High Polarization Extinction Fiber Isolator 1310/1550

PER~29, 50dB isolation

DATASHEET

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The OIHE Series Optical Isolator is a passive device that transmits light in the forward direction at 1310 or 1550 nm while minimizing back reflection and backscattering in the reverse direction for any state of polarization. Utilizing Agiltron's proven micro-optic design, it uniquely delivers ultra-high polarization extinction ratio (PER), low insertion loss, high isolation, compact size, and exceptional stability. These Telcordia-qualified components offer superior performance and reliability, making them ideal for use in optical fiber sensor systems. The OIHE Series is available in both single- and dual-stage isolation configurations.

Features

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

Specifications (λc, 23oC, no connector)

Parameter		Min	Typical	Max	Unit
Operation Wavelength	1310		1310 ± 15		nm
	C Band		1550 ± 15		
	L Band		1585 ± 15		
Insertion Loss	Single Stage		0.3	0.6	dB
	Dual Stage		0.5	0.8	
Isolation	Single Stage	30	35	41 [1]	dB
	Dual Stage	50	55	65 [1]	
Polarization Extinction Ratio (PER)		25	27	30	dB
Return Loss (Input/Output)		55	60		dB
Operating Temperature		-5		+70	°C
Storage Temperature		-40		+85	°C
Optical Power Handling			0.4	5	W

[1]. At the peak wavelength which the device performance is optimized

Applications

- Optical Fiber Amplifier
- Pump Laser Source
- Fiber Optic Sensor
- Instrumentation

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.**

Rev 10/17/25

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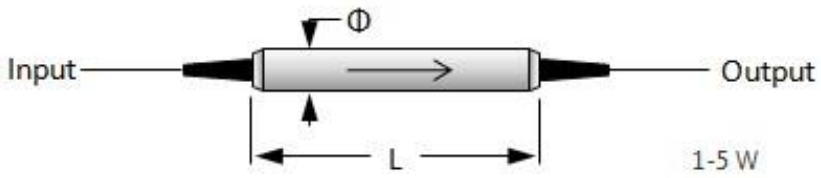
Mechanical Dimensions (mm)



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

Ordering Information

	☐☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Power**	**PER**	**Fiber Type**	**Fiber Cover**	**Fiber Length**	**Connector**
OIHE-	Single Stage = 11 Dual Stage = 22	1310 = 3 C Band = C L Band = L Special = 0	Standard = 1 1W = 2 5W = 5	25dB = 5 27dB = 7 29dB = 9	SMF-28 = 1 PM 1550 = 5 PM1310 = 3 Special = 0	Bare Fiber = 1 900μm Tube = 2	0.25m = 1 0.5m = 2 1.0m = 3 1.5m = 4 2.0m = 5 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 High Power FC/PC [1] = H High Power FC/APC [1] = C

[1]. The High Power Connector operates in matching pairs. When ordering a High Power Connector, a corresponding patch cable should also be ordered, featuring the same High Power Connector on one end and a bare fiber on the other end for splicing into the system.

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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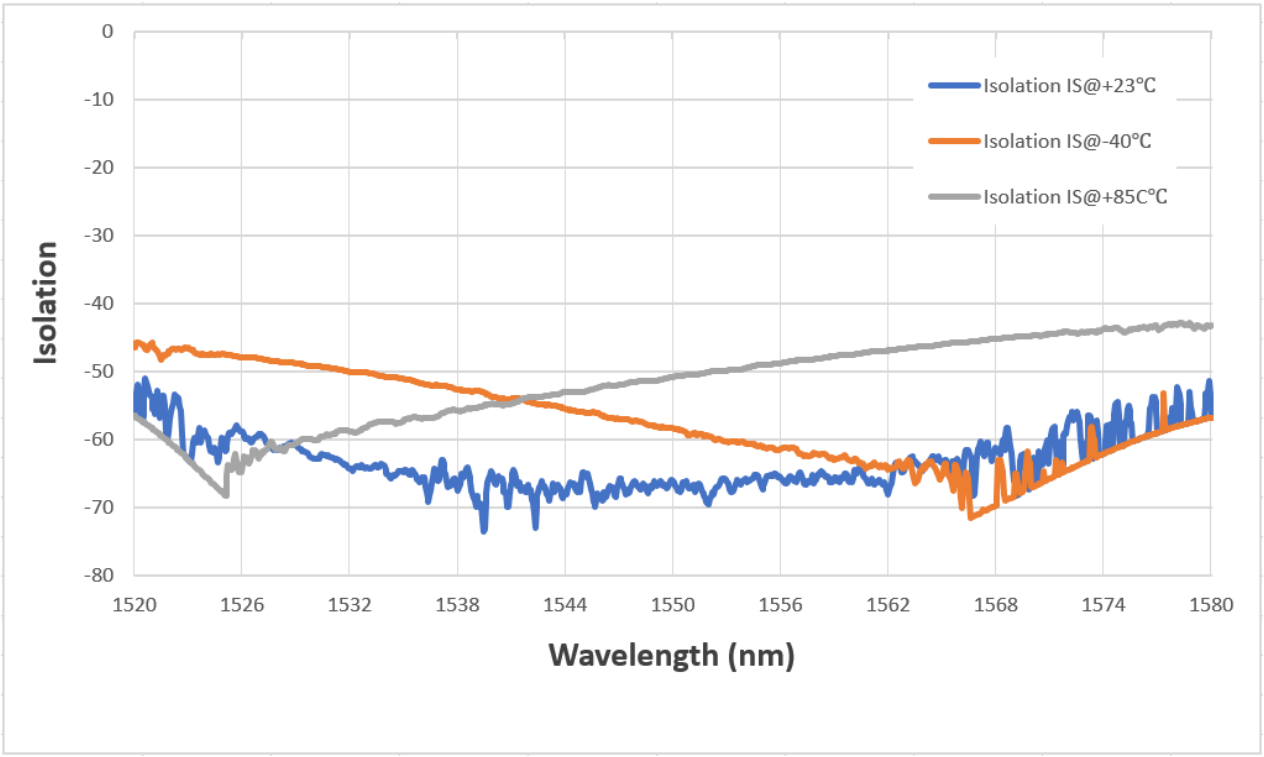
Isolation vs Wavelength



