1480nm Optical Circulator

1480±30nm, SM, PM

DATASHEET

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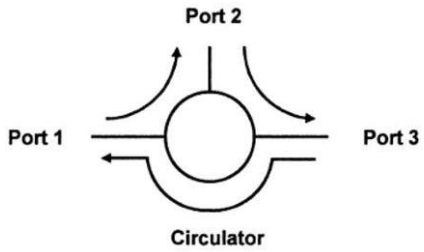
The OC Series 1310/1550 Optical Circulators are non-reciprocal devices that direct light from Port 1 to Port 2 in one direction, while backward-propagating light from Port 2 is routed to Port 3, independent of the state of polarization. Utilizing Agiltron's advanced micro-optics design, they feature low insertion loss, low polarization sensitivity, high isolation, a compact structure, and excellent stability. These characteristics make the product an ideal choice for use in fiber amplifier systems, pump laser diodes, and optical fiber sensors. It is technically possible to produce a circulator that achieves complete circulation, but only at significantly higher cost.



Circulator

Features

- Compact Package
- High Isolation & Low Insertion Loss
- Low PDL
- Telcordia GR-1221 Compliant

Applications

- EDFA, DWDM and OTDR
- DWDM and OADM Networks
- Bi-directional Transmission System
- Testing Equipment

Specifications

Parameter	Min	Typical	Max	Unit
Operating Wavelength (λop)	1450	1480	1510	nm
Peak isolation		52		dB
Isolation (λc, 23℃ all sop) [1]		≥ 40		dB
Isolation (λop, Top, all sop)		≥ 35		dB
Insertion Loss (λop, 23℃ all sop)		0.6	0.8	dB
Polarization Dependent Loss (PDL for SM)		≤ 0.20		dB
Polarization Extinction Ratio (PER for PM)	18	22	28	dB
PMD		≤ 0.1		ps
Directivity (DIR) [2]		≥ 50		dB
Return Loss (RL)		≥ 50		dB
Max Power Handling CW [3]			500	mW
Operating Temperature Range	0		+75	°C
Storage Temperature	-40		+85	°C
Fiber Type		SMF-28e or PM1550		
Fiber Length		> 1		m

Notes:

[1]. All sop = all state of polarization.

[2]. DIR = 10 * log10 (PP3÷PP1), test light input from P1, P = power in mW, test light input from P1. While test DIR, coil P2 fibers 3-5 turns around a 10-30mm diameter loop, this prevents back reflections into output P3, which would significantly lower DIR. If connector is needed at P3, an Angle polished (APC) connector will be recommended.

[3]. Higher power available on request.

* Above data test at room temperature without connectors. With connectors, IL+0.3dB, RL-5dB.

Note: For a polarized input light version, the isolation is optimized to block the light reflection of the same polarization. Although lights of other polarizations may also be blocked, the extinction may be poor. PM isolators can be specially made to block backward propagating lights of all polarizations. PM isolators can also be made with a light polarizing function.

Warning: **This is an OEM module designed for system integration. Do not touch the PCB by hand. The electrical static can kill the chips even without a power plug-in. Unpleasant electrical shock may also be felt. For laboratory use, please buy a Turnkey system.**

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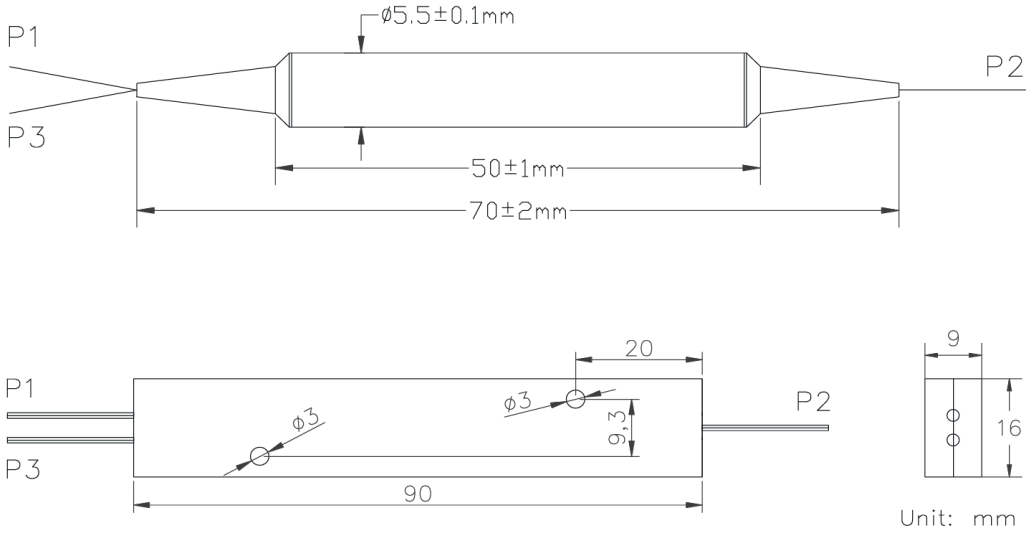
Mechanical Dimensions (mm)



*Product dimensions may change without notice. This is sometimes required for non-standard specifications.

