Single Window Fixed In-line Attenuators
(1310, S, C, L and C+L Band)

SWFA Series

Product Description

The Oplink fused single window wideband Fixed In-line Attenuators provide accurate attenuation over wide bandwidth with high performance and high reliability. These attenuators have excellent temperature stability, very good wavelength flatness, very low polarization sensitivity and are available with various attenuation ratios, wavelength ranges, and connector options. All devices are shown to be able to handle high optical power up to 4W and are tested according to industry standard procedures. Reliability is guaranteed through stringent tests to fully meet Telcordia GR-1221 requirements.

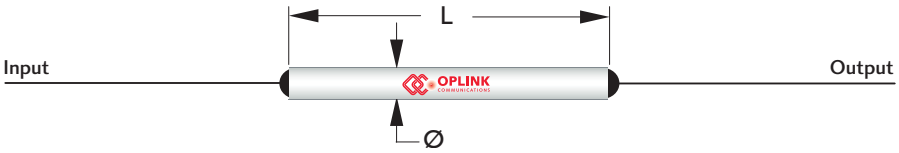


Features

- Wavelength Independent
- Low Insertion Loss and PDL
- High Power Handling
- Guranteed Reliability

Applications

- Flatness Adjustment
- Power Management
- Testing Instruments
- Laboratory R&D



Performance Specification

SWFA Series	1310nm	S band	C band	L band	C+L band	Unit
Wavelength Range	1270~1350	1420~1500	1530~1565	1570~1605	1530~1610	nm
Fiber Type	Corning SMF-28 or equivalent					
Insertion Loss [1]	See Insertion Loss Table I & II					
Return Loss	Min 50					dB
Temperature Dependent Loss [2]	Max 0.15					dB
Optical Power Handling	Max 500					mW
Operating Temperature Range [3]	-40 to +75					°C
Storage Temperature Range	-40 to +85					°C
Package Dimension [4]	P1: 250μm bare fiber	(Ø) 3.0 x (L) 47.0				mm
	P2: 900μm loose tube	(Ø) 3.0 x (L) 60.0				
	P3: 3mm cable	(L) 96.0 x (W) 12.0 x (H) 6.4				
Qualification	Telcordia GR-1221					

[1] Values are referenced without connector loss.
[2] Temperature Sensitivity Coefficient ~0.002dB/°C at the range of –5 to 75°C.
[3] Operating temperature range changes to -5 to 75°C in P2, P3 package and all package with connectors.
[4] The mechanical tolerance should be +/-0.2 mm on all package dimensions unless otherwise custom specified.

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Insertion Loss Tables

Insertion Loss (IL) I : C or L band coupler

Attenuation	IL[1] (dB)	WDL[2] (dB)	PDL[3] (dB)
20dB	19.00-21.00	≤0.45	≤0.12
18dB	17.50-19.00	≤0.45	≤0.15
17dB	15.50-17.50	≤0.40	≤0.15
15dB	13.50-15.50	≤0.30	≤0.15
13dB	11.50-13.50	≤0.25	≤0.10
11dB	10.50-11.50	≤0.25	≤0.10
10dB	9.50-10.50	≤0.25	≤0.10
9dB	8.50-9.50	≤0.25	≤0.10
8dB	7.50-8.50	≤0.25	≤0.10
7dB	6.50-7.50	≤0.20	≤0.10
6dB	5.50-6.50	≤0.20	≤0.10
5dB	4.60-5.50	≤0.20	≤0.10
4dB	3.70-4.30	≤0.20	≤0.10
3dB	2.70-3.30	≤0.20	≤0.10
2dB	1.70-2.30	≤0.15	≤0.10
1dB	0.85-1.15	≤0.15	≤0.10

1. Insertion loss over operating wavelength range at ~23°C (excluding PDL and TDL).
2. Insertion loss change over the specified wavelength range.
3. Insertion loss change over all the input polarization states.

Insertion Loss (IL) II : 1310nm, S[2] or C+L band coupler

Attenuation	IL[1] (dB)	WDL[2] (dB)	PDL[3] (dB)
20dB	18.50-21.50	≤0.90	≤0.20
18dB	17.50-18.80	≤0.80	≤0.15
17dB	16.00-17.50	≤0.70	≤0.15
15dB	13.80-16.00	≤0.60	≤0.15
13dB	12.00-13.80	≤0.50	≤0.10
11dB	10.50-12.00	≤0.50	≤0.10
10dB	9.90-10.50	≤0.50	≤0.10
9dB	8.70-9.90	≤0.50	≤0.10
8dB	7.60-8.70	≤0.50	≤0.10
7dB	6.50-7.60	≤0.45	≤0.10
6dB	5.40-6.50	≤0.45	≤0.10
5dB	4.40-5.40	≤0.40	≤0.10
4dB	3.40-4.40	≤0.35	≤0.10
3dB	2.60-3.40	≤0.35	≤0.10
2dB	1.70-2.30	≤0.25	≤0.10
1dB	0.80-1.20	≤0.20	≤0.10

1. Insertion loss over operating wavelength range at ~23°C (excluding PDL and TDL). For S-band product, add 0.1dB due to water absorption peak of fiber.
2. Insertion loss change over the specified wavelength range. For S-band product, add 0.1dB in WDL due to water absorption peak of fiber.
3. Insertion loss change over all the input polarization states.

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.

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Wavelength
1310 nm = 3
C band = 5
S band = 4
L band = 6
C+L band = 1

Tap Ratio
20dB = 20
18dB = 18
17dB = 17
15dB = 15
13dB = 13
11dB = 11
10dB = 10
9dB = 09
8dB = 08
7dB = 07
6dB = 06
5dB = 05
4dB = 04
3dB = 03
2dB = 02
1dB = 01

Package Type & Fiber Jacket
P1 + 250 µm bare fiber = 11
P2 + 900 µm loose tube = 22
P3 + 3 mm cable = 33

Fiber Length*
0.5 meter = H
1.0 meter = 1
1.5 meter = 5
2.0 meter = 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/UPC = 9
MU = A
LC/APC = B

* The tolerance of fiber length is +/-0.1m.
* 1 meter is standard. The lead time for special fiber length will be longer.

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