The Optilab DFB-1550-PM is a Narrow linewidth, Distributed FeedBack Laser designed for Continuous Wave (C.W) operation. It is mostly utilized in combination with an external optical modulator, such as a Mach-Zehnder Interferometer (MZI) modulator. The MQW DFB laser features up to 0 mW of output optical power, high side mode suppression ratio, low RIN noise, and a narrow linewidth. The DFB-1550-PM is housed in an industry standard 14-pin butterfly package, with a built-in thermoelectric cooler, thermistor, a back-facet monitor photodiode for conventional power monitoring, and an optional second photodiode for wavelength reference monitoring. Available in a wide variety of C-band wavelengths, the DFB-1550-PM can be temperature tuned to ITU frequencies to allow for Dense Wavelength Division Multiplexing (DWDM). Contact Optilab for more information.

**FEATURES**
- Polarization Maintaining (PM) Output
- Low RIN noise, -155 dB/Hz max.
- Built-in TEC, Thermistor and Monitor PD
- Up to 60 mW output power
- Laser Linewidth, 100 kHz typ.
- 12 Wavelengths to select: from 1540 nm - 1562 nm

**USE IN**
- Dense Wavelength Division Multiplex (DWDM)
- General laboratory and research use
- RF over Fiber (RFoF)
- Hybrid Fiber-Coaxial (HFC)
- Interferometer

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**PIN OUT DIAGRAM**

- 1 Temperature Monitor
- 2 Temperature Monitor
- 3 Laser DC Bias (-)
- 4 Monitor Anode
- 5 Monitor Cathode
- 6 TEC (+)
- 7 TEC (-)
- 8 Case Ground
- 9 Case Ground
- 10 Not Connected
- 11 Laser Ground
- 12 Laser Modulation (-)
- 13 Case Ground
- 14 Not Connected

Product specifications and description are subject to change without notice. © 2018 Optilab, DFB-1550-NL-PM. Dec 2018 Rev. 1.0
## SPECIFICATIONS

### GENERAL

- **Wavelength Range**: 1540 nm – 1562 nm
- **Wavelength Accuracy**: ± 1 nm
- **Wavelength Tuning**: ± 1.5 nm
- **Optical Output Power**: 20, 30, 40, 45, 60 mW
- **Operating Current**: 400 mA max. @ CW
- **Forward Voltage**: 2.5 V typ.
- **Series Resistance**: 25 Ω typ.
- **Threshold Current**: 25 mA typ.
- **Monitor Current**: 0.10 mA min., 1.0 mA max.
- **Photodiode Dark Current**: 1 nA typ., 100 nA max.
- **Side Mode Suppression**: 30 dB min.
- **Linewidth**: 100 kHz typ.
- **Optical Isolation**: 35 dB min.
- **Relative Intensity Noise**: -145 dB/Hz max.
- **Polarization Extinction Ratio**: 20 dB typ.

### TEC & THERMISTOR CHARACTERISTICS

- **TEC Current**: 1 A max.
- **TEC Voltage**: 2.4 V max.
- **TEC Resistance**: 2.4 Ω typ.
- **Thermistor Resistance**: 7.7 k Ω min., 12.6 k Ω max.
- **Thermistor B Constant**: 3,270 K min., 3,630 K max.

### MECHANICAL

- **Operating Temperature**: -10°C to +60°C
- **Storage Temperature**: -40°C to +70°C
- **Operating Humidity**: 95% @ < 30 °C
- **Optical Fiber Type**: PANDA PM
- **Optical Connector**: FC/APC, others available

### ABSOLUTE MAXIMUM RATINGS

- **Reverse Voltage**: 2 V
- **Operating Current**: 500 mA
- **PD Reverse Voltage**: 20 V
- **PD Forward Current**: 10 mA
- **TEC Voltage**: 4 V
- **TEC Current**: 4 A
TYPICAL EXAMPLE L-1 CURVE FOR DFB-1550-PM SERIES

MECHANICAL DRAWING
Available DFB-XXX-PM Wavelengths

<table>
<thead>
<tr>
<th>Wavelength Selection</th>
<th>1552 nm</th>
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</thead>
<tbody>
<tr>
<td>1540 nm</td>
<td>1552 nm</td>
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<tr>
<td>1542 nm</td>
<td>1554 nm</td>
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<td>1544 nm</td>
<td>1556 nm</td>
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<td>1546 nm</td>
<td>1558 nm</td>
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<tr>
<td>1548 nm</td>
<td>1560 nm</td>
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<tr>
<td>1550 nm</td>
<td>1562 nm</td>
</tr>
</tbody>
</table>

Ordering Options

DFB-xxxx-NL-PM-yy

xxxx  Wavelength in nm
yy:  Output Power in mW: 30, 40, 45, 60

Available Accessories

Universal Laser Diode Controller (ULDC)

ULDC is a fully integrated laser diode controller with precise current and temperature setting. With a Zero Insertion Force (ZIF) adaptor, ULDC can be used with all 14 pin laser diodes.

DFB Laser Source Module, Polarization Maintaining (DFB-PM-M)

DFB-1550-PM can be ordered as DFB- PM-M, which allows DFB laser’s operating temperature and output power precisely controlled to ensure constant wavelength and power stability. It can be used for module level integration system.