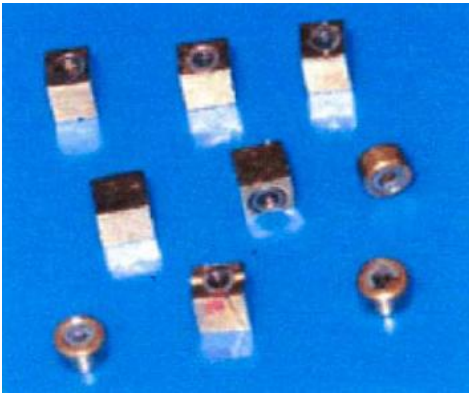


# Free Space 1310nm/1550nm Dual-Stage Optical Isolator



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## Features

- Low Insertion Loss
- High Isolation
- Compact Size
- High Reliability
- Versatile Package

## Applications

- Optical Transmitter
- Laser Diode
- Instrumentation

The FSOI Series Free Space 1310nm/1550nm optical Isolator is a passive device that guides lights at 1310/1550 nm in the normal direction while minimizing back reflection and back scattering in the reverse direction.

With Agiltron's proprietary magnetic-optics technology and proven advanced Micro optics design, it features low insertion loss, high isolation, compact structure, high power handling, and high stability. Agiltron also provides customized designs to meet special applications.

## Specifications

Parameter	Min	Typical	Max	Unit
Central Wavelength ( $\lambda_c$ )		1310, 1550		nm
Insertion Loss ( $\lambda_c, \pm 20\text{nm}, 23^\circ\text{C}$ ) <sup>[1]</sup>	P Grade	$\leq 0.3$		dB
	A Grade	$\leq 0.5$		
Minimum Peak Isolation ( $\lambda_c, 23^\circ\text{C}$ )	P Grade	$\geq 55$		dB
	A Grade	$\geq 50$		
Clear Aperture		$\varnothing 0.9$		mm
Operating Temperature	-5		+65	$^\circ\text{C}$
Storage Temperature	-40		+85	$^\circ\text{C}$
Optical Power Handling		$\leq 50$		$\text{W}/\text{cm}^2$

\* Other wavelength is available per customer's request

**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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### 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 Type (unit: mm)	Fiber Type	Fiber Length	Connector <sup>[1]</sup>
F50I-	Dual stage = 20	1310 = 3 1550 = 5 Special = 0	Premium = P Grade A = A Special = 0	2.5x1.4x1.8 = 1 2.5x2.5x1.9 = 2 2.5x2.5x2.0 = 3 2.5x2.5x2.6 = 4 2.5x2.5x3.0 = 5 Ø2.5x3.0 = 6 Ø2.99x3.0 = 7 Ø2.5x2.0 = 8 Ø2.5x1.8 = 9 Ø2.5x2.6 = A Ø2.5x3.0 = B Special = 0	Free space = 00	Free space = 0	Free space = 0

### Application Notes

**[1]. 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.**

#### 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

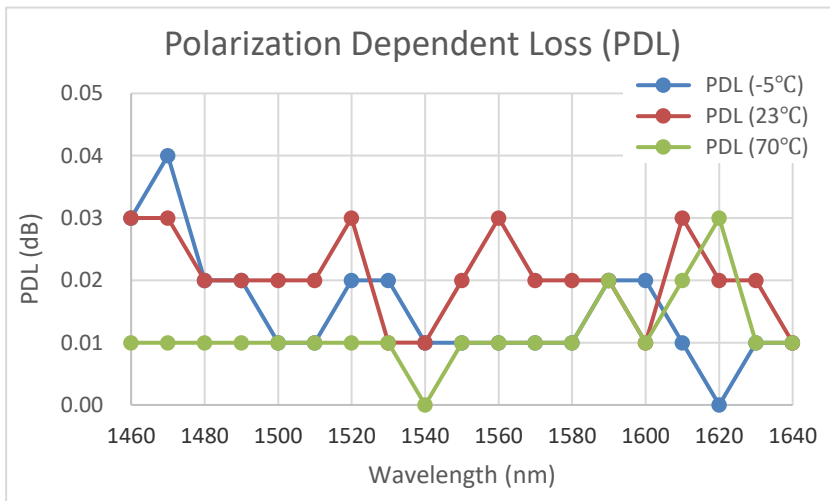
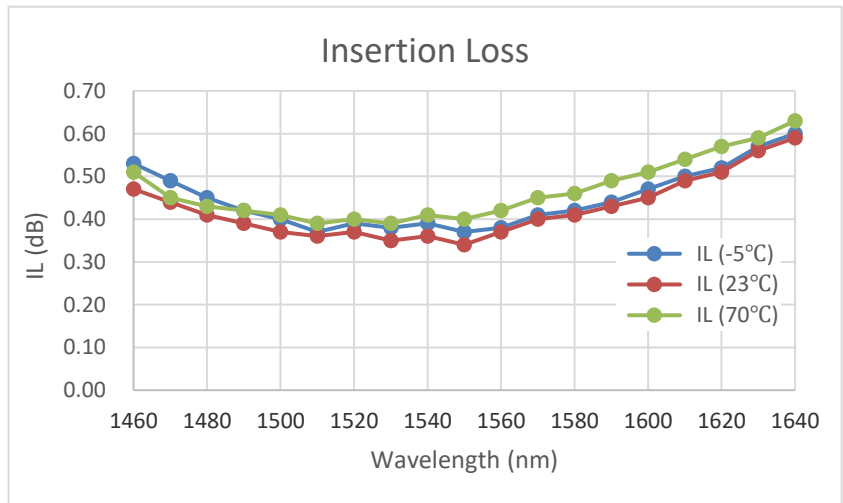
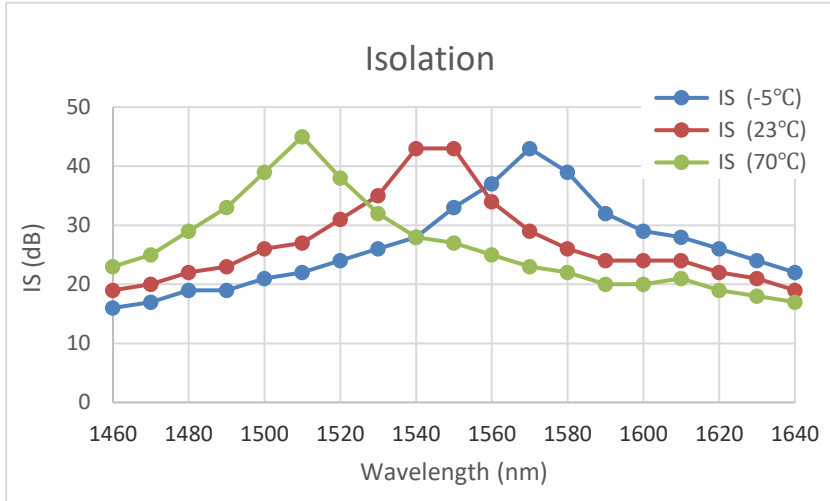
Due to their small fiber core diameters for short wavelength and high photon energies, the damage thresholds for device is substantially reduced than the common 1550nm fiber. To avoid damage to the exposed fiber end faces and internal components, the optical input power should never exceed 20 mW for 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

