Ultra-Broadband Shortwave Fiber Optical Isolators

for SLDs, 650-1060nm, >160nm bandwidth, low spectral ripples

DATASHEET

BUY NOW

The OIST series of broadband optical isolators is specially designed with a proprietary configuration for use with superluminescent diodes, featuring a broad wavelength range up to 160nm with flat >25dB isolation, and extremely low spectral ripples by minimizing PMD and internal reflections. They also offer low insertion loss, high isolation, a compact structure, and high stability. Available in four wavelength bands centered at 650nm, 850nm, 950nm, and 1060nm, these isolators can optionally include a built-in output tap monitor. They can handle high optical power up to 10W and offer ultra-high polarization extinction of 30dB for polarization maintaining types. These unique performance attributes make the OIST isolator an ideal choice for broadband SLD sources widely used in OCT and other optical fiber sensing systems. Agiltron operates a volume isolator production facility capable of creating custom-specific performance with specially-designed testing tools and providing customized designs to meet special applications or cost requirements. Wavelengths and ranges not listed can be specially ordered.

Features

- Flat Isolation Over 160nm
- Low PMD
- Designed for Use with SLDs
- OEM and Custom Build Available
- High Reliability
- Integrated Tap
- Polarization Dependent

Applications

- OCT
- Sensor
- Lab Use
- Instruments

Specifications

Parameter		Min	Typical	Max	Unit
Center Wavelength		650		1060	nm
Wavelength bandwidth		160	170	180	nm
Isolation		20	25	30	dB
Polarization Dependent Loss				0.25	dB
Insertion Loss [1]	650nm			2.2	dB
	840nm			1.5	
	950nm			1.3	
	1030nm			1.3	
Polarization Mode Dispersion (SM)				0.05	ps
Polarization Extinction Ratio (PM)		18		30	dB
Optical Power Handling [2]			0.2	10	W
Return Loss [3]		50		55	dB
Operating Temperature		0		65	°C
Storage Temperature		-40		85	°C

Notes:

[1]. Exclude the connector in SMF version.

[2]. Defined at 850nm & SMF version.

[3]. RL <=35dB for MMF version.

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.

Note: The specifications provided are for general applications with a cost-effective approach. If you need to narrow or expand the tolerance, coverage, limit, or qualifications, please [click this link]:

Rev 07/19/24

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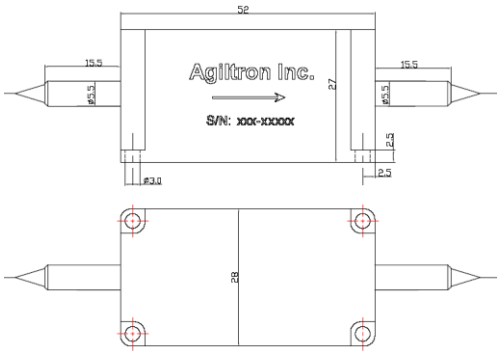
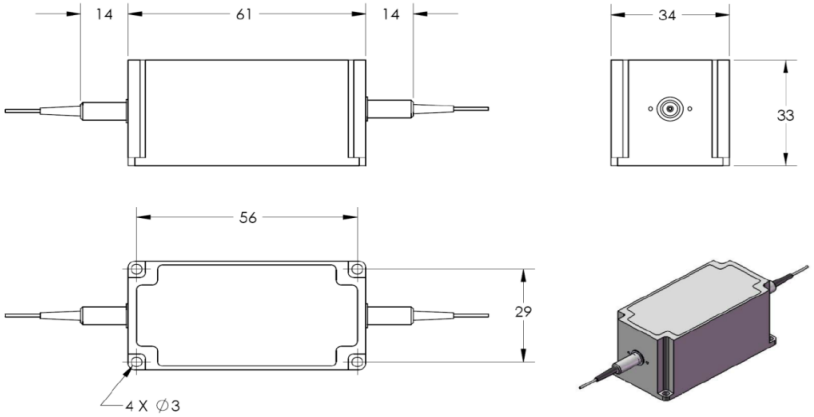
Mechanical Dimensions (mm)



For Wavelength < 900nm



For Wavelength > 900nm

For Normal Power Isolator (< 0.5W @ 850nm; <=2W @1060nm)

TBD

For High Power Isolator (>=1W @850nm; >2W @1060nm)

