

# 1310/1550 Single Stage Polarization Maintaining Optical Isolator



(patent pending)

DATASHEET

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1310/1550 polarization maintaining single stage optical isolator is a passive device that maintaining polarization while guiding light at 1310/1550 nm in the normal direction, and 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, extremely high isolation, high extinction ratio, compact package and high stability. These Telcordia qualified components have excellent characteristics, making them an ideal choice for application in fiber amplifier systems, optical fiber sensors and instrumentation.

## Features

- Low Insertion Loss
- High Extinction Ratio
- High Isolation
- Compact Package
- High Reliability & Stability
- Cost Effective

## Specifications

Parameter	Min	Typical	Max	Unit
Operation Wavelength ( $\lambda_o$ )	1310	1310 $\pm$ 15		nm
	S Band	1465 ~ 1495		
	C Band	1535 ~ 1565		
	L Band	1570 ~ 1605		
Insertion Loss (Over $\lambda_o$ , 0~70°C, no connector)		$\leq$ 0.5	$\leq$ 0.65	dB
Extinction Ratio (Over $\lambda_o$ , 0~70°C, no connector)	$\geq$ 20			dB
Extinction Ratio ( $\lambda_c$ , 23°C, no connector)		$\geq$ 25		dB
Channel Isolation (Over $\lambda_o$ , 0~70°C)	$\geq$ 32			dB
Channel Isolation ( $\lambda_c$ , 23°C)		$\geq$ 42		dB
Return Loss (Input/Output, no connector)	$\geq$ 50			dB
Polarization Alignment		Slow Axis		
Operating Temperature	0		+70	°C
Storage Temperature	-40		+85	°C
Optical Power Handling		$\leq$ 500		mW

## Applications

- Optical Fiber Amplifier
- Metropolitan Area Network
- 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.

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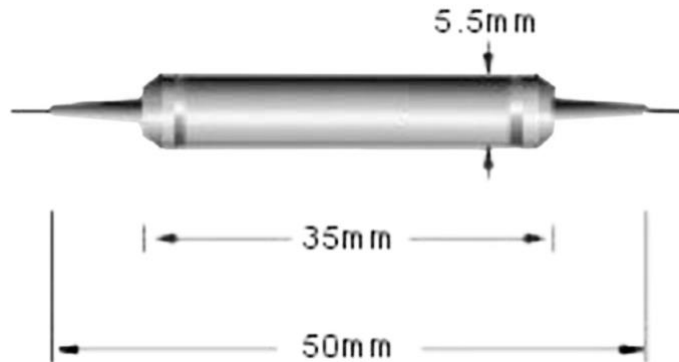
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### Mechanical Dimensions (mm)



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

### Ordering Information

Prefix	Type	Wavelength	Grade	Package	Fiber Type	Fiber Cover	Fiber Length	Connector
OIPM-	Polarization maintaining single stage = 10	1310 = 3 C Band = C L Band = L S Band = S Special = 0	Standard = 1 Special = 0	ø5.5x35 = 1 Special = 0	PM1550 = B Special = 0	Bare Fiber = 1 900µm Loose Tube = 3 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

### 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 handling by expanding the core side at the fiber ends.

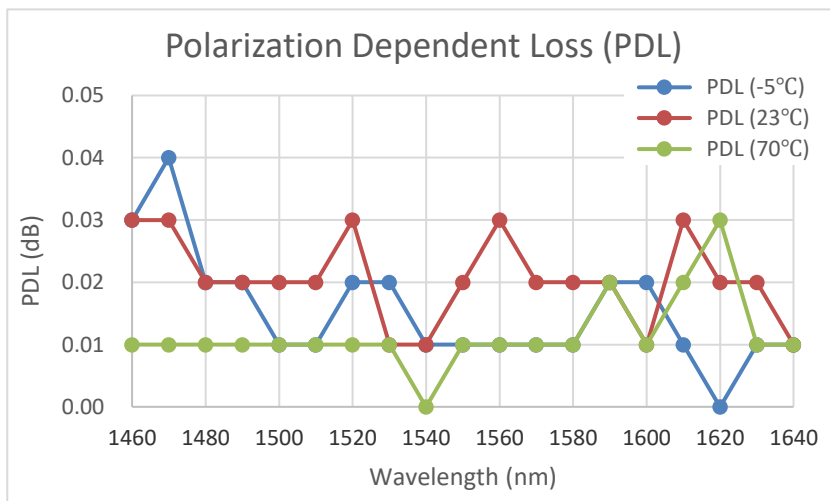
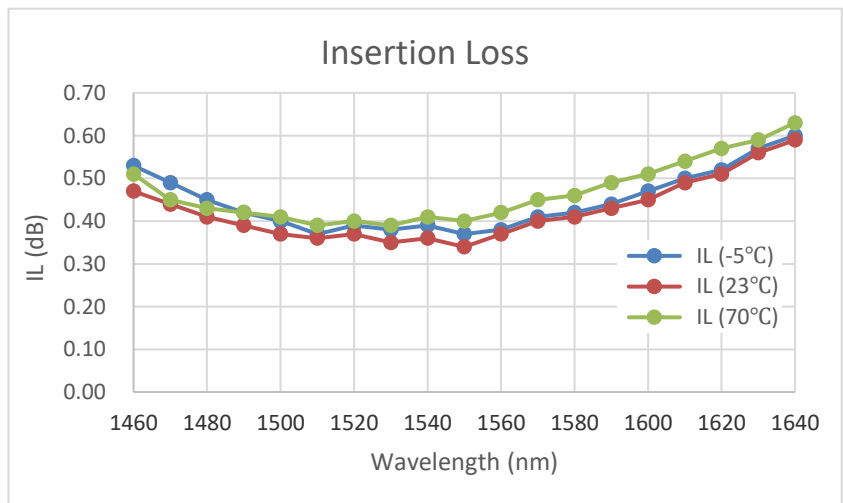
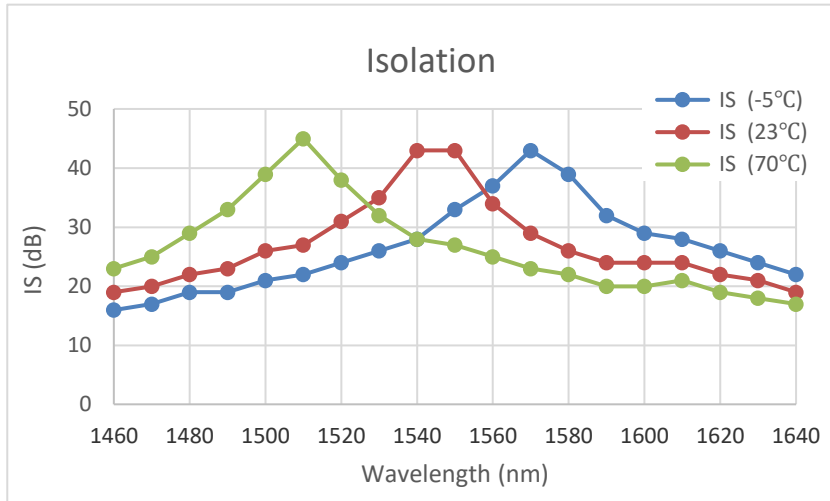
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### Typical Wavelength Dependence for Single Stage



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### Typical Wavelength Dependence for Dual Stage