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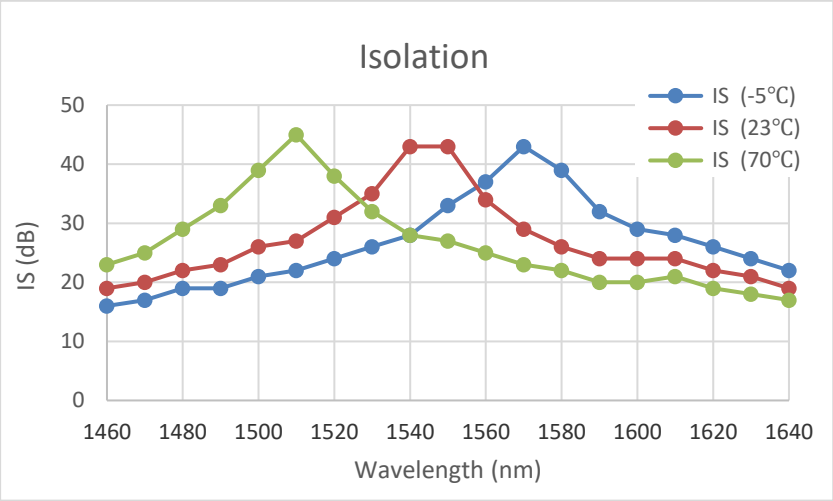
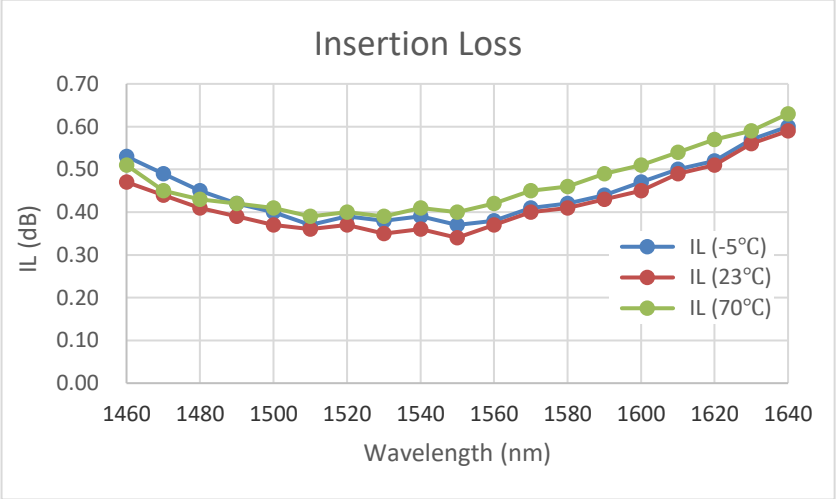
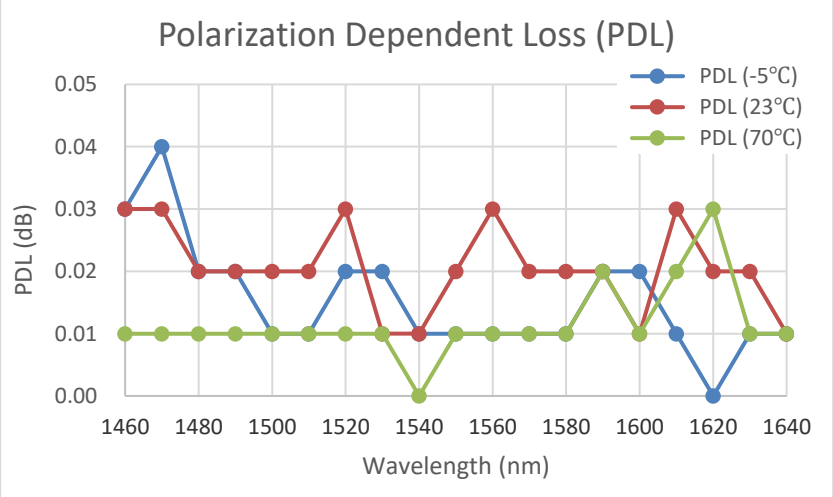
Typical Wavelength Dependence for Single Stage







