

3-Port Multimode Optical Circulator



(patent pending)

DATASHEET

BUY NOW



Features

- Low Insertion Loss
- High Channel Isolation
- Compact Package
- High Reliability & Stability
- Cost Effective

Applications

- Metropolitan Area Network
- Fiber Optic Sensor
- Dispersion Compensation
- Test and Measurement
- Instrumentation

The OC Series 1310/1550 optical circulators are non-reciprocal devices that redirect light from port-to-port in one direction while minimizing reflection and scattering in the reverse directions for any state of polarization. Agiltron's advanced micro optics design features low insertion loss, Low Polarization sensitivity, high isolation, compact structure and high stability. The excellent characteristics of this product make it an ideal choice for application in fiber amplifier systems, pump laser diodes and optical fiber sensors.

Specifications

Parameter	Min	Typical	Max	Unit
Operating Wavelength ^[1]	1310	1295 ~ 1325		nm
	1550	1530 ~ 1570		
Insertion Loss ^{[2], [3]}		0.7	1.0	dB
Wavelength Dependent Loss		< 0.15		dB
Channel Isolation (2→1, 3→2) ^[3]		> 35		dB
Directivity (1→3)		> 40		dB
Polarization Mode Dispersion		< 0.06		ps
Return Loss ^[3]		> 40		dB
Optical Power Handling		< 500 ^[4]		mW
Operating Temperature Range	0		+70	°C
Storage Temperature	-40		+85	°C
Fiber Type	Corning 50/125 MM			
Fiber Length		> 1		m

Notes:

[1]. Special wavelength available.

[2]. Without connector.

[3]. Our device is designed and optimized for certain laser launch condition which is characterized as CPR value. In general, if application exceeds the specified CPR value, optical performance will become worsen.

[4]. Continuous operation, for pulse operation call.

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.

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind Agiltron only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with the use of a product or its application.

Rev 04/02/24

3-Port Multimode Optical Circulator

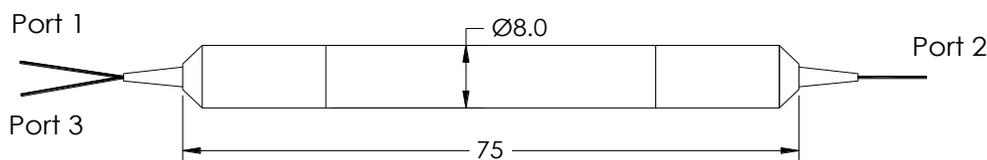


(patent pending)

DATASHEET

Mechanical Dimensions (mm)

3-Port Circulator



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

Ordering Information

Prefix	Type	Wavelength	Package	Fiber Type	Fiber Cover	Fiber Length	Connector
OC-	3 Port = 30 Special = 00	1310 = 3 1550 = 5 1590 = 9 C+L = 7 Special = 0	Standard = 1 Special = 0	Select from the table below	250um bare fiber = 1 900um loose tube = 2 Special = 0	0.5m = 1 1.0m = 2 1.5 m = 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

Fiber Type Selection Table:

01	SMF-28	34	PM1550	71	GIF 50/125 μm
02	SMF-28e	35	PM1950	72	GIF 62.5 μm
03	Corning XB	36	PM1310	73	105/125 μm
04	SM450	37	PM400	74	FG105LCA
05	SM1950	38	PM480	75	FG50LGA
06	SM600	39	PM630	76	FG10LDA
07	Hi780	40	PM850		
08	SM800	41	PM980		
09	Hi980	42	PM780		
10	Hi1060	43	PM350		
11	SM300	44	PM405		
12	SM400	45	PM460		

3-Port Multimode Optical Circulator

(patent pending)



DATASHEET

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 ($<5 \mu\text{m}$) 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 handling by expanding the core side at the fiber ends.