Loose Tube Color Key

Port 1= red 900 µm loose tube
Port 2 = blue 900 µm loose tube
Port 3 = white 900 µm loose tube

Ordering Information

	☐☐	4	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Grade**	**Package Type**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
OCPI-	3 Port = 30 4 Port Partial [1] = 40 4 Port Full [2] = 44 Special = 00	1310~1510nm = 4 1295~1325 nm = 3 1530~1570 nm = 5 1570~1610 nm = L	Standard = 1 Special = 0	5.5 x 50 = 1 Special = 0	SMF-28 = 1 PM1550 = 2	Bare fiber = 1 900um loose tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 Special = 0	None = 1 FC/PC = 2 FC/APC = 3 SC/PC = 4 SC/APC = 5 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

[1]. 4 Port Partial – 1 to 2, 2 to 3, and 3 to 4.
[2]. 4 Port Full – 1 to 2, 2 to 3 3 to 4, and 4 to 1

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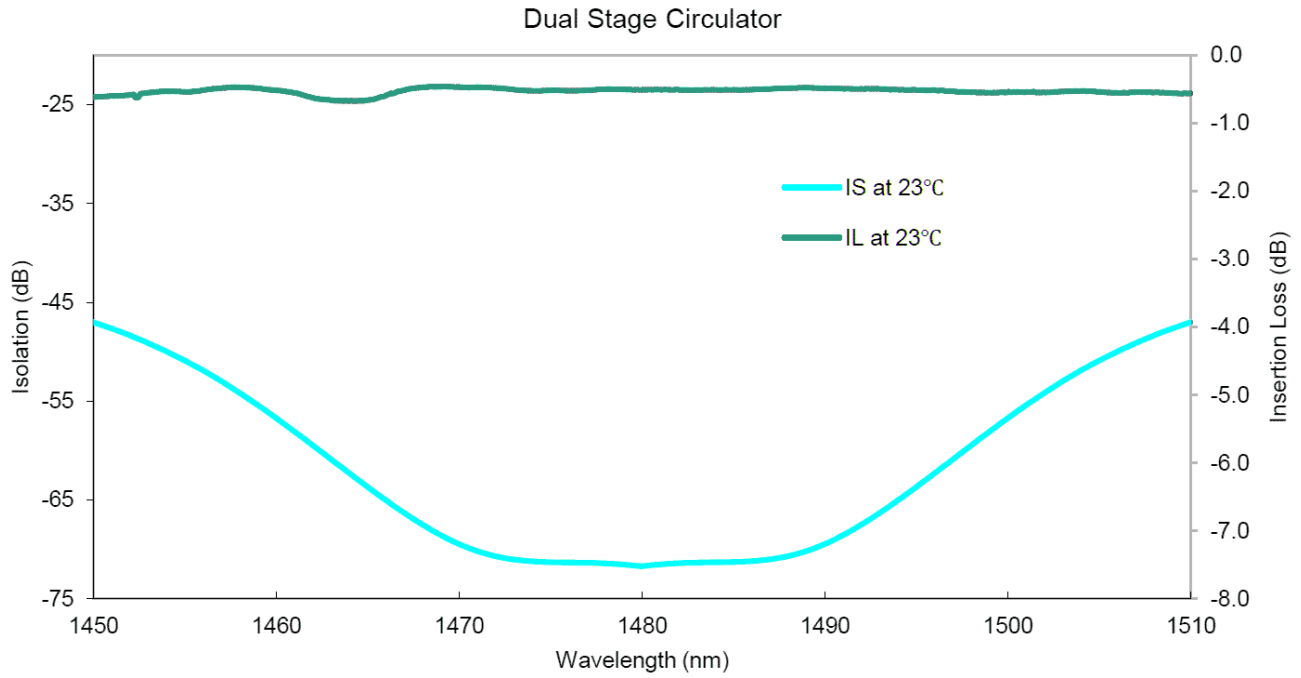
Typical Spectrum



Application Notes

Fiber Core Alignment
Note that the minimum attenuation for these devices depends on excellent core-to-core alignment when the connectors are mated. This is crucial for shorter wavelengths with smaller fiber core diameters that can increase the loss of many decibels above the specification if they are not perfectly aligned. Different vendors' connectors may not mate well with each other, especially for angled APC.

Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for wavelengths shorter 650nm. We produce a special version to increase the how handling by expanding the core side at the fiber ends.

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