Electronically Variable Optical Attenuators

EVOA Series

Product Description

Oplink’s electronically variable optical attenuator (EVOA) is a high performance opto-mechanical device. EVOA operates by moving an obstructing element into the optical beam and the position of the obstructing element can be adjusted by an integrated, electronically controlled step motor, resulting in fine tuning of attenuation.

Oplink’s EVOA features a large dynamic attenuation range of >30dB and an excellent optical performance over C- or L-band. Its latching operation retains recent attenuation setting upon removal of drive voltage. Applications include pre-emphasis attenuation, detector saturation control, in-line power equalization and amplifier power control applications. Also, it can be used to extend the dynamic range of optical measurement instruments.

Oplink’s EVOA is designed to withstand the diverse environmental conditions and compliance to the Telcordia standard GR-1221.

Oplink can provide customized designs to meet specialized feature applications. Also, Oplink offers modular assemblies that integrate other components to form a full function module or subsystem.

Performance Specification

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Typical</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating wavelength range</td>
<td>1525 ~ 1570 or 1570 ~ 1610</td>
<td>nm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion Loss [1]</td>
<td>1.0</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attenuation range</td>
<td>0</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature dependence of attenuation [2]</td>
<td>0.15</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wavelength dependence of attenuation</td>
<td>0.2</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polarization dependence of attenuation</td>
<td>0.15</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMD</td>
<td>0.1</td>
<td>ps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Loss [1]</td>
<td>40</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>0.15</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>0.2</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back lash</td>
<td>0.3</td>
<td>dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response speed [3]</td>
<td>0.2</td>
<td>sec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optical power</td>
<td>100</td>
<td>mW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-5 to +70</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-40 to +85</td>
<td>°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber type</td>
<td>SMF-28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POT resistance</td>
<td>9</td>
<td>KΩ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package Dimensions</td>
<td>P2: 50.0 (L) x 25.0 (W) x 12.0 (H)</td>
<td>mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>P3: 45.0 (L) x 18.0 (W) x 12.0 (H)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:  
1) Excluding connectors.  
2) Relative to 23°C.  
3) At 3 dB attenuation change.

Features

- Operates over C or L Band
- Low Insertion Loss and PDL
- Latching Capability
- PCB Mountable

Applications

- Pre-emphasis Attenuation
- Detector Input Power Control
- In-Line Power Equalization
- Gain Control in Optical Amplifiers
- On/Off Switch
- Instrumentation, Testing and Measurement
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**EVOA Series**

**Mechanical Drawing / Package Dimensions**

1) Standard Package Type P2

2) Mini Package Type P3

**Ordering Information**

Oplink can provide a remarkable range of customized optical solutions. For detail, please contact Oplink’s OEM design team or account manager for your requirements and ordering information (510) 933-7200.

**Electrical Connector Configuration P2**

<table>
<thead>
<tr>
<th>Pin#</th>
<th>Pin1</th>
<th>Pin2</th>
<th>Pin3</th>
<th>Pin4</th>
<th>Pin5</th>
<th>Pin6</th>
<th>Pin7</th>
<th>Pin8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Motor Phase A-</td>
<td>Motor Phase B+</td>
<td>Motor Phase B-</td>
<td>Motor Phase A+</td>
<td>Pot Wiper</td>
<td>Pot +V</td>
<td>Pot GND</td>
<td>NC</td>
</tr>
</tbody>
</table>

**Electrical Connector Configuration P3**

<table>
<thead>
<tr>
<th>Pin#</th>
<th>Pin1</th>
<th>Pin2</th>
<th>Pin3</th>
<th>Pin4</th>
<th>Pin5</th>
<th>Pin6</th>
<th>Pin7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Pot GND</td>
<td>Pot wiper</td>
<td>Motor Phase A-</td>
<td>Motor Phase B+</td>
<td>Motor Phase B-</td>
<td>Motor Phase A+</td>
<td>Pot +V</td>
</tr>
</tbody>
</table>

**Operating Wavelength**

- C Band = 1550
- L Band = 1600

**Package Type**

- P2 = 2
- P3 = 3

**Fiber Length**

- 0.5meter= H
- 1.0meter= 1
- 1.5meter= 5
- 2.0meter= 2

**Fiber Type**

- SMF-28 250µm =1
- SMF-28 w/ 900µm loose tube =2

**Connector Type**

- None = 1
- FC/PC=2
- FC/SPC=3
- FC/APC=4
- SC/PC=5
- SC/SPC=6
- SC/APC=7
- ST=8
- LC=9
- MU=A

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Product Lines:  
- Mux/Demux  
- Switching/Routing  
- Coupling/Splitting  
- Monitoring/Conditioning  
- Amplification  
- Transmission  
- Interconnect  
- RGB Laser Modules