Fiber Optical Circulator 405-785nm

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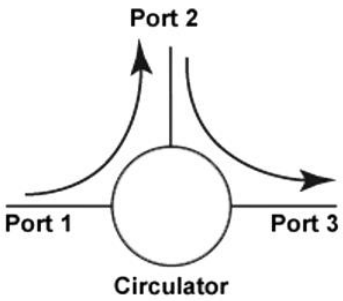
Features

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

Applications

- Sensor
- Laser
- Test and Measurement
- Instrumentation

This Series Optical Circulators are three-port devices designed for unidirectional light travel with low insertion loss, high isolation, up to 10W power handling, and exceptional stability, achieved through proprietary magnetic-optics technology and advanced micro-optics design. They offer a unique polarization extinction ratio of up to 30 dB, making them ideal for sensors, communication systems, and LiDAR applications. A specialized version delivers >65 dB isolation between PM laser input and return signal ports, accommodating randomly polarized return signals common in LiDAR systems. These circulators provide reliable, non-reciprocal signal routing and are fully customizable for specific application needs.



Specifications

Parameter		Min	Typical	Max	Unit
Center Wavelength		405		785	nm
Operating Bandwidth	Regular		± 40		nm
	Broadband		± 90		nm
Insertion Loss [1]			2.5	3.5	dB
Wavelength Dependent Loss				0.2	dB
Isolation/Cross Talk	Single Stage	20	25	28	dB
	Dual Stage	45		50	
Polarization Dependent Loss (SM)			0.1	0.2	dB
Polarization Extinction Ratio (PM)	Regular	18		26	dB
	Special	30		33	
Return Loss		50			dB
Optical Power Handling		0.1	0.2	10	W
Storage Temperature		-10		60	°C
Fiber Type		See order information			

Notes:

[1]. Excluding connectors. Related to the configuration and wavelength

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.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

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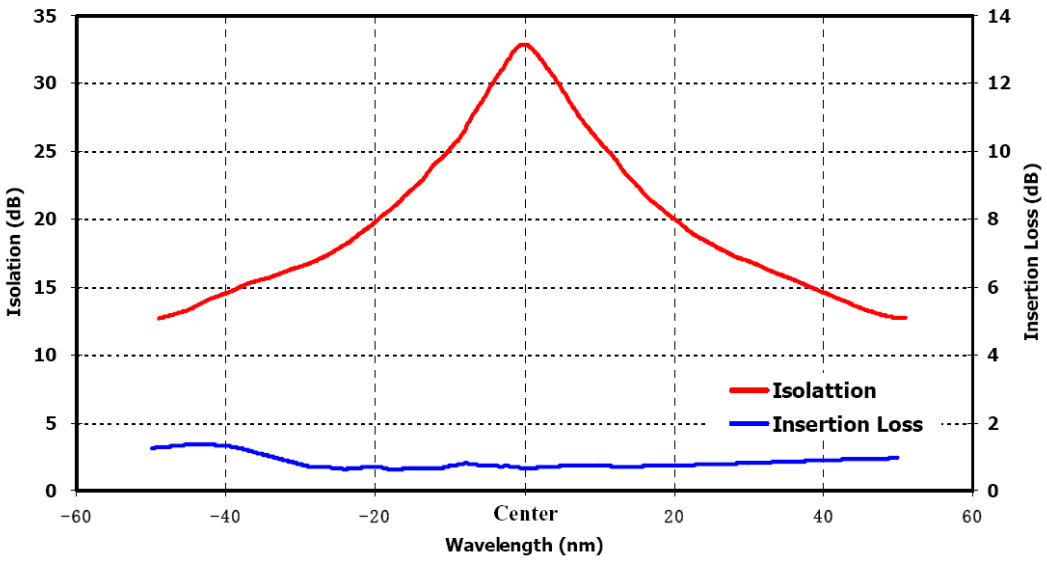
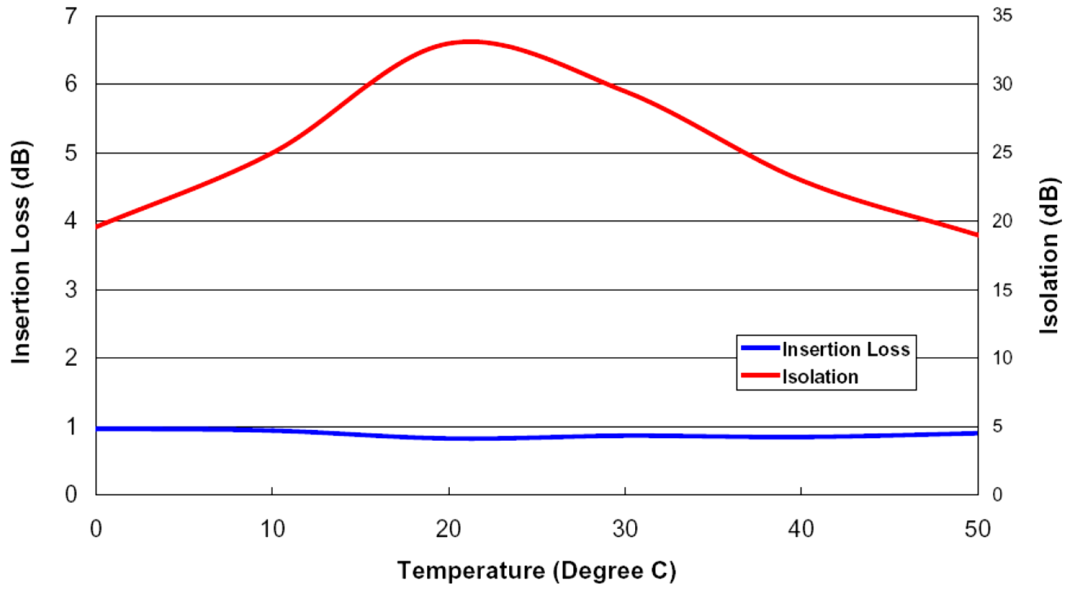
Optical Performance