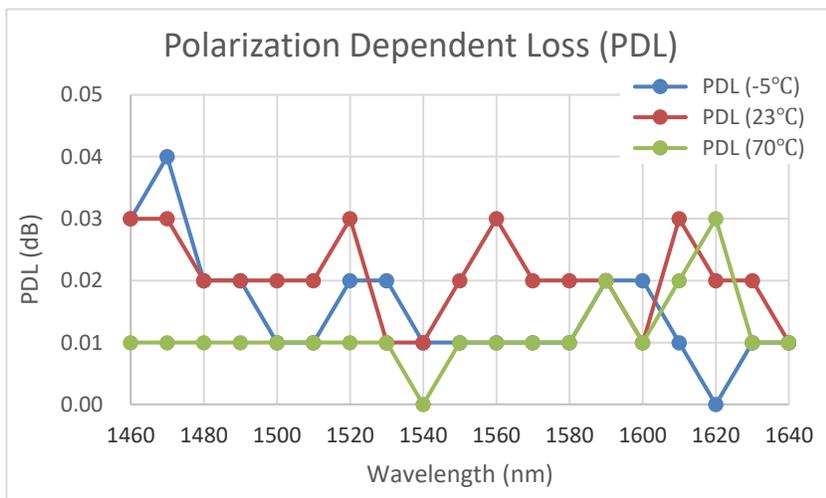
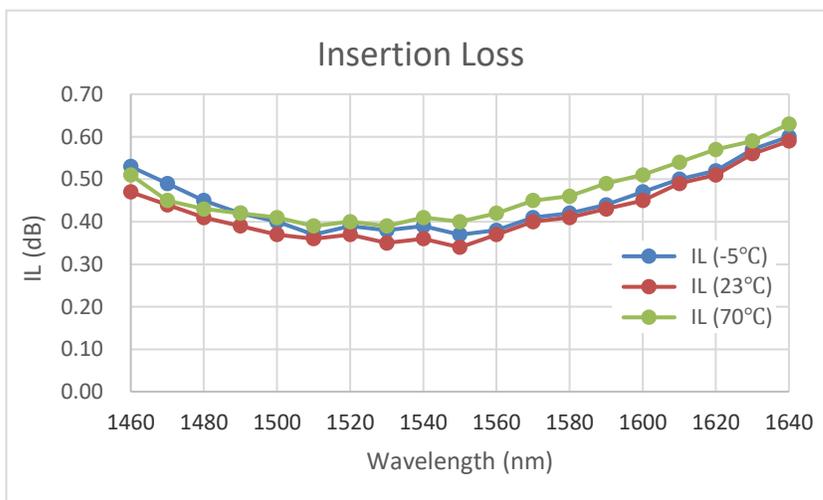
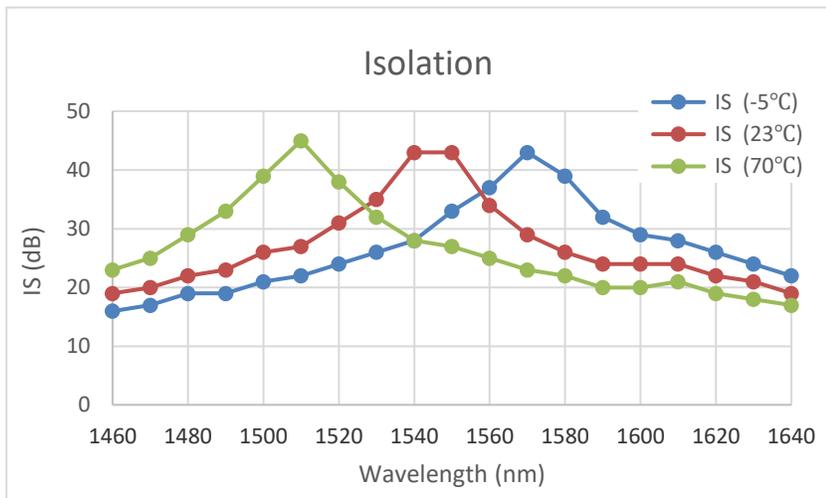
3-Port Multimode Optical Circulator



(patent pending)

DATASHEET

Typical Wavelength Dependence for Single Stage



3-Port Multimode Optical Circulator



(patent pending)

DATASHEET

Typical Wavelength Dependence for Dual Stage

