

# 1310/1550 Multimode Single Stage Optical Isolator



(patent pending)

DATASHEET

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## Features

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

## Applications

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

The OIMM Series 1310/1550 single stage optical Isolator is a passive device that guides 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, extremely 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 ( $\lambda_0$ )	1310	1310 $\pm$ 15		nm		
	C+L Band	1535 ~ 1620				
Mode Category	1-3	4-5	1-3	4-5	1-3	4-5
Typical Insertion Loss ( $\lambda_c$ , 23°C, no connector) <sup>[1]</sup>		$\leq$ 0.5	$\leq$ 0.4			dB
Insertion Loss (Over $\lambda_0$ , 23°C, no connector) <sup>[1]</sup>				$\leq$ 0.8	$\leq$ 0.7	dB
Isolation (Over $\lambda_0$ , 23°C) <sup>[1]</sup>	$\geq$ 20	$\geq$ 22				dB
Typical Peak Isolation ( $\lambda_c$ , 23°C) <sup>[1]</sup>		$\geq$ 25	$\geq$ 27			dB
Return Loss (Input/Output) <sup>[1]</sup>	$\geq$ 37	$\geq$ 40				dB
Operating Temperature	-5				+70	°C
Storage Temperature	-40				+85	°C
Optical Power Handling			$\leq$ 400			mW
Fiber type		62.5 / 125 / 250				

### Notes:

[1]. Our device is designed and optimized for certain laser launch condition which is characterized as CPR value. In general, if application exceeds the specified CPR value, optical performance will become worsen.

**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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### 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 <sup>[1][3]</sup>
OIMM-	Single stage = 10	1310 = 3 C Band = C L Band = L Special = 0	Cat1 = 1 Cat2 = 2 Cat3 = 3 Cat4 = 4 Cat5 = 5 Special = 0	∅5.5x30 = 1 Special = 0	62.5/125/250 = 1 F <sup>[2]</sup> = F 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

**Note:**

[1]. Regular fiber connector has PER ~22dB. Connector with PER >27 dB is available using special process

[2]. F fiber has core diameter 25 micron and NA0.09

[3]. **The connector cannot be installed directly onto bare fiber, as it 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 can remove this protective tube after testing. The optical power handling of a standard connector is less than 0.5 W for SM28 fiber and decreases further with 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.

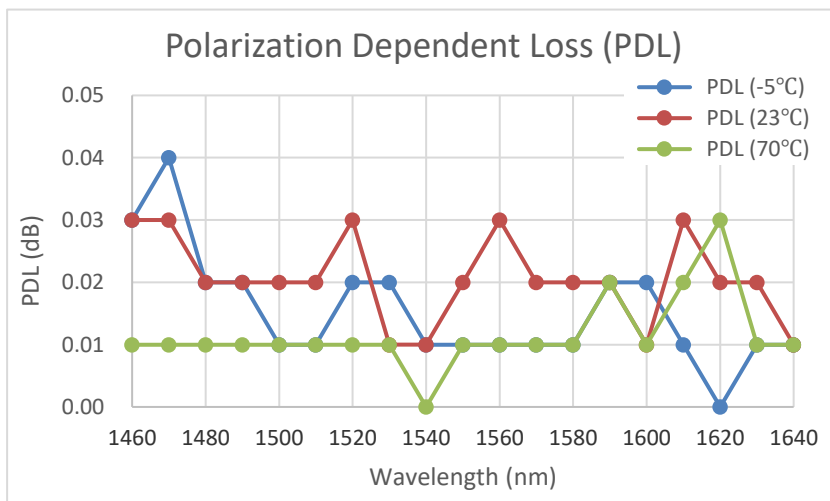
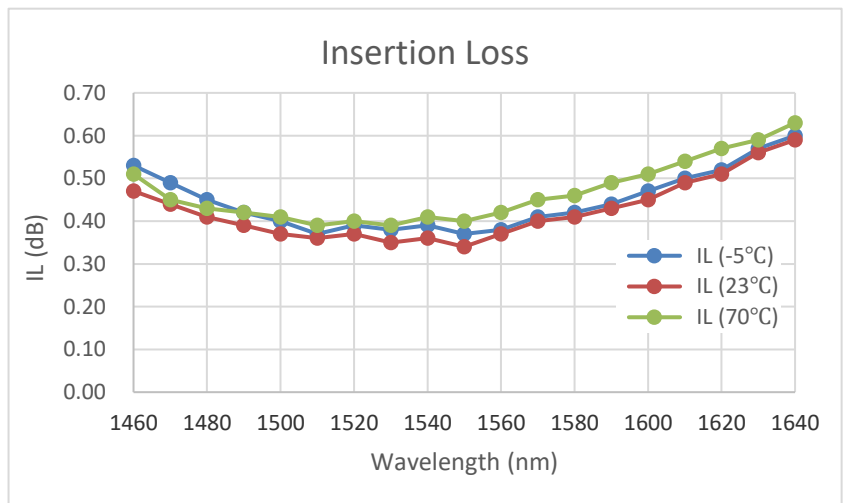
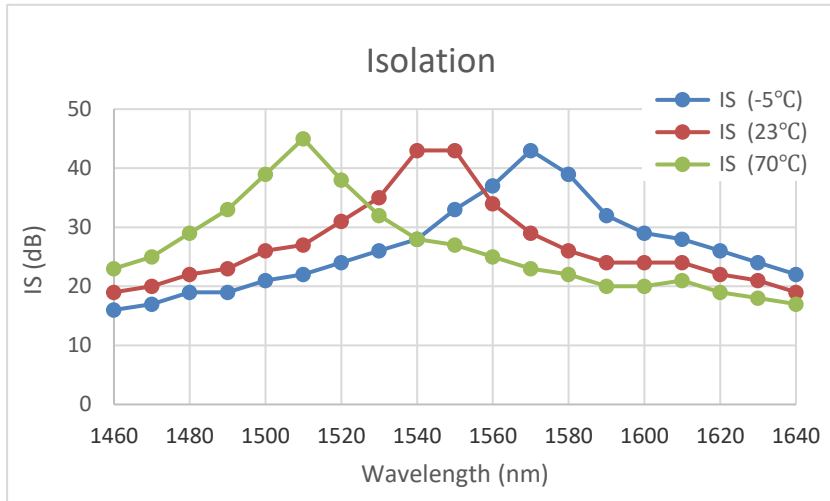
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### Typical Wavelength Dependence for Single Stage



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### Typical Wavelength Dependence for Dual Stage

