

1310/1550 High Power Dual Stage Optical Isolator

(patent pending)



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Features

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

Applications

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



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.

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Rev 03/06/26

The OIHP Series 1310/1550 high power dual stage optical isolator is designed for high power applications by guiding light at 1310/1550 nm in the normal direction while minimizing back reflection and back scattering in the reverse direction for any state of polarization. Employing Agiltron's proven advanced micro optics design, it features low insertion loss, high power handling, high isolation, compact structure, and high stability. These Telcordia qualified components have excellent characteristics, making them an ideal choice for application in fiber amplifier systems, pump laser diodes and optical fiber sensors.

Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength (λ_o)	1310	1310 $\pm$ 15		nm
	C Band	1528 ~ 1564		
	L Band	1570 ~ 1605		
Insertion Loss (Over λ_o , 0~70°C, SOP, no connector)		$\leq$ 0.7	$\leq$ 0.9	dB
Isolation (Over λ_o , 0~70°C, SOP) ^[1]	$\geq$ 35	$\geq$ 42 ^[3]		dB
Peak Isolation (Over λ_o , 23°C, SOP)	$\geq$ 42	$\geq$ 52 ^[3]		dB
Polarization Dependant Loss		$\leq$ 0.15		dB
Polarization Mode Dispersion		$\leq$ 0.05		ps
Return Loss (Input/Output)	55 / 50			dB
Operating Temperature	0		+70	°C
Storage Temperature	-40		+85	°C
Optical Power Handling		5 or 10 ^{[2], [4]}		W
Backwards Power Handling ^[1]		10	100	%

Notes:

[1]. Regular Back Reflect 10% of forward power, over 10% requires special order.

[2]. It is strongly recommend to put a fan aside for heat dissipation

[3]. At central wavelength

[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.

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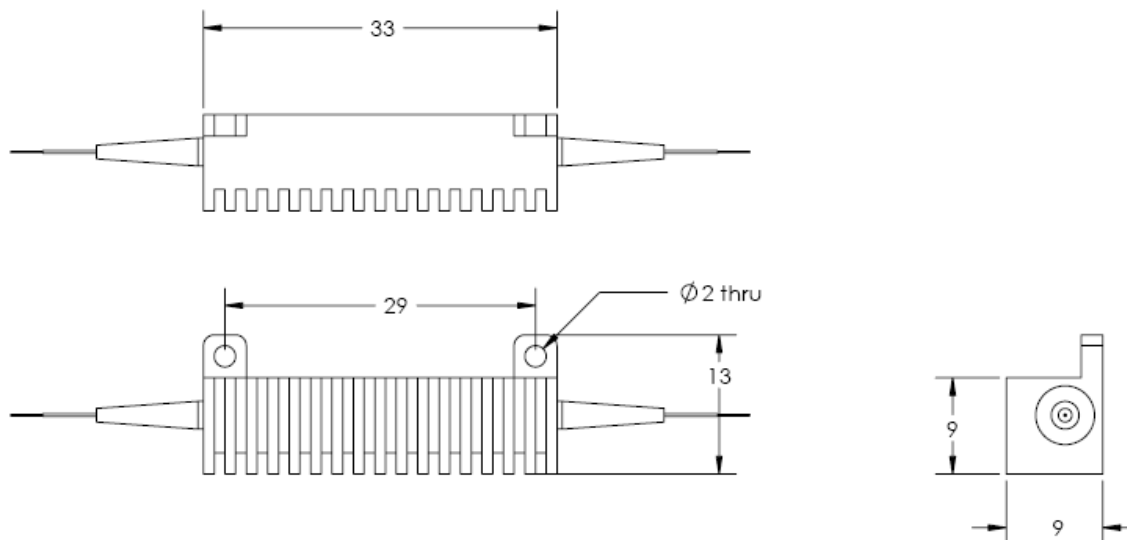
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Mechanical Dimensions (mm)



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

Ordering Information (Part Number)

Prefix	Type	Wavelength	Grade	Package	Fiber Type	Fiber Cover	Fiber Length	Connector ^[1]
OIHP-	Dual stage = 20	1310 = 3 1550 = 5 C Band = C L Band = L Special = 0	2W = 2 5 W = 5 10 W = 6 Special = 0	3	SMF-28 = 1 PM 1550 = 5 Special = 0	Bare Fiber = 1 250µm Loose Tube = 2 900µm Loose Tube = 3 Special = 0	0.25m = 1 0.5m = 2 1.0m = 3 1.5 m = 5 Special = 0	1*

• Agiltron provide high power connector, please call.