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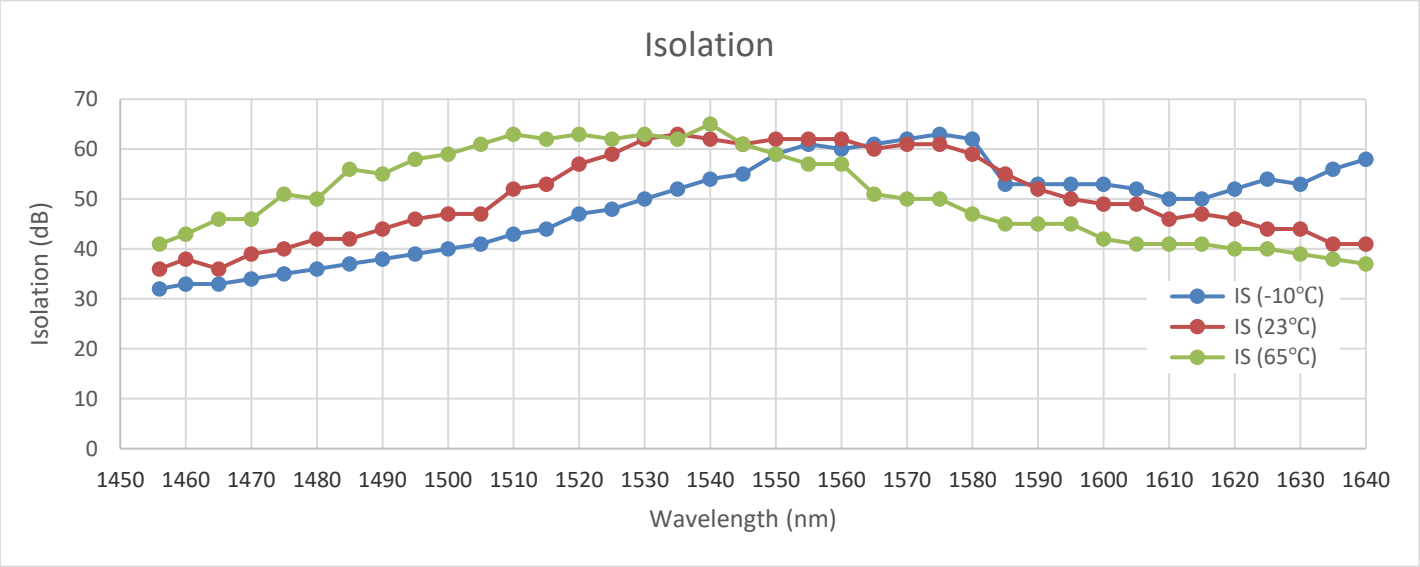
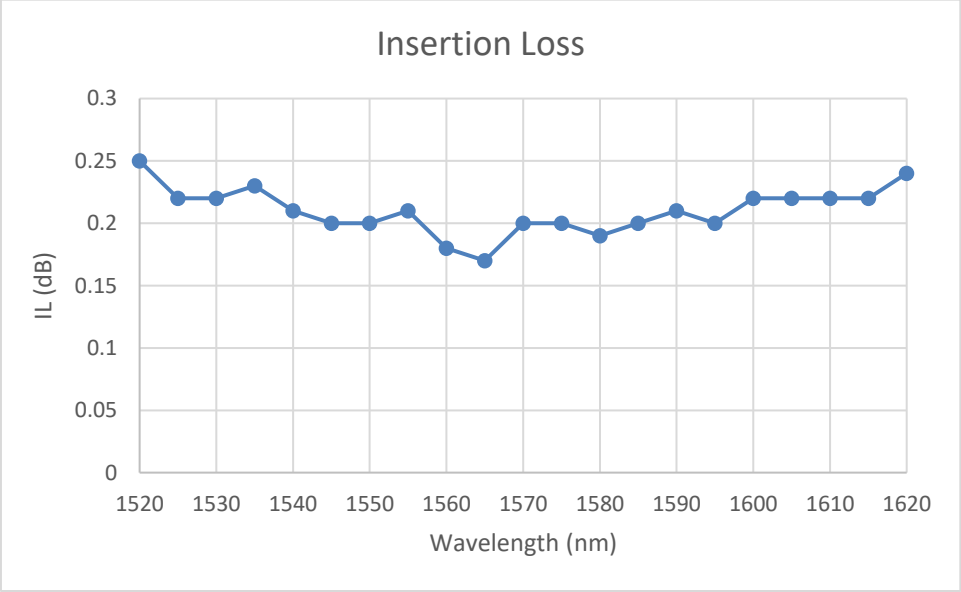
Typical Wavelength Dependence for Dual Stage





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