

# Fiber Optical Isolator 400-780nm

(up to 5W CW)



DATASHEET

BUY NOW



The OIUW Series fiber optical isolator is a passive device that guides lights in the forward direction while blocking light propagating in the reverse direction. The isolator uses special Faraday material to cover these shortwave bands. Our proprietary magnetic-optics technology and proven advanced micro-optics design perfected over 25 years features low insertion loss, high isolation, compact structure, high power handling, and high stability. The available configurations include polarization independence, polarization maintenance, multimode, 5W CW optical power handling, dual-stage high isolation, and integrated output power monitoring tap. The excellent characteristics of this product make it an ideal choice for applications where a high-performance isolator is needed. We also provide customized designs to meet special applications.

## Features

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

## Applications

- Laser
- Fiber Optic Sensor
- Test and Measurement
- Instrumentation

## Specifications

Parameter	Min	Typical	Max	Unit	
Center Wavelength	400		800	nm	
Operating Wavelength Bandwidth		± 40		nm	
Insertion Loss <sup>[1]</sup>		1	3.5	dB	
Wavelength Dependent Loss			0.2	dB	
Isolation	Single Stage	22	27	30	dB
	Dual Stage	45	50	60	dB
Polarization Dependent Loss (SM)		0.1	0.2	dB	
Polarization Extinction Ratio (PM) <sup>[2]</sup>	18		32	dB	
Polarization Mode Dispersion			0.2	ps	
Return Loss	50			dB	
Optical Power Handling <sup>[3]</sup>		50		mW	
Operating Temperature	-20	30	55	°C	
Storage Temperature	-10		60	°C	
Fiber Type	See order information				

### Notes:

[1]. Excluding connectors. The loss is related to fiber core size, the smaller the high loss.

[2]. High extinction ratio require special order

[3]. The power handling is related to fiber core size. Smaller core has low optical power threshold.

**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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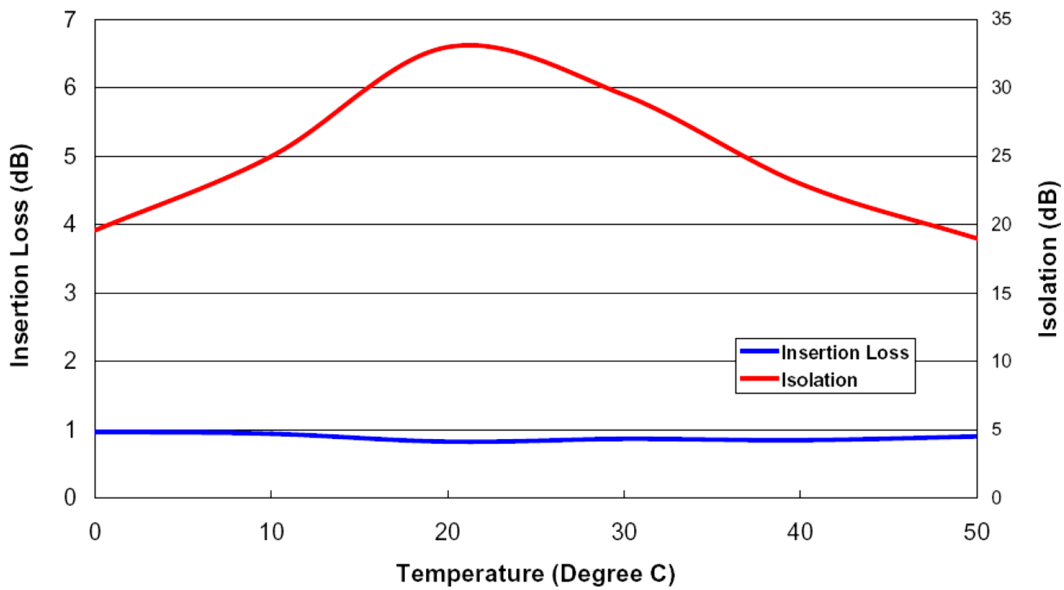
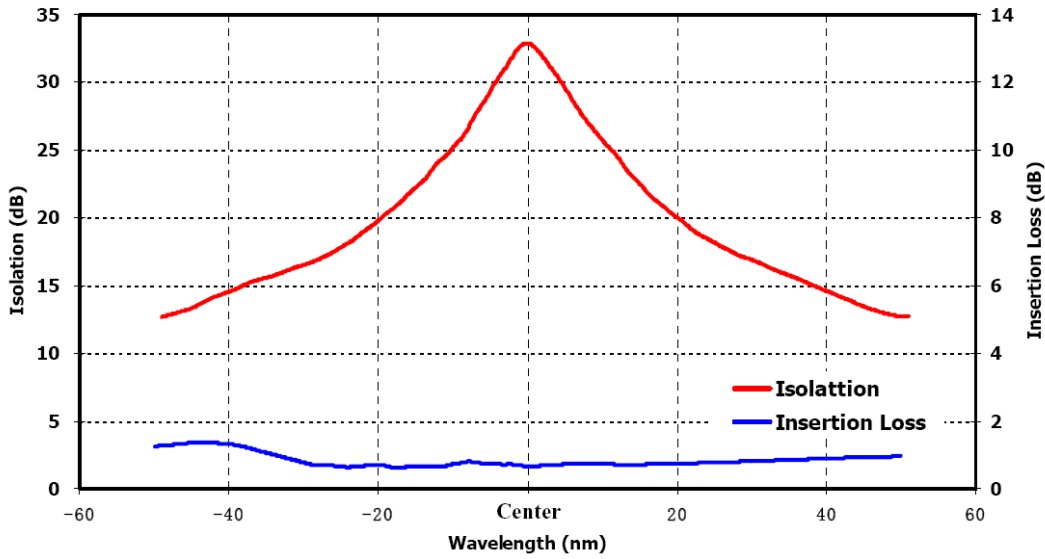
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### Typical Single Stage Isolator Wavelength Dependence



