1064nm Large Aperture Free-Space Optical Isolator

Product Description

The MP-ISO-S-1064-F-S-12-S free-space isolator is available in two types: polarization-dependent and polarization-independent. The polarization-dependent isolator, also known as the Faraday isolator, is composed of three parts: a polarizer, a Faraday rotator, and an analyzer (with its polarization axis at 45 ° to the polarizer's axis). The polarization-independent isolator typically consists of a birefringent crystal

(or polarizer), a Faraday rotator, and a half-wave plate. It is commonly used in fiber lasers and effectively maintains the stability of optical systems. The isolator uses high-quality magneto-optic crystals, offering characteristics such as low absorption, high extinction ratio, and low loss. It delivers outstanding and reliable performance, with a maximum peak isolation of 45 dB, an aperture of up to 45 mm, and a typical transmission of up to 95%. Customizations are available upon requests.

Product features

Large aperture; high isolation; high power tolerance; low insertion loss; wide temperature stability

Part Number

MP-ISO-S-1064-F-S-12-S

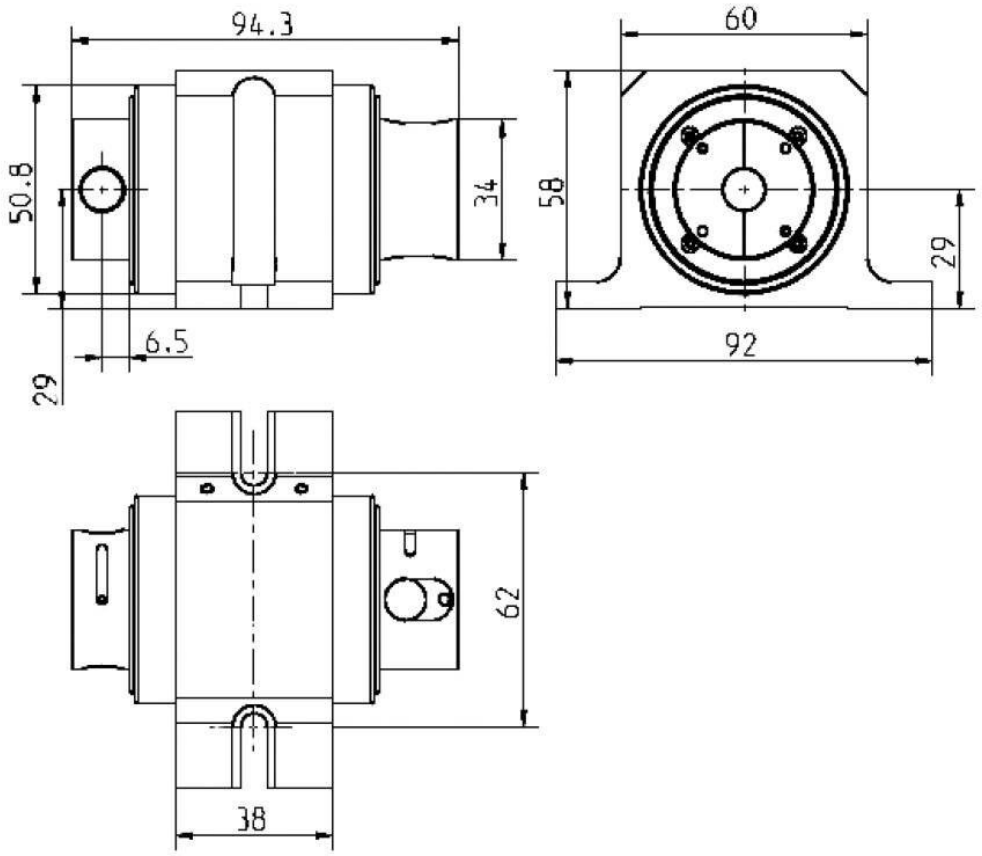
Application area

Laser Precision Processing、 Laser Sensing Systems、 Ultrafast Laser Systems、 OCTSystems、 Laser Detection

Core parameters

Wavelength	Peak Isolation	Optical Power	Clear Aperture
1064nm	>30dB	100W	12mm

Dimension Drawing



General Parameters

Model Parameters

1. Specifications	
Wavelength	1064nm±10nm
Peak Isolation@23℃	>30dB
Transmission	>93%
Optical Power(Average)	100W
Clear Aperture	12mm
Damage Threshold	10J/cm2 @1064nm, 10ns, 10Hz
Input Polarization	Horizontal
Output Polarization	Horizontal
Operating Temperature	10-30℃
Storage Temperature	-10-60℃

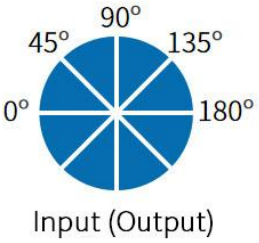
Reliability Test

Test Item	Condition	Frequency	Sampling
High-low temperature cycle test	Temperature -20℃~ 70℃, total time ⩾24 hours	1 / batch	/

Polarization State Reference:

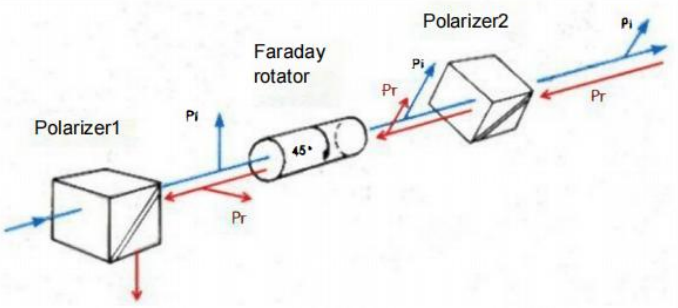
- **All models of free-space isolators will non-reciprocally rotate the polarization state by 45° along the polarization plane.**