IL/Iso Vs. Temp @ Center Wavelength



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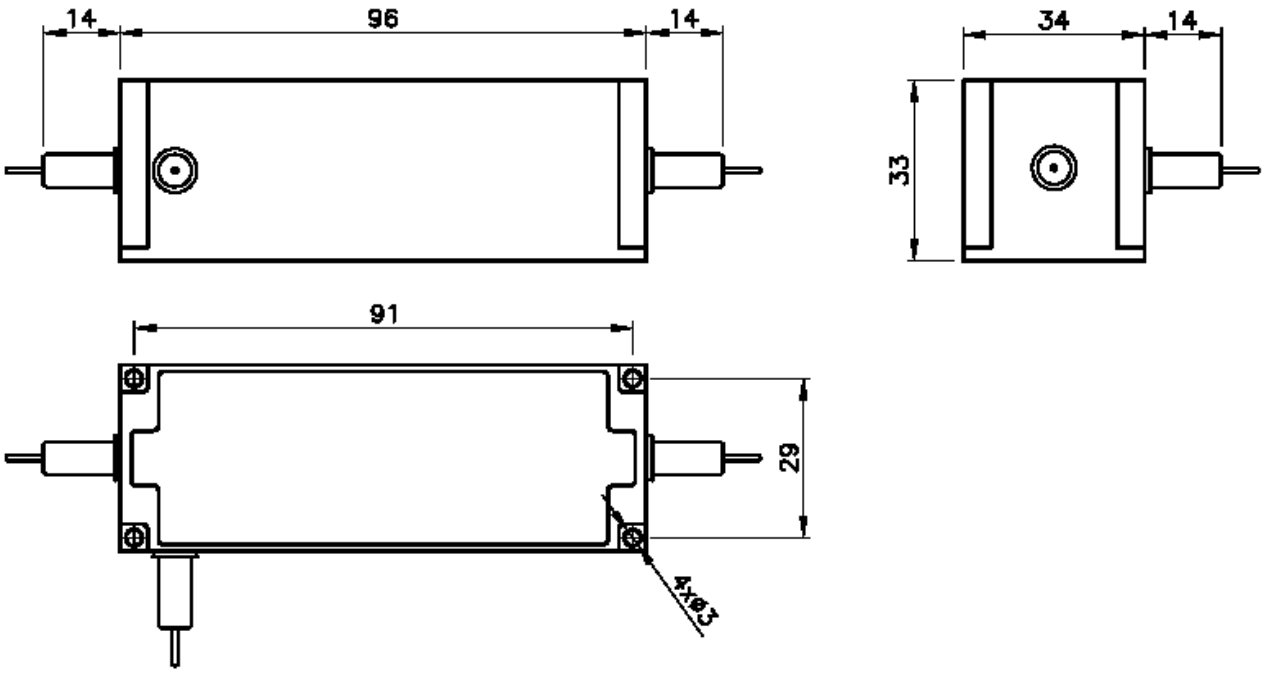
Mechanical Dimensions (mm)



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

Ordering Information

	☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Isolation**	**Center Wavelength**	**Power**	**PM ER**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
OCST-	Polarization Independent = 1 Polarization Dependent = 2 Polarizing = 3 Multimode = 4	20dB = 1 45dB = 2 65dB Lidar* = 3	460nm = 3 405nm = 4 532nm = 5 785nm = 7 633nm = 6 660nm = S Special = 0	0.2W = 1 1W = 2 5W = 5 10W = A Special = 0	Non = 1 20dB = 2 26dB = 3 30dB = 4	SM400 = A PM405 = B HI780 = 7 PM780 = C SM450 = D PM460 = E SM600 = F PM630 = G 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 ST/PC = 6 LC/PC = 7 LC/APC = A LC/UPC = U Special = 0

*This only works if the return signal is randomly polarized, while the input is PM laser.

Red is special order with NRE

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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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