnects

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

| | |
|--|-----------------------|
| Storage Temperature | -40° C to +125° C |
| Operating Temperature | 0° C to +85° C |
| Soldering Lead Temperature | 260° C for 10 Seconds |
| Maximum Forward Peak Current, Continuous | 12 mA |
| Maximum Reverse Voltage | 5 V |
| Maximum Forward Current, pulsed (1µs P.W., 10% D.C.) | 48mA |

* - ST is a registered trademark of AT&T



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 center-line of optical radiance. Operating devices beyond maximum rating may cause devices to exceed rated classification



RoHS

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

**Vertical Cavity Surface Emitting Laser in ST
Optical Sub-Assembly
OPV315AT, OPV315BT, OPV315YAT, OPV315YBT**



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

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | TEST CONDITION |
|---------------------|--|------|------|------|-------|---|
| P _{T50} | Total Coupled Power 50/125 μm Fiber | 300 | | | μW | I _F = 7 mA |
| | | 200 | | | μW | I _F = 7 mA |
| I _{TH} | Threshold Current | 0.8 | | 3.0 | mA | Note 1 |
| V _F | Forward Voltage | 1.6 | | 2.2 | V | I _F = 7 mA |
| I _R | Reverse Current | | | 100 | nA | V _R = 5 V |
| R _S | Series Resistance | 20 | | 55 | ohms | Note 2 |
| η | Slope Efficiency | 30 | | | μW/mA | Note 3 |
| | | 20 | | | μW/mA | Note 3 |
| I _{RPD} | Reverse Current, photodiode | | | 35 | nA | V _R = 40 V |
| | Linearity | 0.00 | | | | Note 4 |
| I _M | Monitor Current | 30 | | | μA | I _F = 7 mA, V _R = 5 V |
| λ | Wavelength | 840 | | 860 | nm | |
| Δλ | Optical Bandwidth | | | 0.85 | nm | |
| t _r | Rise Time | | 90 | | ps | 20% to 80% |
| t _f | Fall Time | | 120 | | ps | 80% to 20% |
| N _{RI} | Relative Intensity Noise | | -123 | | db/Hz | |
| Δη/ΔT | Temp Coefficient of Slope Efficiency | | -0.5 | | %/°C | 0° - 70° C |
| ΔI _{TH} | Temp Variance of Threshold Current | | ±1.0 | | mA | 0° - 70° C |
| Δλ/ΔT | Temp Coefficient of Wavelength | | 0.06 | | nm/°C | 0° - 70° C |
| ΔV _f /ΔT | Temperature Coefficient for V _F | | -2.5 | | mV/°C | |

NOTES:

