Reflective Semiconductor Optical Amplifier

IPRAD1501 (1550nm)

Features

- 1550nm & Custom Wavelengths Available
- Wide Operating Bandwidth
- High Gain and High Output Power
- Polarization Independent
- Custom design available

Applications

- Gain Medium for single FBG Laser
- Gain Medium for Tunable External Cavity Laser
- WDM-PON

### IPRAD1501 Reflective Semiconductor Optical Amplifier

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Specifications</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Current</td>
<td>( I_F )</td>
<td>Min. 100</td>
<td>Typ. 150</td>
</tr>
<tr>
<td>Operating Wavelength</td>
<td>( \lambda_{opt} )</td>
<td>Min. 1500</td>
<td>Typ. 1550</td>
</tr>
<tr>
<td>3dB Optical Bandwidth</td>
<td>( \Delta \lambda_{3dB} )</td>
<td>Min. -</td>
<td>Typ. 40</td>
</tr>
<tr>
<td>Small Signal @ - 25dBm Signal</td>
<td>( G_{max} )</td>
<td>Min. 15</td>
<td>Typ. 18</td>
</tr>
<tr>
<td>Gain Ripple with Respect to ( \lambda )</td>
<td>( \Delta G )</td>
<td>Min. -</td>
<td>Typ. 3</td>
</tr>
<tr>
<td>Saturation Output Power</td>
<td>( P_{sat} )</td>
<td>Min. 3</td>
<td>Typ. 6</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>NF</td>
<td>Min. -</td>
<td>Typ. 7</td>
</tr>
<tr>
<td>Polarization Dependent Gain</td>
<td>PDG</td>
<td>Min. -</td>
<td>Typ. 1</td>
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</table>

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>–20</td>
<td>70</td>
<td>°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>–40</td>
<td>85</td>
<td>°C</td>
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<tr>
<td>TEC Drive Current</td>
<td>-</td>
<td>1.5</td>
<td>A</td>
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<tr>
<td>TEC Drive Voltage</td>
<td>-</td>
<td>3.6</td>
<td>V</td>
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<tr>
<td>Max. Current</td>
<td>200</td>
<td></td>
<td>mA</td>
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<tr>
<td>Thermistor Resistance</td>
<td>10kΩ @ 25°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOA Chip Temperature Setting</td>
<td></td>
<td>25°C</td>
<td></td>
</tr>
<tr>
<td>Fiber Type</td>
<td></td>
<td>SMF/PMF/MMF</td>
<td></td>
</tr>
<tr>
<td>Fiber Jacket</td>
<td></td>
<td>250µm tight buffer with/without 900µm loose tube, or 900µm tight buffer</td>
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Package Dimensions

14-Pin BUT Package

Pin Definition

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
<th>Pin</th>
<th>Function</th>
<th>Pin</th>
<th>Function</th>
<th>Pin</th>
<th>Function</th>
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<tbody>
<tr>
<td>1</td>
<td>TEC(+)</td>
<td>8</td>
<td>NC</td>
<td>1</td>
<td>TEC(+)</td>
<td>8</td>
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<tr>
<td>2</td>
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<td>NC</td>
<td>2</td>
<td>NC</td>
<td>9</td>
<td>RSOA (-)</td>
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<tr>
<td>3</td>
<td>NC</td>
<td>10</td>
<td>RSOA (+)</td>
<td>3</td>
<td>NC</td>
<td>10</td>
<td>Case</td>
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<td>NC</td>
<td>11</td>
<td>RSOA (-)</td>
<td>4</td>
<td>NC</td>
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<td>Thermistor</td>
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<tr>
<td>5</td>
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<td>12</td>
<td>NC</td>
<td>5</td>
<td>RSOA (+)</td>
<td>12</td>
<td>Thermistor</td>
</tr>
<tr>
<td>6</td>
<td>NC</td>
<td>13</td>
<td>Case</td>
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<td>NC</td>
<td>13</td>
<td>NC</td>
</tr>
<tr>
<td>7</td>
<td>NC</td>
<td>14</td>
<td>TEC(-)</td>
<td>7</td>
<td>NC</td>
<td>14</td>
<td>TEC(-)</td>
</tr>
</tbody>
</table>

Dimensions in mm
Tol: ±0.13

14-Pin DIL Package
Part Numbering System

**Model:**
IPRAD1301: 1310nm RSOA Device
IPRAD1501: 1550nm RSOA Device

**Package:**
1: 14-pin DIL
3: 14-pin Butterfly

**Fiber Type:**
1: SM Fiber
2: PM Fiber
3: MM Fiber

**Jacket Type:**
1: 900µm
2: 250µm tight buffer

**Connector Type:**
0: No Connectors
3: FC/APC
4: FC/UPC
7: SC/APC
8: SC/UPC

**Example:** IPRAD1301-1224: 1310nm RSOA in 14-pin DIL with 250µm tight buffered PM fiber with FC/UPC connectors

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