

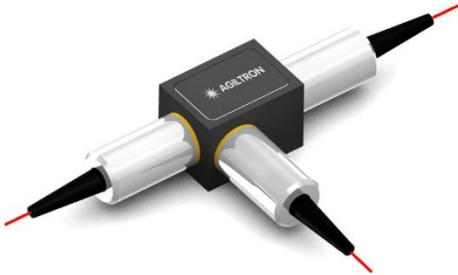
# Fiber Optical Circulator 390 – 532nm



Up to 2W, > 20dB isolation

DATASHEET

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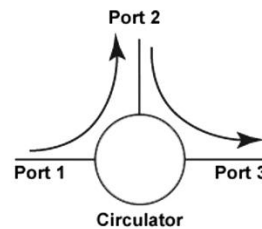
## Features

- Low Insertion Loss
- High Isolation
- Low PDL
- High Stability
- High Reliability
- Cost Effective

## Applications

- Sensor
- Laser
- Test and Measurement
- Instrumentation

This Series Optical Circulators is a three-port device that allows light to travel in only one direction. A signal entering Port 1 will exit Port 2 with minimal loss, while a signal entering Port 2 will exit Port 3 with minimal loss. Light entering port 2 experiences a large amount of loss at port 1, and light entering port 3 experiences a large amount of loss at ports 2 and 1. Optical circulators are non-reciprocal devices. With our proprietary magnetic-optics technology and proven advanced micro-optics design, the circulator features low insertion loss, high isolation, high power handling, and high stability. Optical circulators are widely used in sensor and communication systems. Agiltron also provides customized designs to meet special applications.



## Specifications

Parameter	Min	Typical	Max	Unit	
Center Wavelength	390		532	nm	
Operating Bandwidth		± 5		nm	
Insertion Loss <sup>[1]</sup>		1.5	2.2	dB	
Wavelength Dependent Loss			0.2	dB	
Isolation	Single Stage	20	25	28	dB
Polarization Dependent Loss (SM)		0.1	0.2	dB	
Polarization Extinction Ratio (PM)	Regular	20	26	dB	
Cross Talk		40	50	70	dB
Return Loss		50		dB	
Optical Power Handling <sup>[2]</sup>		0.2	2	W	
Storage Temperature		-10	60	°C	
Fiber Type	See order information				

### Notes:

[1]. Excluding connectors. At room temperature, Related to the configuration and wavelength

[2]. It is related to fiber core size, the smaller, the lower power handling

**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.

**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 04/22/24

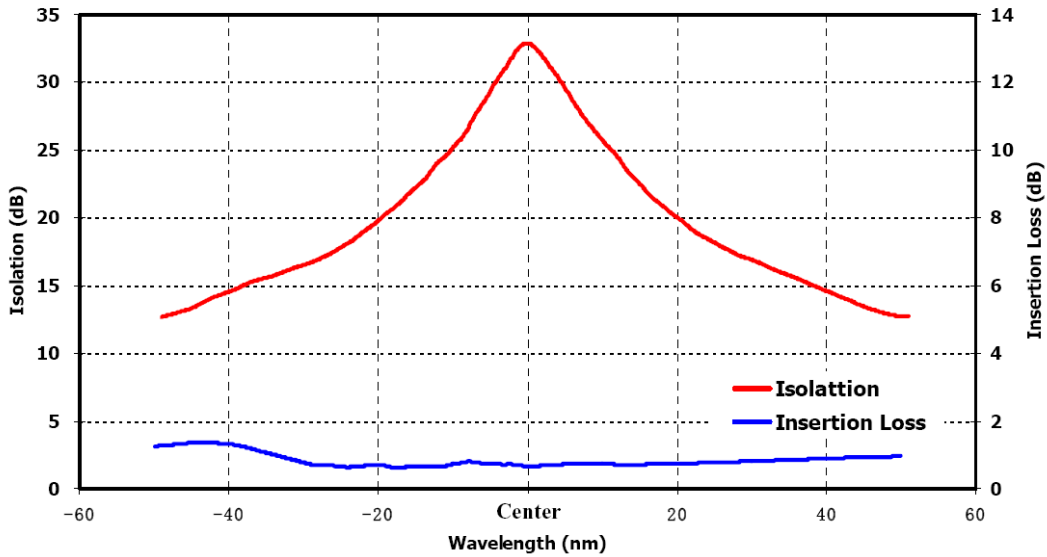
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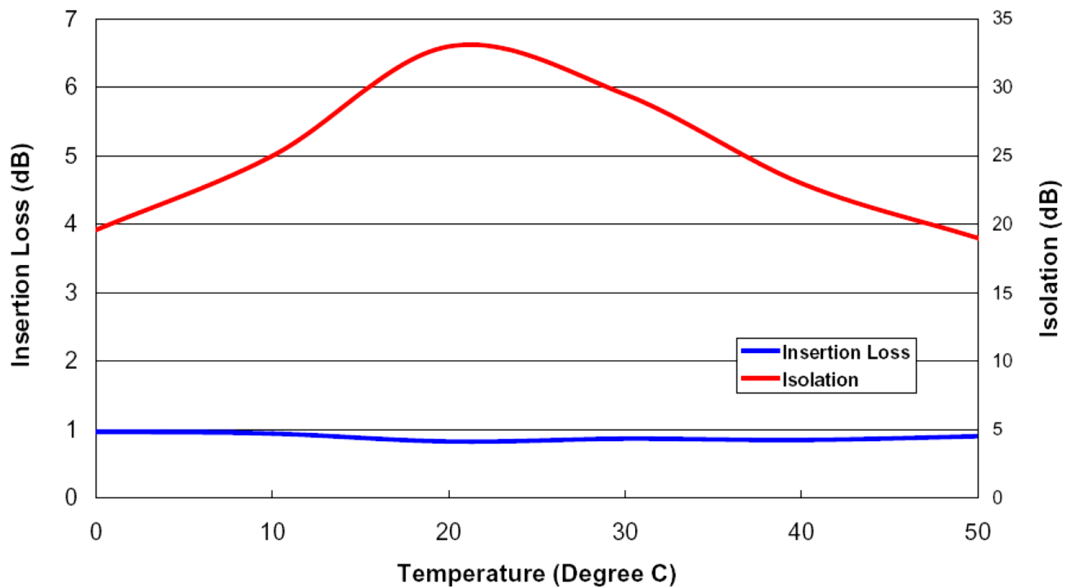
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### Optical Performance