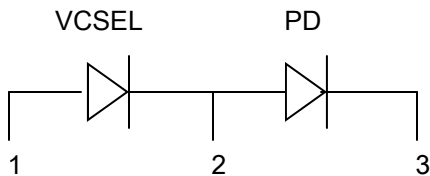
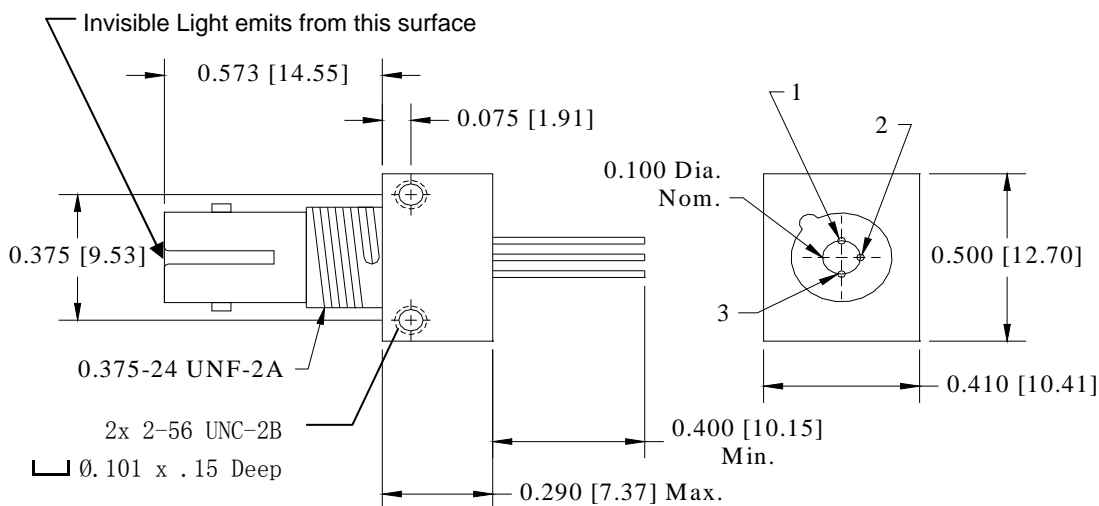
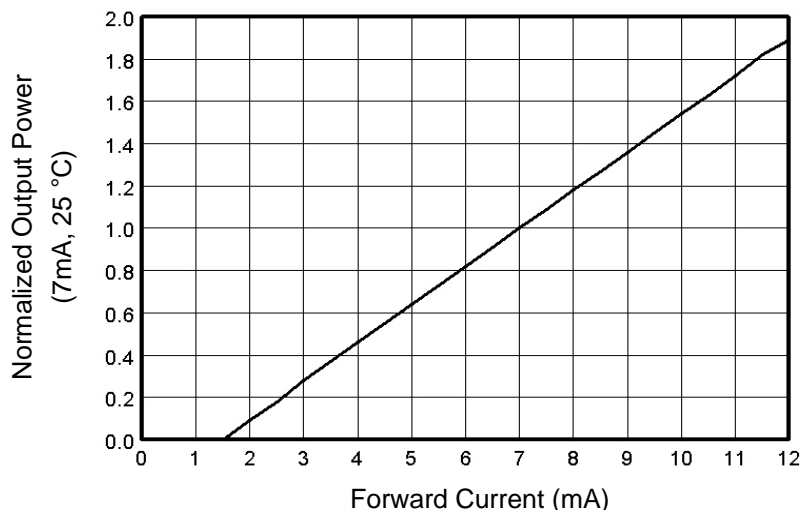
- (1) Threshold Current is based on the two line intersection method specified in Telcordia GR-468-Core. Line 1 from 4 mA to 6 mA. Line 2 from 0 mA to 0.5 mA.
- (2) Series Resistance is the slope of the Voltage-Current line from 5 to 8 mA.
- (3) Slope efficiency, is the slope of the best fit LI line from 5 mA to 8 mA using no larger than .25 mA test interval points. Measured with a 50/125 μm fiber.
- (4) Linearity—Using data points taken for slope efficiency above, data L/delta I shall be calculated for each adjacent pair of points.

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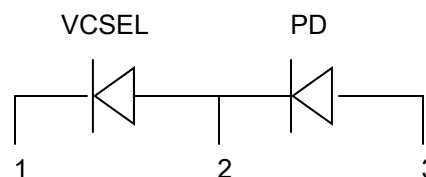
Vertical Cavity Surface Emitting Laser in ST Optical Sub-Assembly OPV315AT, OPV315BT, OPV315YAT, OPV315YBT



Normalized Output Power vs. Forward Current



| OPV315AT, OPV315BT | |
|--------------------|------------------------|
| Pin | Connection |
| 1 | VCSEL Anode |
| 2 | VCSEL Cathode/PD Anode |
| 3 | PD Cathode |



| OPV315YAT, OPV315YBT | |
|----------------------|------------------------|
| Pin | Connection |
| 1 | VCSEL Cathode |
| 2 | VCSEL Anode/PD Cathode |
| 3 | PD Anode |

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