1490nm FP Laser Diode SM Module

Features
- Center wavelength 1490nm
- Low threshold current
- High speed $t_r/t_f < 0.7\text{ns}$
- Built-in InGaAs monitor detector
- Four-lead package
- Wide operating temperature $-20^\circ\text{C}$ to $85^\circ\text{C}$
- Hermetically sealed TO-18 package in pigtailed or receptacle housing with FC, ST or SC connector

Applications
- Fiber In The Loop
- ATM, SONET/SDH
- Motorway and railway networks
- Intra and interoffice links
- Subscriber loops
- Trunk supervision
- Test instruments

Specifications

Optical And Electrical Characteristics (T=25+/−3°C unless specified otherwise)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Wavelength</td>
<td>$\lambda$</td>
<td>25°C</td>
<td>1480</td>
<td>1490</td>
<td>1500</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Width</td>
<td>$\Delta\lambda$</td>
<td>$P_0=5\text{mw}(\text{RMS})$</td>
<td>-</td>
<td>1.6</td>
<td>2.5</td>
<td>nm</td>
</tr>
<tr>
<td>Threshold Current</td>
<td>$I_{th}$</td>
<td>25°C, 40 to 85°C</td>
<td>12</td>
<td>18</td>
<td>35</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>$V_{op}$</td>
<td>$P_0$</td>
<td>-</td>
<td>1.1</td>
<td>1.6</td>
<td>V</td>
</tr>
<tr>
<td>Rise/Fall Time</td>
<td>$t_r/t_f$</td>
<td>10-90%</td>
<td>-</td>
<td>0.2</td>
<td>-</td>
<td>ns</td>
</tr>
<tr>
<td>Optical Output Power</td>
<td>$P_0$</td>
<td>$I_{th}+30\text{mA}$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>mW</td>
</tr>
<tr>
<td>Monitor Current (PD)</td>
<td>$I_m$</td>
<td>$P_0, V_{RD}=1\text{V}$</td>
<td>15</td>
<td>75</td>
<td>-</td>
<td>mW</td>
</tr>
<tr>
<td>Dark Current (PD)</td>
<td>$I_d$</td>
<td>$V_{RD}=5\text{V}$</td>
<td>-</td>
<td>-</td>
<td>200</td>
<td>nA</td>
</tr>
<tr>
<td>Return Loss (w/ isolator)</td>
<td>-</td>
<td>$T_{o}=0\sim60^\circ\text{C}$</td>
<td>40</td>
<td>-</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Tracking Error</td>
<td>$E_t$</td>
<td>40 to 85°C</td>
<td>±1.0</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
</tbody>
</table>
### Absolute Maximum Ratings (T=25 °C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Current (LD)</td>
<td>$I_{SP}$</td>
<td>-</td>
<td>120</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Bias (LD)</td>
<td>$V_{RL}$</td>
<td>-</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Reverse Bias (PD)</td>
<td>$V_{RD}$</td>
<td>-</td>
<td>10</td>
<td>V</td>
</tr>
<tr>
<td>Operating Case Temperature</td>
<td>$T_c$</td>
<td>-20</td>
<td>+85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>$T_{stg}$</td>
<td>-40</td>
<td>+100</td>
<td>°C</td>
</tr>
</tbody>
</table>

### Ordering Information

- **Connector type**
  - Receptacle: SC, FC or ST
  - Pigtail: SC, FC, ST, LC, MU or SMA
- **Flange type**
  - B for board mount
  - P for panel mount
  - U for UP mount
  - X for None
- **SNS-LD 49 S 1**
- **Pin Connections**
  - **BOTTOM VIEW**
  - **C TYPE PIN CONNECTIONS**
  - **D TYPE PIN CONNECTIONS**
  - **Grade**
  - 1, 2, 3, 4 for coupled power level
  - (Please see the specs above)
- **Fiber length**
  - 100cm
- **Receptacle:**
  - X
- **Pigtail:**
  - P for PC
  - A for APC
- **Grade**
  - 1, 2, 3, 4 for coupled power level
  - (Please see the specs above)

### Pin Connections

[Diagram showing pin connections]
1490nm FP Laser Diode SM Module

Dimension
Pigtail Type

BM

PM

UPM

SC

FC

ST

MU

LC

SMA

2.5

2-56UNC-2B

25.8

13

8.2

13

8.2

25.8

2-φ2.2

2-φ2.2

0.9 cable

3.0 cable
Receptacle Type

**FC-PM**
- Diagram showing the dimensions and connection points for FC-PM.

**FC-BM**
- Diagram showing the dimensions and connection points for FC-BM.

**ST-BM**
- Diagram showing the dimensions and connection points for ST-BM.

**ST-PM**
- Diagram showing the dimensions and connection points for ST-PM.

**SC**
- Diagram showing the dimensions and connection points for SC.

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Sugar Cube

Dimension (ST Receptacle) Unit mm

Pin Connections (Type A)

<table>
<thead>
<tr>
<th>PIN No.</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>ANODE</td>
</tr>
<tr>
<td>3</td>
<td>CATHODE</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
</tr>
<tr>
<td>5</td>
<td>NC</td>
</tr>
<tr>
<td>6</td>
<td>ANODE or NC</td>
</tr>
<tr>
<td>7</td>
<td>ANODE or NC</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
</tr>
</tbody>
</table>

Pin Connections (Type B)

<table>
<thead>
<tr>
<th>PIN No.</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
</tr>
<tr>
<td>3</td>
<td>LD Cathode (LD-)</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
</tr>
<tr>
<td>5</td>
<td>NC</td>
</tr>
<tr>
<td>6</td>
<td>LD Anode (LD+), PD-</td>
</tr>
<tr>
<td>7</td>
<td>Monitor PD Anode (PD+)</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
</tr>
</tbody>
</table>
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1490 nm FP LD
Fiber-coupled Power vs. Drive Current

![Diagram showing fiber-coupled power vs. drive current for 1490nm FP LD at 25°C and 85°C temperatures. The graph plots Po (mW) on the y-axis and Iop (mA) on the x-axis, with two distinct lines representing different temperatures.](image-url)