Key Features:
- 658nm Center Wavelength, SINGLE MODE
- Gaussian Beam Profile
- 4µm Polarization Maintaining Fiber
- Available in Coaxial or B82 Package
- Slow Axis Aligned to the Key of the FC Connector
- Monitor Photodiode Available (Optional ~ Request Price)
- TE Cooler Available (Optional ~ Request Price)
- High Polarization Extinction Ratio

Applications:
- Medical Laser Treatment
- Biological Lasers
- Others

These high stability fiber coupled laser diodes are designed and manufactured to meet the most demanding R&D and industrial applications. They are manufactured by Wavespectrum Laser and offered in North America by LaserDiodeSource.com, part of the Laser Lab Source group.

Proprietary design, packaging, and fiber coupling processes produce laser diodes with very high stability and low noise. Each laser diode is subject to extensive testing and burn-in before shipment to ensure the highest possible levels of quality and long term reliability.

Wavespectrum offers fiber coupled laser diodes in the wavelength range of 375nm to 1920nm. Available fiber types include single mode fiber (SMF), polarization maintaining fiber (PMF) and multimode fiber (MMF). Output power ranges are available from 1mW up to 50W depending on the device type. Single mode fiber (SMF) and polarization maintaining fiber (PMF) coupled laser diodes deliver single transverse mode Gaussian beam profiles. The polarization extinction ratio exceeds 20dB(PER) for many of the device types, and higher PER devices can be built on demand.

Wavespectrum Lasers provides a variety of semiconductor laser products. Products include single mode laser diodes, multimode laser diodes, fiber coupled laser diode modules (SMA, PMF, MMF), RGB white fiber coupled laser modules, medical laser modules and turn-key fiber coupled laser systems. The available package styles for these lasers include TO18 | TO5 | C-mount | TO3 | E-mount | H-mount | COS | 2-pin | 4-pin | 9-pin | 14-pin Butterfly. Please visit our Website for more information: http://www.wavespectrum-laser.com.cn/index.html
# 650nm 50mW Single Mode Laser Diode
## Polarization Maintaining Fiber Coupled Package

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit of Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Voltage</td>
<td>( V_r )</td>
<td>2.0</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>( T_{op} )</td>
<td>-10~+60</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>( T_{stg} )</td>
<td>-40~+85</td>
<td>°C</td>
</tr>
<tr>
<td>Lead Soldering Temperature (10 sec.)</td>
<td>( T_s )</td>
<td>260</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Typical Specification (\( @25°C \))**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Value</th>
<th>Unit of Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Optical Specifications
- Center Wavelength: 650nm +/- 10nm
- Output Power: 50mW
- Spectral Width (FWHM): 2.0nm
- Wavelength Temp. Coefficient: 0.2nm/°C
- Beam Type: Gaussian Beam
- Laser Type: FP
- Pol. Extinction Ratio: 13dB

High Polarization Extinction Ratio (PER) Version LD is also available, please contact us.

**KEY Alignment**
- Slow Axis Aligned to the Key of the FC Connector

### Fiber Specifications
- Fiber Core: 4um
- N.A.: 0.12
- Fiber Type: Polarization Maintaining Fiber
- Fiber Length: >80cm
- Fiber Connector: FC-APC / FC-PC

### Electrical Specifications
- Threshold Current: 55mA
- Operating Current: 210mA
- Operating Voltage: 2.8V

### Photodiode Specifications
- Photodiode: Without
- PD Current: ----
- PD Reverse Voltage (Max.): ----

### TE Cooler Specifications
- TEC Current (Max.): ----
- TEC Voltage (Max.): ----

### Thermistor
- Thermistor (\( @25°C \)): ----

### Other Specifications
- Package: Coaxial or B82
- Recommended Operating Temp.: 25°C

---

### Additional Notes
- 650nm 50mW Single Mode Laser Diode | 650nm PM Fiber Coupled LD | Laser Module | TEC | Coaxial 14PIN BTF | (PD) FC-APC | PMF PM
- 650nm~658nm~660nm | 50mW | 4um Polarization Maintaining Fiber PMF | 18dB 20dB | PER PM Fiber | High PER | Pigtail LD
- PMF4650050m | Wavespectrum Laser Group | en.wavespectrum-laser.com.cn