[1]. The default connector configuration uses fiber with 0.9 mm buffer protection. The connector cannot be installed directly onto bare fiber because the bare fiber is prone to damage during shipping. However, the connector can be assembled on bare fiber if a 3 cm protective loose tube is added for reinforcement. The customer may remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SMF-28 fiber and decreases further for smaller-core fibers.

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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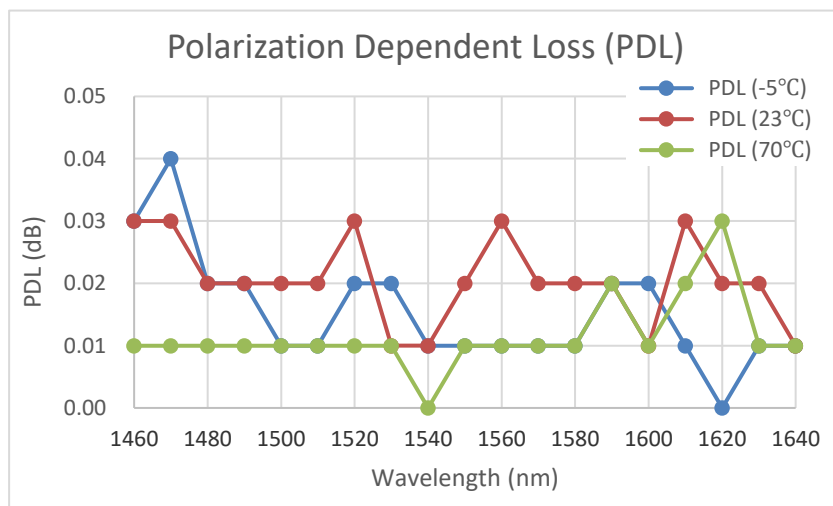
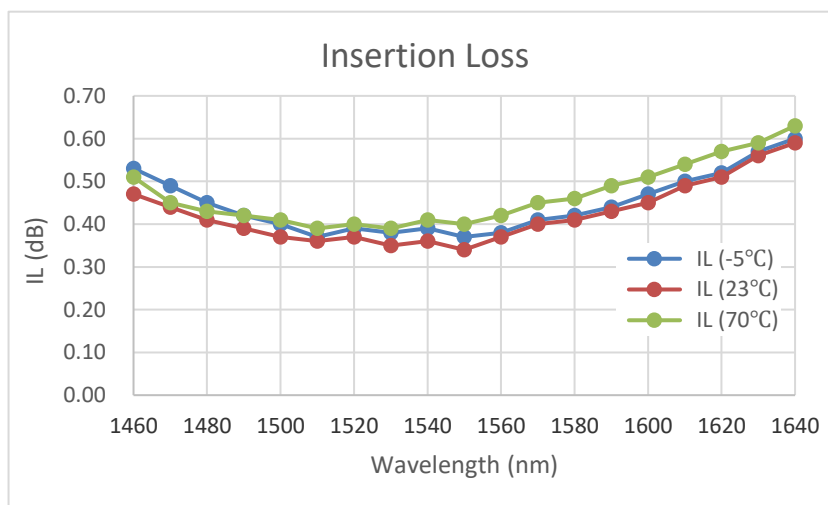
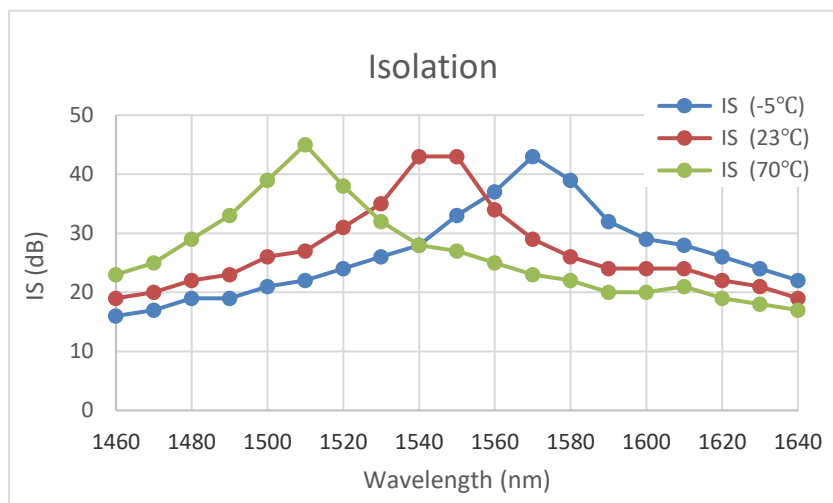
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Typical Wavelength Dependence for Single Stage



