

High Temperature Optical Circulator 150°C

1510nm, 3 Port polarization insensitive



DATASHEET

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Features

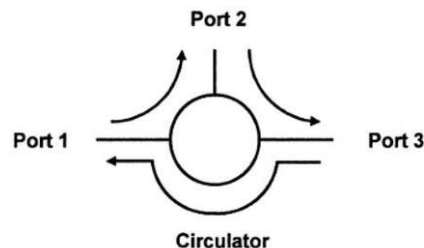
- Compact Package
- High Isolation & Low Insertion Loss
- Low PDL
- Telcordia GR-1221 Compliant

Applications

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



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.



Specifications

Parameter	Min	Typical	Max	Unit
Operating Wavelength (λ_{op})	1510 $\pm$ 5, 1550 $\pm$ 30			nm
Peak isolation		50		dB
Isolation (λ_c , 23°C all sop) ^[1]		≥ 40		dB
Isolation (λ_{op} , Top, all sop) ^[1]		≥ 35		dB
Insertion Loss (λ_{op} , 23°C all sop) ^[1]		0.6	0.8	dB
Insertion Loss (λ_{op} , 0~150°C all sop) ^[1]		≤ 1.2		dB
Polarization Dependent Loss (PDL)		≤ 0.20		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		+150	°C
Storage Temperature	-40		+150	°C
Fiber Type	HT1210-A (YOFC), SM1500 (9/125)P (Fibercore)			

Notes:

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

* Above data test 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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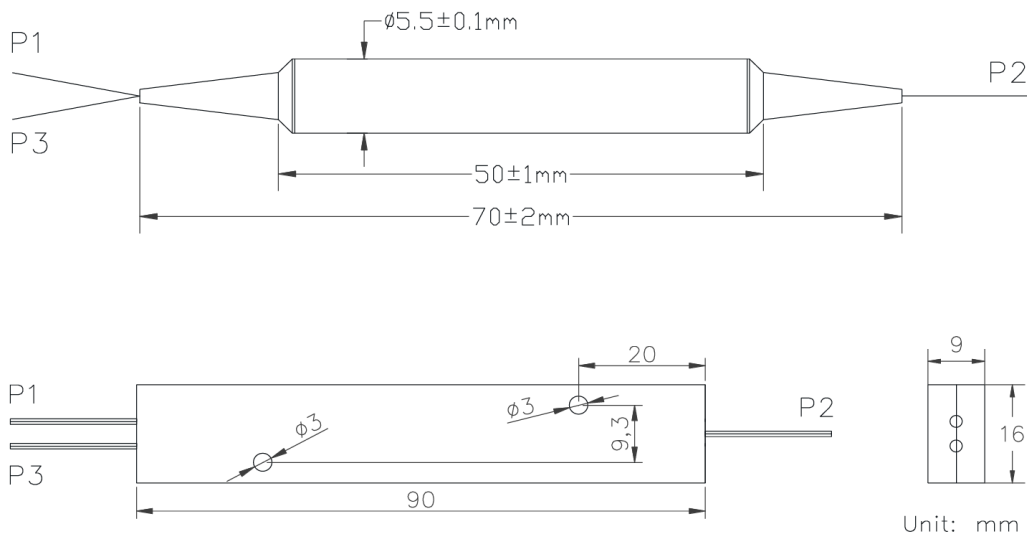
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Mechanical Dimensions (mm)



*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 (Part Number)

Prefix	Type	Wavelength	Grade	Package Type	Fiber Type	Fiber Cover	Fiber Length	Connector ^[1]	Temperature
OCHT-	3 Port = 30 Special = 00	1510nm = 4 1550nm = 5	P Grade = P Special = 0	5.5 x 50 = 1 90x16x9 = 2 Special = 0	HT1210-A (YOFC) = H SM1500 (9/125)P (Fibercore) = S	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	High Temperature = H

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

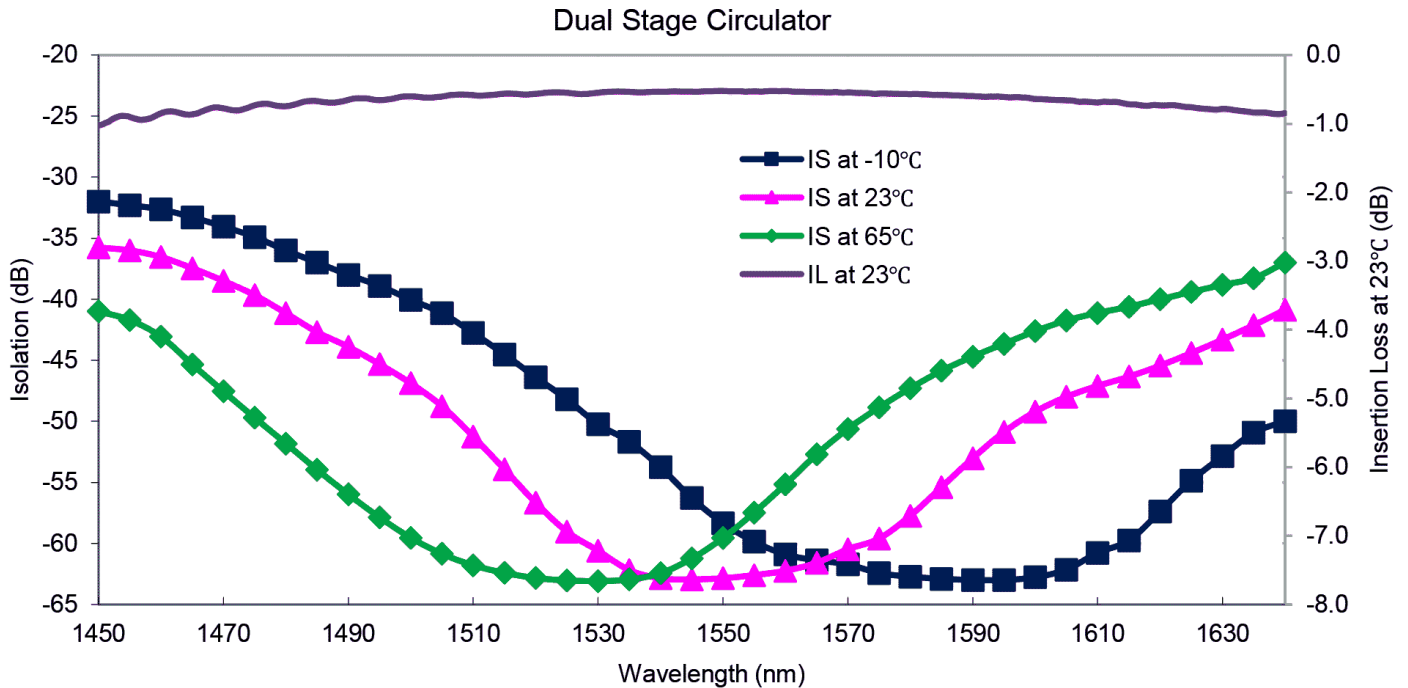
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Typical Spectrum (1550nm)



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.