Athermal Arrayed-Waveguide Grating
Multiplexer/Demultiplexer

Product Description

Athermal Arrayed-Waveguide Grating (AAWG) have equivalent performance to thermal AWGs but no any electrical power needed for operation. AAWG is more simple than thermal AWG.

Oplink’s planar lightwave circuits are well suited for demanding telecom applications in long-haul and metro transmission systems. The AAWG provide extremely excellent optical performance, high reliability, ease of fiber handling and power saving solution in a compact package.

Performance Specification

<table>
<thead>
<tr>
<th>AAWG Parameters</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel Spacing</td>
<td>100</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Channel Passband</td>
<td>± 12.5</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>Insertion Loss</td>
<td>4.5</td>
<td>5.5</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Uniformity</td>
<td>≤ 40CH</td>
<td>0.9</td>
<td>1.2</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>&gt; 40CH</td>
<td>1.2</td>
<td>1.5</td>
<td>dB</td>
</tr>
<tr>
<td>Ripple</td>
<td>0.35</td>
<td>0.5</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>1dB Bandwidth</td>
<td>50</td>
<td></td>
<td></td>
<td>GHz</td>
</tr>
<tr>
<td>3dB Bandwidth</td>
<td>75</td>
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<td>GHz</td>
</tr>
<tr>
<td>Polarization Dependent Loss</td>
<td>25</td>
<td></td>
<td>0.5</td>
<td>dB</td>
</tr>
<tr>
<td>Adjacent Channel Crosstalk</td>
<td>30</td>
<td>35</td>
<td></td>
<td>dB</td>
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<tr>
<td>Non-adjacent Channel Crosstalk</td>
<td>22</td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Total Crosstalk</td>
<td>43</td>
<td>45</td>
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<td>dB</td>
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<tr>
<td>Return Loss</td>
<td>50</td>
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<td>dB</td>
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<tr>
<td>Directivity</td>
<td>-20</td>
<td>+20</td>
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<td>ps/nm</td>
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<tr>
<td>Chromatic Dispersion</td>
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<td></td>
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<tr>
<td>PMD</td>
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<td></td>
<td>ps</td>
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<tr>
<td>Maximum Power Handling</td>
<td>300</td>
<td></td>
<td></td>
<td>mW</td>
</tr>
<tr>
<td>Fiber Type</td>
<td>G. 652D</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Fiber Jacket

| Without Fan-out                  | C: 900µm loose tube |
|                                  | B: 12-Core ribbon fiber |
| With Fan-out                     | C: 900µm loose tube |
|                                  | B: 12-Core Ribbon fiber |
|                                  | A: 900µm loose tube |

Fiber Length

| Refer ordering information       | |

Connector Type

| Refer ordering information       | |

Operating Temperature

| -5 to +70 °C                     | |

Storage Temperature

| -40 to +85 °C                    | |

Notes:

[1] All the parameters are excluding connectors. IL of connectors is 0.2dB/Pair for PC/UPC/SPC types and 0.4dB per pair for APC types.

[2] The maximum IL is under all states of polarization and within the full operating temperature and wavelength ranges specified.

[3] Measured from minimum loss to 1dB and 3dB down respectively.


Features

- Pure Passive
- MSA package
- Low insertion loss/PDL
- Extremely low crosstalk
- Telcordia GR-1209/1221 qualified

Applications

- ROADM
- FOADM
- xGPON
- WDM-PON
Channel Spectrum Table

Typical Flat-Top 40-Channel Spectrum

Mechanical Drawing / Package Dimensions (dimension in mm)

NOTE:
2. FINISH: BLACK ANODIZE.
3. UNITS: mm.
4. TOL’S: \( X = \pm 0.5 \), \( XX = \pm 0.2 \).
5. PROJECTION: ◀️

*The mechanical tolerance should be ±0.2mm on all package dimensions unless otherwise specified.
**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.

**AAWG1**

- **Number of Channels**
  - 32ch = 32
  - 40ch = 40
  - 44ch = 44

- **Largest ITU Channel Number**
  - Flat-Top = F

- **AAWG Type**
  - (C) Fiber Length*
    - 0.5 meter = H
    - 1.0 meter = 1
    - 1.5 meter = 5

- **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/UPC = 9
  - MTP(male) = D***
  - MTP(female) = C***

**Fiber Length**

- **(A) Fiber Length**
  - 0 meter = 0 (without fan-out)**
  - 0.5 meter = H
  - 1.0 meter = 1
  - 1.5 meter = 5

- **(B) Fiber Length**
  - 0.5 meter = H
  - 1.0 meter = 1
  - 1.5 meter = 5

- **(C) Fiber Length**
  - 0.5 meter = H
  - 1.0 meter = 1
  - 1.5 meter = 5

* The tolerance of fiber length is +/-0.1m.
** Only MTP Connectors are available if the length of fiber A is 0 (without fan-out). Please choose 1 or C or D for the last digit of Oplink Part Number.
*** When MTP option was available, it must be LC/UPC option for fiber C.
**** For other number of channels, please contact Oplink’s sales department for further information.

For example, AAWG140C60F1119 represents one 100G 40-ch (192.10~196.00THz) Flat-Top type and with 1.0+/−0.1m fiber length on fiber C, 1.0+/−0.1m fiber length on fiber B, 1.0+/−0.1m fiber length on fiber A, all with LC/UPC connectors.