1310/1550 nm High Power Optical Circulator

DATASHEET

BUY NOW

The 1310/1550 nm high power optical circulator is designed for high power applications. This non-reciprocal device redirects light at 1310/1550 nm wavelengths from port-to-port in only one direction while minimizing back reflection and back scattering in the reverse directions for any state of polarization. Employing Agiltron's advanced micro optics design, it 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. This circulator can be made using a variety of fibers including HI980, HI1060, LMA and double cladding fibers.

Applications

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

Features

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

Specifications

Parameter			Min	Typical	Max	Unit
Operating Wavelength		1310	1295		1325	nm
		C Band	1530		1570	
		L Band	1570		1610	
		C + L	1525		1610	
Insertion Loss [1]	3-Port	1310		0.6	0.9	dB
		C, L		0.6	0.9	dB
		C + L		0.7	1.0	dB
	4-Port	1310, C, L		0.7	1.0	dB
Isolation (2→1, 3→2, or 4→3) [2]	3-Port	1310		36		dB
		C, L		36		dB
		C + L		30		dB
	4-Port	1310, C, L		36		dB
Directivity (1→3 or 2→4)				> 50		dB
Polarization Dependent Loss	3-Port			< 0.10		dB
	4-Port			< 0.15		dB
Polarization Mode Dispersion				< 0.1		ps
Return Loss				> 50		dB
Optical Power Handling				< 5 [3]		W
Operating Temperature Range			0		70	°C
Storage Temperature			-40		85	°C
Fiber Type			Corning SMF-28			
Fiber Length				> 1		m

Notes:

[1] Excluding connectors

[2] @λop, Top, SOP

[3] 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.

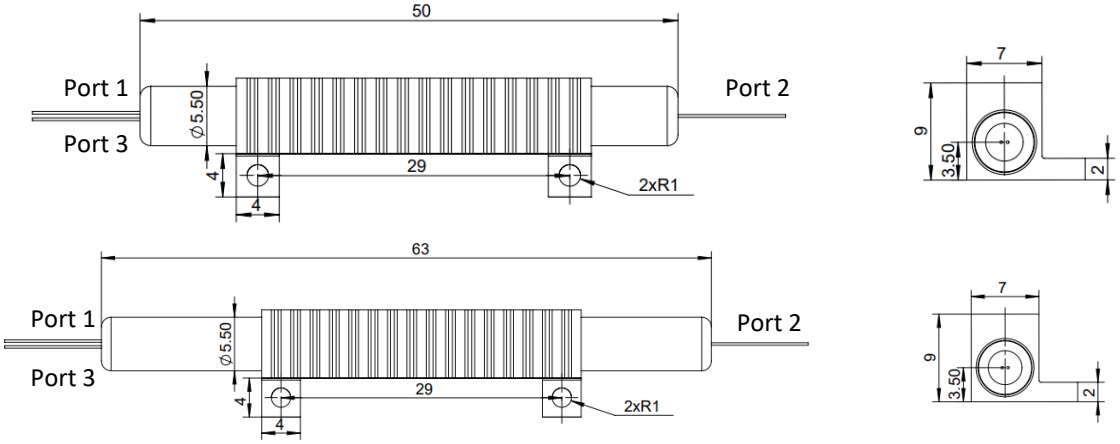
Rev 04/02/24

1310/1550 nm High Power Optical Circulator

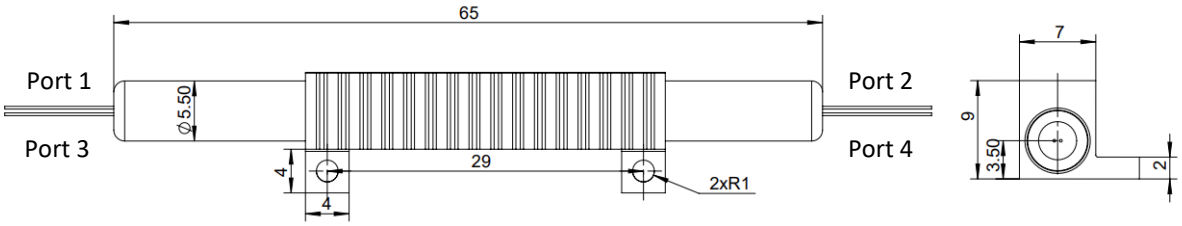
DATASHEET

Mechanical Dimensions (mm)

3-Port Circulator



4-Port Circulator



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

1310/1550 nm High Power Optical Circulator

DATASHEET

Ordering Information

	☐☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Grade**	**Package**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
OCHP-	3 Port = 30 4 Port = 40 Special = 00	1310 = 3 1550 = 5 C-band = C L-band = L C+L = 2 Special = 0	Standard = 1 Special = 2	5.5 x 50 = 1 5.5 x 63 = 2 5.5 x 65 = 3 Special = 0	SMF-28 = 1 PM1550 = B Special = 0	Bare fiber = 1 900um loose tube = 3 Special = 0	0.25m= 1 0.5 m = 2 1.0 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

* Agiltron provide high power connector, please call.