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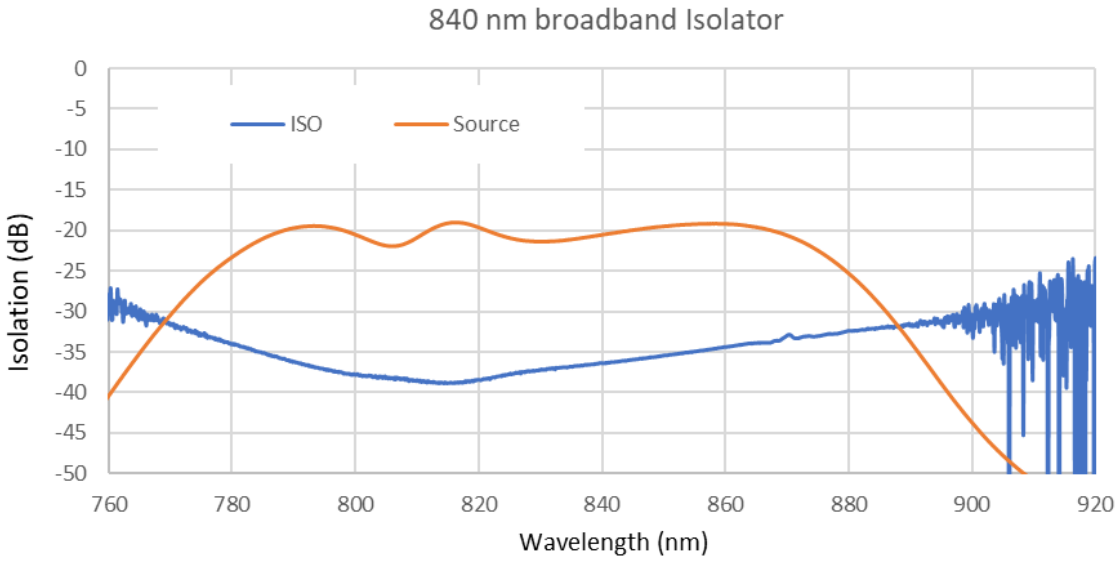
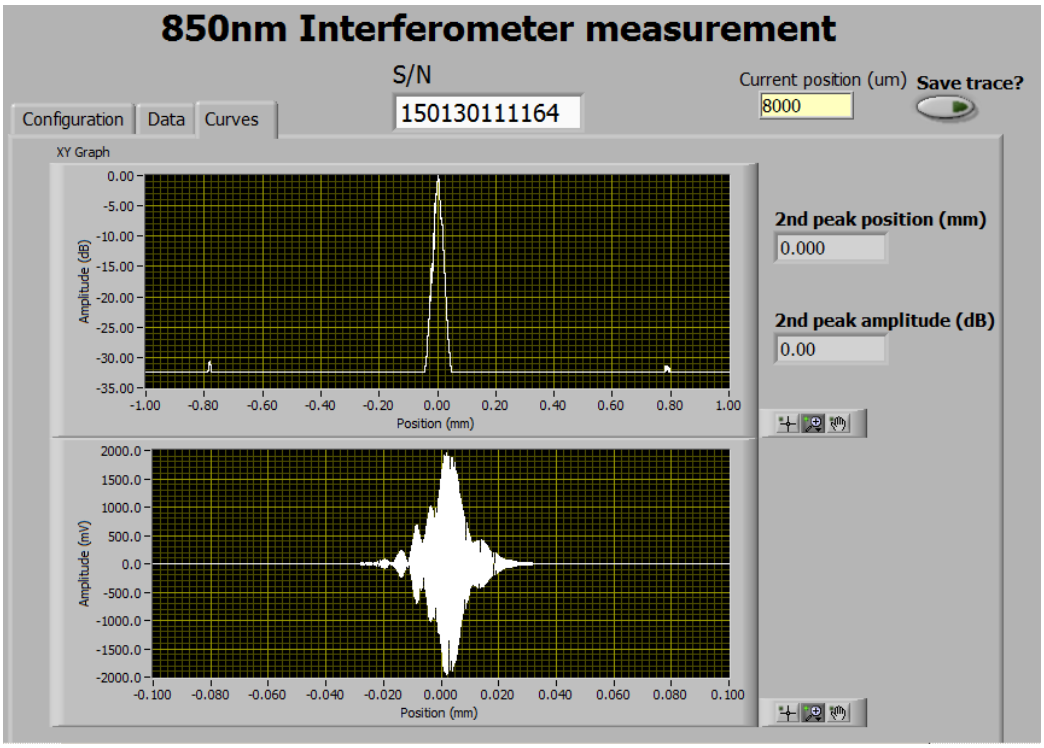
Optical Performance (Typical single stage isolator @ 840nm)



Coherent Peak Measurement in Optical Interferometer



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Ordering Information

	☐☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Prefix	**Type**	**Wavelength**	**Grade**	**Package**	**Forward Power**	**Backward Power**	**Fiber Type**	**Fiber Cover**	**Connector[1]**	**PER**
OIST-	SM [1] = B1 PM [2] = B2	840nm = 8 1030nm = 3 1060nm = 1 980nm = 9 780nm = 7 650nm = 6 Special = 0	Regular = 1 Low Ripples = 2 Special = 0	Regular = 1 With Tap =2 Special = 0	0.2W = S 0.5W = N 1W = 1 2W = 2 5W = 5 10W = A 20W = B 30W = C Special = 0	0.2W = 1 0.5W = 2 1W = 3 5W = 5 10W = A 20W = B	HI1060 = 2 HI980 = 9 HI780 = 7 PM980 = C MM50/125 = 5 Special = 0	Bare Fiber = 1 0.9mm Tube = 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	Non = 1 18 = 2 25 = 3 29 = 4 30 = 5

[1]. SM Fiber Type

[2]. PM Fiber Type

[3]. High power connector is available in special, and should be ordered in pair separately

Note: Red color for special order

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.