---

**Part Number**
- PMF4650050m

**PARAMETER**
- Symbol
- Value
- UNIT OF MEASURE

---

**PARAMETER**
- SYMBOL
- VALUE
- UNIT OF MEASURE

- Reverse Voltage
  - \( V_r \)
  - 2.0
  - V

- Operating Temperature
  - \( T_{op} \)
  - -10~+60
  - °C

- Storage Temperature
  - \( T_{stg} \)
  - -40~+85
  - °C

- Lead Soldering Temperature (10 sec.)
  - \( T_s \)
  - 260
  - °C

**Typical Specification (\( @25°C \))**

- Min.
- Typical Value
- Max.

**Wavelength Temp. Coefficient**
- 0.2nm/°C

**Fiber Type**
- Polarization Maintaining Fiber

**Fiber Connector**
- FC-APC / FC-PC

**Lead Soldering Temperature (10 sec.)**
- \( T_s \)
- 260
- °C

**Operating Current**
- ----
- 210mA
- 230mA

**Operating Voltage**
- ----
- 2.8V
- 3.5V

**PD Current**
- ----
- ----
- ----

**PD Reverse Voltage (Max.)**
- ----

**TEC Current (Max.)**
- ----

**TEC Voltage (Max.)**
- ----

**Thermistor (\( @25°C \))**
- ----

**Recommended Operating Temp.**
- 25°C

---

**Part Number**
- PMF4650050m

**PARAMETER**
- SYMBOL
- VALUE
- UNIT OF MEASURE

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**PARAMETER**
- SYMBOL
- VALUE
- UNIT OF MEASURE

- Reverse Voltage
  - \( V_r \)
  - 2.0
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- Operating Temperature
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  - \( T_{stg} \)
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- Lead Soldering Temperature (10 sec.)
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  - 260
  - °C

**Typical Specification (\( @25°C \))**

- Min.
- Typical Value
- Max.

**Wavelength Temp. Coefficient**
- 0.2nm/°C

**Fiber Type**
- Polarization Maintaining Fiber

**Fiber Connector**
- FC-APC / FC-PC

**Lead Soldering Temperature (10 sec.)**
- \( T_s \)
- 260
- °C

**Operating Current**
- ----
- 210mA
- 230mA

**Operating Voltage**
- ----
- 2.8V
- 3.5V

**PD Current**
- ----
- ----
- ----

**PD Reverse Voltage (Max.)**
- ----

**TEC Current (Max.)**
- ----

**TEC Voltage (Max.)**
- ----

**Thermistor (\( @25°C \))**
- ----

**Recommended Operating Temp.**
- 25°C
650nm 50mW Single Mode Laser Diode
Polarization Maintaining Fiber Coupled Package

Product Package View:
Coaxial Package View:
(P/N: PMF4650050m)

B82 Package View:
(P/N: PMF4650050mB)

Pin Bottom View (Coaxial, B82 Package):

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin-1</td>
<td>LD(+)</td>
</tr>
<tr>
<td>Pin-2</td>
<td>LD(-), CASE</td>
</tr>
<tr>
<td>Pin-3</td>
<td>NC</td>
</tr>
</tbody>
</table>
650nm 50mW Single Mode Laser Diode
Polarization Maintaining Fiber Coupled Package

Product Package View:
8-Pin Fiber Coupled Laser Module (Built-in TE Cooler) Can Also Be Provided:

8-Pin Package View:
(P/N: PMF4650050mH8)

8-Pin Bottom View

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
<th>PIN</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thermistor</td>
<td>5</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>LD(−)</td>
<td>6</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>LD(+)</td>
<td>7</td>
<td>TEC(−)</td>
</tr>
<tr>
<td>4</td>
<td>Thermistor</td>
<td>8</td>
<td>TEC(+)</td>
</tr>
</tbody>
</table>