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.

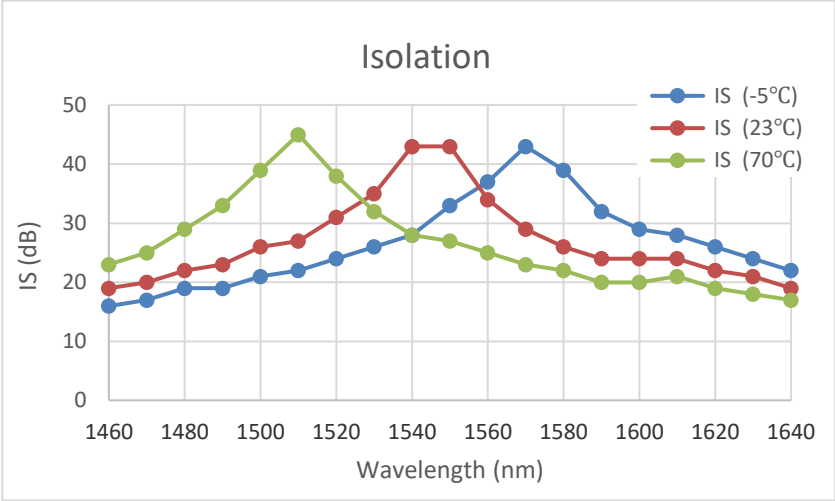
Fiber Cleanliness
Fibers with smaller core diameters (<5 μm) must be kept extremely clean, contamination at fiber-fiber interfaces, combined with the high optical power density, can lead to significant optical damage. This type of damage usually requires re-polishing or replacement of the connector.

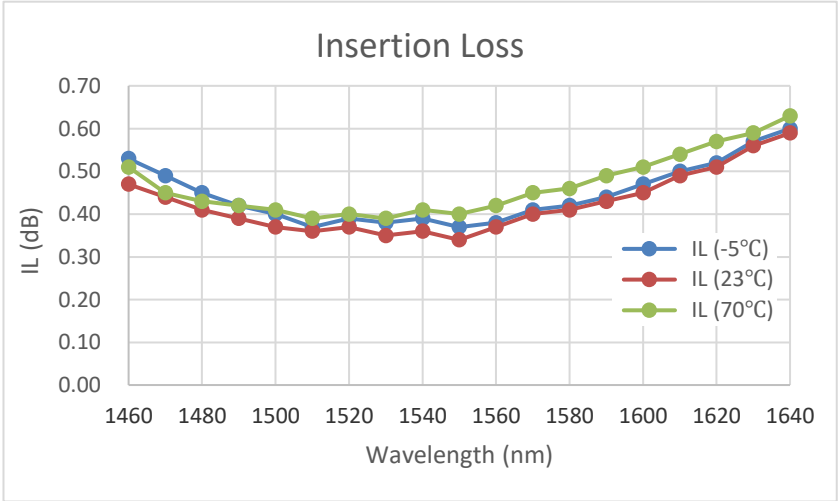
Maximum Optical Input Power
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should 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.

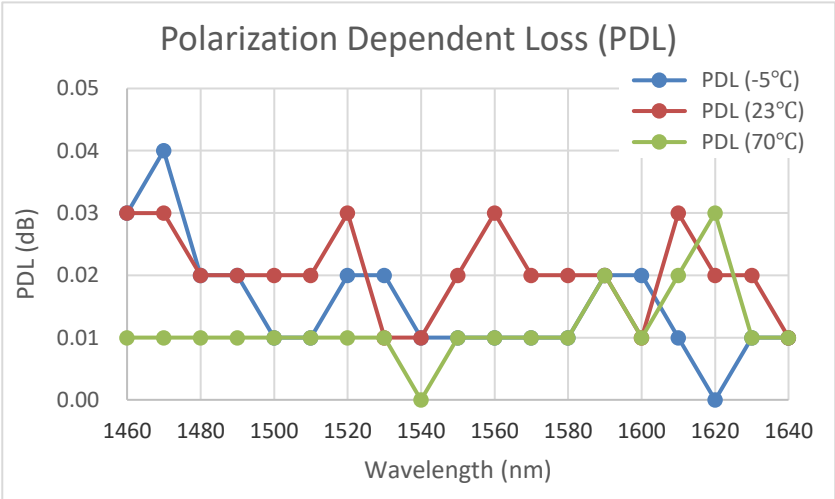
1310/1550 nm High Power Optical Circulator