IL/Iso Vs. Temp @ Center Wavelength



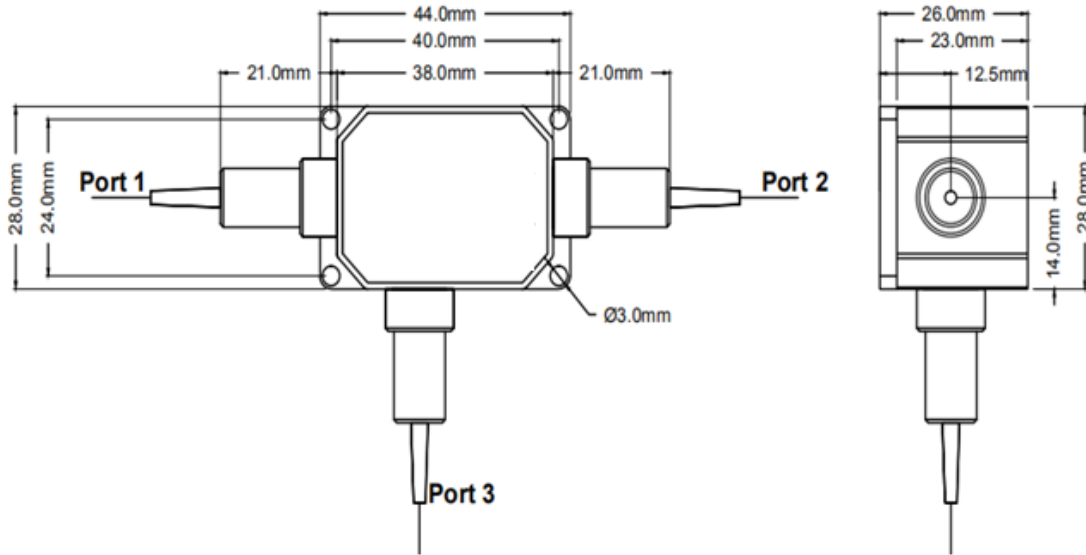
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### Mechanical Dimensions (mm)



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

### Ordering Information

Prefix	Type	Crosstalk *	Center Wavelength	Power	PM ER	Fiber Type	Fiber Cover	Fiber Length	Connector
OCST-	Polarization Independent = 1 Polarization Dependent = 2 Polarizing = 3 Multimode = 4	45dB = 1 60dB = 2 65dB = 3	532nm = 5 488nm = 4 405nm = 3 Special = 0	0.5W = 1 1W = 2 2W = 2 Special = 0	Non = 1 18dB = 2 23dB = 3	460HP = 4 SM400 = A PM405 = B SM450 = D PM460 = E Special = 0	0.9mm = 3 Bare Fiber = 1 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 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

\* Red indicate special order

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## Application Notes

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### 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.