

### L1470P5DFB



### Description

This 1470 nm, 5 mW, 2.5 Gbps, DFB laser diode is a Telcordia qualified product operable over a broad temperature range with a low temperature-wavelength coefficient. It is well suited for applications such as communications research, interferometry, and optical reflectometry for distance measurement in fiber or free space. Each device undergoes testing and burn-in.

This laser comes packaged in a 5.6 mm TO Can with D pin code. It contains an integrated aspheric focusing lens in the cap, allowing the focus spot and numerical aperture (NA) to be matched to SMF-28e+ fiber.

### Specifications

| Absolute Maximum Ratings <sup>a</sup> |            |                |
|---------------------------------------|------------|----------------|
| Specification                         | Symbol     | Maximum        |
| Maximum Power                         | $P_{Max}$  | 10 mW          |
| Forward Current                       | $I_{FWD}$  | 120 mA         |
| Operating Case Temperature            | $T_{Case}$ | -20 to +85 °C  |
| Storage Temperature                   | $T_{Stor}$ | -40 to +100 °C |
| Laser Reverse Bias                    | $V_R$      | 2 V            |
| Photodiode Reverse Bias               | $V_{RPD}$  | 10 V           |

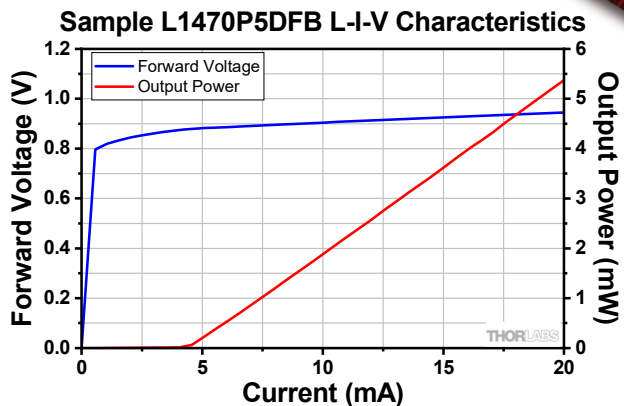
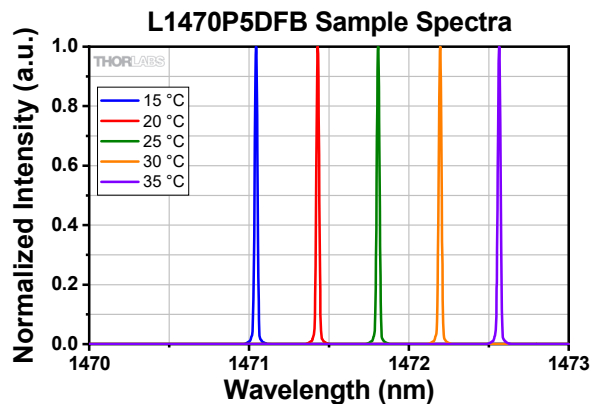


- a. Absolute Maximum Rating specifications should never be exceeded. Operating at or beyond these conditions can permanently damage the laser.

| L1470P5DFB Specifications <sup>b</sup> |                          |                          |             |              |              |
|--|--------------------------|--------------------------|-------------|--------------|--------------|
|  |                          | Symbol                   | Min         | Typ.         | Max          |
| Output Power, CW                       |                          | $P_{Op}$                 | -           | 5 mW         | -            |
| Threshold Current                      | @ 25 °C                  | $I_{TH}$                 | -           | 5 mA         | 13 mA        |
|  | @ 85 °C                  |                          | -           | 30 mA        | 45 mA        |
| Operating Current, CW @ $P_{Op}$       |                          | $I_{Op}$                 | -           | 19 mA        | 40 mA        |
| Operating Voltage @ $P_{Op}$           |                          | $V_{Op}$                 | -           | 1.0 V        | 1.6 V        |
| Slope Efficiency                       |                          | $\eta$                   | -           | 0.35 W/A     | -            |
| Center Wavelength @ $P_{Op}$           |                          | $\lambda_o$              | 1467 nm     | 1470 nm      | 1473 nm      |
| Spectral Width (@-20 dB)               |                          | $\Delta\lambda$          | -           | 0.1 nm       | -            |
| Wavelength-Temperature Coefficient     |                          | $\Delta\lambda/\Delta T$ | -           | 0.08 nm/°C   | -            |
| Side-Mode Suppression Ratio            |                          | SMSR                     | 35 dB       | 40 dB        | -            |
| Beam Divergence (FWHM)                 | Parallel @ $P_{Op}$      | $\theta_{  }$            | -           | 7°           | -            |
|  | Perpendicular @ $P_{Op}$ | $\theta_{\perp}$         | -           | 9°           | -            |
| Rise/Fall Time (5 mW, 20% to 80%)      |                          | $t_R, t_F$               | -           | -            | 0.1 ns       |
| Monitor Current @ $P_{Op}$             |                          | $I_{PD}$                 | 100 $\mu$ A | -            | 1000 $\mu$ A |
| Focal Position (See Drawing)           |                          |                          | 7.0 mm      | 7.5 mm       | 8.0 mm       |
| Focus Spot Size ( $1/e^2$ Diameter)    |                          | $\Phi_F$                 | -           | 11.5 $\mu$ m | -            |

- b.  $T_{CASE} = 25$  °C if not specified.

## Performance Plots



## Drawing