DATASHEET

Typical Wavelength Dependence for Single Stage





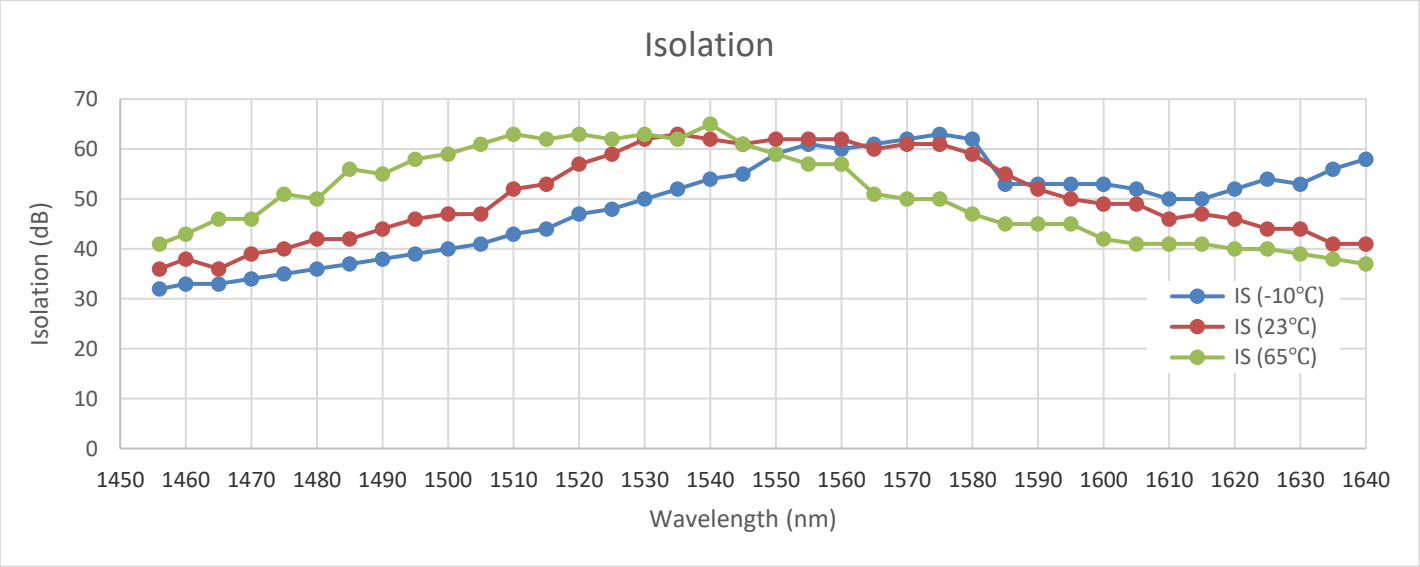


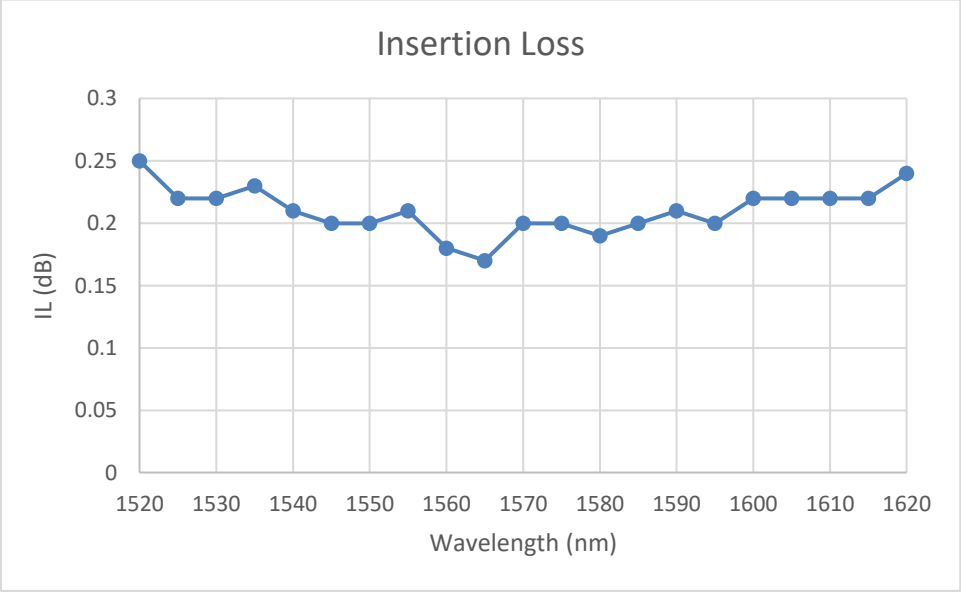
P +1 781-935-1200 E sales@photonwares.com W www.agiltron.com

1310/1550 nm High Power Optical Circulator

DATASHEET

Typical Wavelength Dependence for Dual Stage





P +1 781-935-1200 E sales@photonwares.com W www.agiltron.com