1310nm FP Laser Diode SM TOSA

Features
- Center wavelength 1310nm
- Low threshold current
- High speed t/τ < 0.7ns
- Built-in InGaAs monitor detector
- Four-lead package
- Wide operating temperature -40°C to 85°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>λ</td>
<td>25°C</td>
<td>1290</td>
<td>1310</td>
<td>1330</td>
<td>nm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-40 to 85°C</td>
<td>1260</td>
<td>-</td>
<td>1360</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral Width</td>
<td>Δλ</td>
<td>P₀ (RMS, -20dB)</td>
<td>1</td>
<td>2</td>
<td></td>
<td>nm</td>
</tr>
<tr>
<td>Threshold Current</td>
<td>Iₜh</td>
<td>25°C</td>
<td>3</td>
<td>5</td>
<td>15</td>
<td>mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-40 to 85°C</td>
<td>1</td>
<td>-</td>
<td>40</td>
<td>mA</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>V₀</td>
<td>P₀</td>
<td>-</td>
<td>1.1</td>
<td>1.5</td>
<td>V</td>
</tr>
<tr>
<td>Rise/Fall Time</td>
<td>tᵣ/τᵣ</td>
<td>10-90%</td>
<td>-</td>
<td>0.3</td>
<td>0.7</td>
<td>ns</td>
</tr>
<tr>
<td>Optical Output Power</td>
<td>P₀</td>
<td>Iₜh + 20mA</td>
<td>0.1</td>
<td>0.25</td>
<td>-</td>
<td>mW</td>
</tr>
<tr>
<td>Differential Efficiency</td>
<td></td>
<td>P₀</td>
<td>0.01</td>
<td>-</td>
<td>-</td>
<td>mW/mA</td>
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<tr>
<td></td>
<td>-1</td>
<td>-</td>
<td>0.02</td>
<td>-</td>
<td>-</td>
<td>mW/mA</td>
</tr>
<tr>
<td></td>
<td>-2</td>
<td>-</td>
<td>0.04</td>
<td>-</td>
<td>-</td>
<td>mW/mA</td>
</tr>
<tr>
<td></td>
<td>-3</td>
<td>-</td>
<td>0.06</td>
<td>-</td>
<td>-</td>
<td>mW/mA</td>
</tr>
<tr>
<td>Monitor Current (PD)</td>
<td>Iₘ</td>
<td>P₀, Vₐₐₜ = 1V</td>
<td>0.1</td>
<td>0.7</td>
<td>-</td>
<td>mA</td>
</tr>
<tr>
<td>Dark Current (PD)</td>
<td>Iₘ</td>
<td>Vₐₐₜ = 10V</td>
<td>-</td>
<td>-</td>
<td>0.1</td>
<td>µA</td>
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<tr>
<td>Tracking Error</td>
<td>Eᵣ</td>
<td>-40 to 85°C</td>
<td>-</td>
<td>±1.0</td>
<td>-</td>
<td>dB</td>
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</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>
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</thead>
<tbody>
<tr>
<td>Forward Current (LD)</td>
<td>Iₚₜ</td>
<td>-</td>
<td>85</td>
<td>mA</td>
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<tr>
<td>Reverse Voltage (LD)</td>
<td>Vₐₐₜ</td>
<td>-</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Forward Current (PD)</td>
<td>Iₚₜ</td>
<td>-</td>
<td>2</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage (PD)</td>
<td>Vₐₐₜ</td>
<td>-</td>
<td>20</td>
<td>V</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Tₒ</td>
<td>-40</td>
<td>+85</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>Tₘₐₜ</td>
<td>-40</td>
<td>+125</td>
<td>°C</td>
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<tr>
<td>Lead Soldering Temperature</td>
<td>Tₑ</td>
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<td>260</td>
<td>°C</td>
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</tbody>
</table>
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Ordering Information

SC or LC

SNS-5 LD 13 S 1 [ ] - [ ] Pin Out

Grade
1, 2, 3, 4 for coupled power level
(Please see the specs above)

Pin Connections

BOTTOM VIEW

UNIT : MM

C TYPE

PIN CONNECTIONS

D TYPE

PIN CONNECTIONS

Dimension

SC Type

Power Grade 1, 2

Power Grade 3, 4

2009-10
SNS Optical

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**LC Type**

Power Grade 1, 2

Power Grad3 3, 4
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Typical Characteristics (25°C)

- **LONGITUDINAL MODE**
  - Relative Intensity
  - Wavelength (nm)

- **CENTER WAVELENGTH vs. CASE TEMPERATURE**
  - Center Wavelength \( \lambda_c \) (nm)
  - Case Temperature \( T_c \) (°C)

- **FORWARD CURRENT vs. FORWARD VOLTAGE**
  - Forward Current (mA)
  - Forward Voltage (V)

- **OPTICAL OUTPUT POWER vs. LD MONITOR CURRENT**
  - Optical Output Power (mW)
  - Monitor Current (mA)

- **THRESHOLD CURRENT vs. CASE TEMPERATURE**
  - Threshold Current (mA)
  - Case Temperature (°C)

- **OPTICAL OUTPUT POWER vs. FORWARD CURRENT**
  - Optical Output Power (mW)
  - Forward Current (mA)
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1310nm FP LD
Fiber-coupled Power vs. Drive Current

Fiber-coupled Power vs. Drive Current

Iop(mA) vs. Po(uW)

- 25°C
- 70°C