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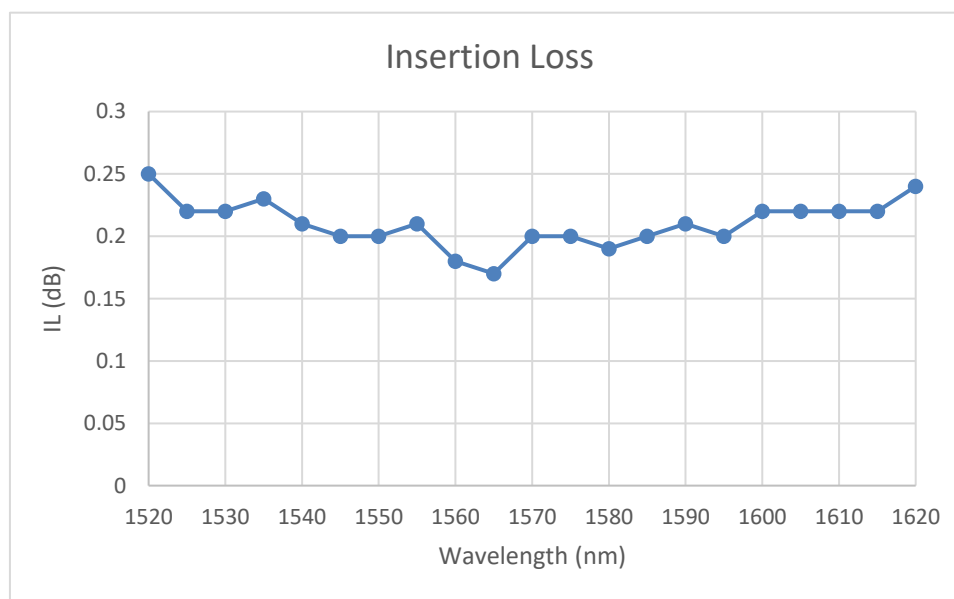
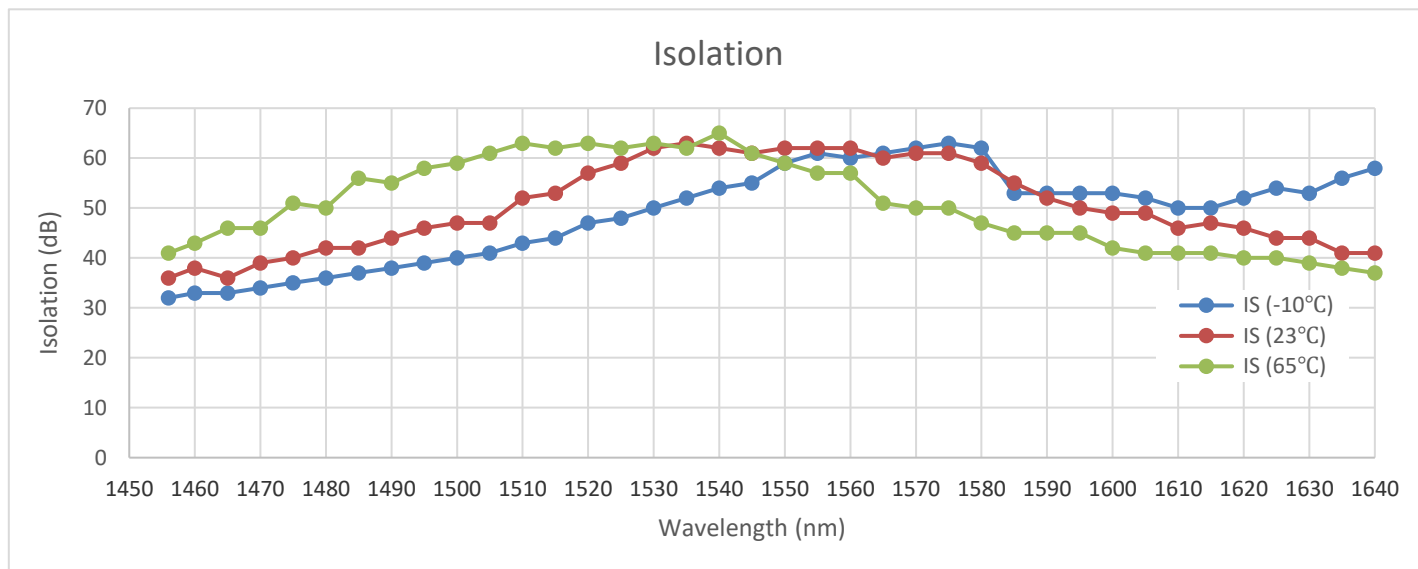
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