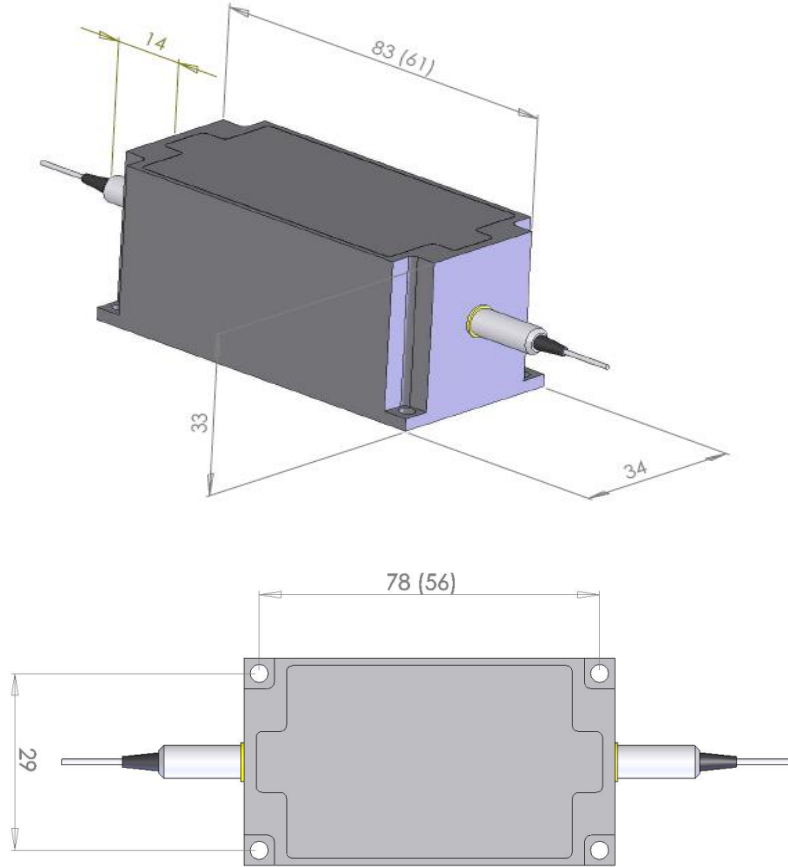
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Mechanical Dimensions: Standard (Mini/850) Unit: mm



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

### Ordering Information

Prefix	Configuration	Tap	Wavelength	Power	Stage	Fiber Type	Fiber Cover	Fiber Length	Connector
OIUW-	Polarization Independent = 1 Polarization Maintaining = 2	Non = 1 Yes = 2 Special = 0	400 = 1 450 = 2 460 = B 500 = 3 550 = 4 600 = 5 633 = C 650 = 6 700 = 7 750 = 8 780 = D 800 = 9 Special = 0	0.3W = 1 1W = 3 2W = 2	Single = 1 Dual = 2	SM400 = 1 SM450 = 2 SM600 = 3 Hi780 = 4 PM405 = A PM460 = B PM630 = C PM780 = D MM50/125 = 5 Special = 0	0.9mm tube = 3 Bare fiber = 1 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

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## Application Notes

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### 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  $\mu\text{m}$ ) 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.