

Description

The VPSL-0850-050-X-5-A/B is a high power, 850nm laser diode useful for applications such as laser printers, measurement equipment, free space optical communications, and other infrared based optical systems. A diffraction- limited and circular wavefront is accomplished through the integration of our beam correcting optic that creates a Virtual Point Source. Hermetic sealing of the package assures high reliability.

Features

- Integrated monitor photodiode.
- Single Transverse mode
- Diffraction limited performance
- 50mW optical power
- Standard 5.6mm form factor

Absolute Maximum Ratings (T_C =case temperature=25°C) *

| Item | Symbol | Rated Value | Unit |
|-----------------------|------------|-------------|------|
| Optical output power | P_O | 50 | mW |
| LD reverse voltage | V_R (LD) | 2 | V |
| PD reverse voltage | V_R (PD) | 30 | V |
| Operating Temperature | T_{opr} | -10 ~ +60 | °C |
| Storage Temperature | T_{stg} | -40 ~ +85 | °C |

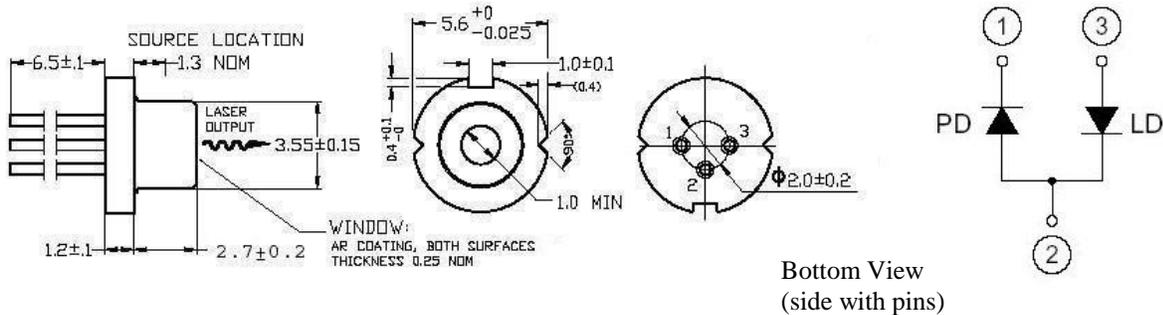
Optical and Electrical Characteristics (T_C =case temperature=25°C) *

| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|----------------------|----------------|-----|------|----------|-------|---------------------------|
| Threshold current | I_{th} | | 20 | 40 | mA | |
| Operating current | I_{op} | - | 75 | 100 | mA | Po= 50mW |
| Operating voltage | V_{op} | - | 1.9 | 2.4 | V | Po= 50mW |
| Optical output power | P_O | - | - | 50 | mW | |
| Slope Efficiency | dP_O/dI_{op} | - | 0.95 | - | mW/mA | @25°C |
| Lasing wavelength | λ_p | 848 | 852 | 862 | nm | Po= 50mW |
| Circularity | ϕ | | - | 0.8:1.25 | ratio | Po= 50mW @e ⁻² |
| Beam divergence | θ | 6 | 9 | 12 | deg | Po= 50mW, FWHM |
| Off axis angle | $\Delta\theta$ | - | - | ±3 | deg | |
| Monitor current | I_S | 0.1 | 0.25 | 0.5 | mA | mA/mW |

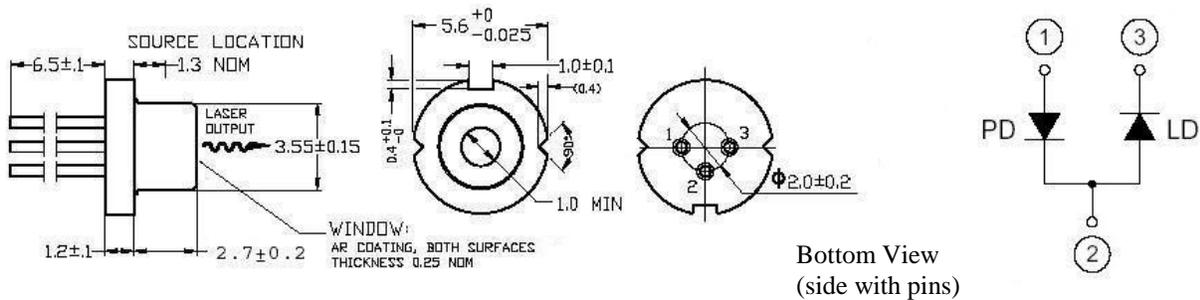
Specifications are subject to change without notice. Each purchased VPS is provided with test data. Please refer to this data before using the VPS.

Package Detail, Mechanical & Electrical – VPSL-850-050-x-5-A/B

A PINOUT PACKAGE



B PINOUT PACKAGE



Handling Care and Precautions for Use of VPS Diodes

1. Absolute Maximum Ratings

Do not exceed, *even momentarily*, the maximum ratings (see page 1, table). When a FiberMax module is driven in excess of it's maximum ratings, it can cause at minimum a considerable reduction in reliability, and potentially instantaneous failure.

- a. FiberMax modules may be damaged by surge currents generated at power on-off operation. Check on the transient characteristics of the power supply to make sure that such surges do not exceed the maximum ratings.
- b. The maximum ratings are specified for a case temperature of 25°C. Designs should be made to work well within this temperature range. As the case temperature goes up, power dissipation as well as maximum light output power is reduced.

2. Soldering Conditions

Maximum solder-tip temperature is 260°C and soldering time must be within 3.0 seconds. A minimum solder clearance of 1.6mm should be maintained from the root of the lead.

3. Prevention of Breakdown due to Static Electricity

FiberMax modules may be adversely affected by static electricity and surge currents and, consequently, cause breakdown of the module and reduction of reliability unless the following precautions are taken:

- a. Power supplies, installation and measuring equipment should be grounded. A noise filter or noise-cut transformer should be provided on any power supply inputs.
- b. Anyone working with a FiberMax module should be grounded through high resistance (500 K Ohm - 1M Ohm) by means of a ground strap and wrist band (for example).
- c. Soldering irons should be grounded to protect laser modules from voltage leaks.
- d. During operation of the FiberMax module, working clothes, hats, and shoes should be static-protected. Cotton-based clothing is preferred.
- e. Any container for carriage and storage should be static-protected.
- f. Avoid using laser modules in an environment where high frequency surge currents may be generated by an inductive electric field (such as a fluorescent lamp). These fields can also cause breakdown or deterioration of the laser module.

4. Package Handling

- a. The laser module package should not be cut off, reworked, or deformed. Care should be taken when handling the fiber to avoid kinking it.
- b. Do not touch the ferrule end. Any scratch or contamination may result in reduction of optical characteristics.
- c. Remove small contaminates on the ferrule surface carefully using a soft cotton tip stick with a small amount of methyl alcohol.

5. Safety

The output light from laser modules is harmful to a human body even if it is invisible. Avoid looking at the output light of a FiberMax module directly, or even indirectly through a lens during operation. Observance of operation should be through an infrared TV camera or related equipment. Refer to IEC 825-1 and 21 CFR 1040.10-1040.11 as a radiation safety standard for laser products.