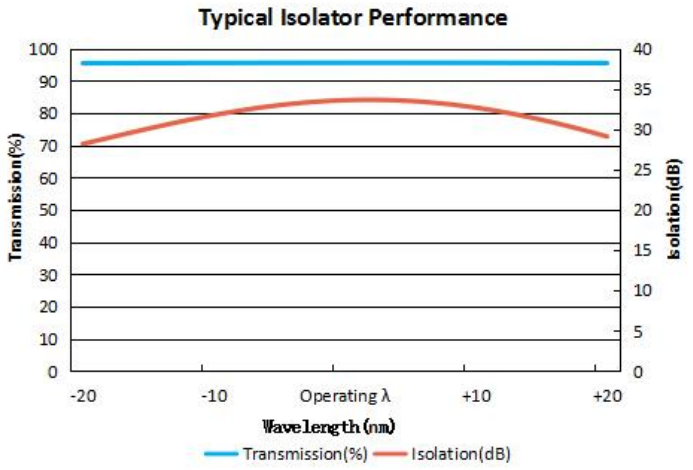
- **Additional 1/2 waveplates can be provided upon request to alter the output polarization state.**

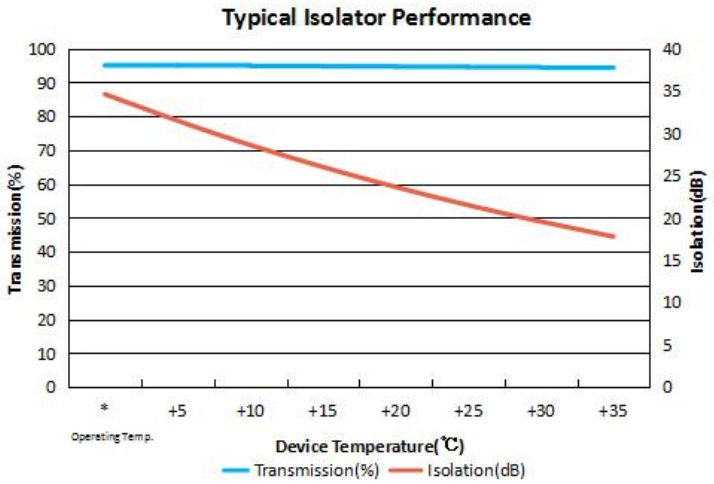


Polarization-Dependent Isolator Beam Selection:

- **Forward Transmission Polarization State Beam (Pi)**
- **Reverse Transmission Polarization State Beam(Pr)**




Typical Isolator Performance
Transmission(%)
Isolation(dB)
100
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-20
-10
Operating λ
+10
+20
Wavelength (nm)
Transmission(%)
Isolation(dB)


Typical Isolator Performance
Transmission(%)
Isolation(dB)
100
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
*
Operating Temp.
+5
+10
+15
+20
+25
+30
+35
Device Temperature(℃)
Transmission(%)
Isolation(dB)

A04 (Aperture ⩽ 5mm) package

Type(t)	Power(p)	Aperture(a)	Wavelength(λ)	Waveplate(w)	Package(h)
FS (Typical) DS (Dual-stage) AB (Adjustable bandwidth)	1W 5W 30W 50 W 100 W 500W ...	2 mm 3 mm 4 mm 5 mm 8 mm 10 mm 12 mm 15 mm	550-880nm* 355 nm 405 nm 532 nm 633 nm 780 nm 850 nm 980 nm 1030 nm	C (Contain) N (Not Contain)	A03* A04 A06 A08 A23 A31 ...

		25 mm 45 mm ... 	1064 nm 1319 nm 1550 nm 2000 nm 4500 nm ...		

*Only applicable to the adjustable bandwidth type

**500 W is only applicable under the 1030/1064 nm wavelength condition.

Typical indicator reference				
Aperture Size	Damage Threshold	Power Handling	Transmission	Peak Isolation
2~15 mm	3J/cm² at 10ns @(532~980)nm	50 W	>93%*, > 90%**	>33 dB*, >45 dB**
2~10 mm	10J/cm² at 10ns @(1319~2000)nm	50 W	>93%	>33 dB
15~25 mm	10J/cm² at 10ns @1030/1064nm	500W	>93%	>33 dB

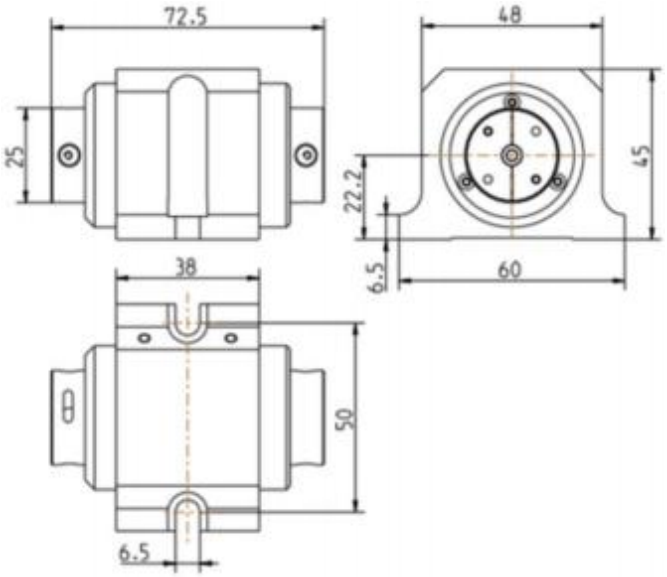
The operating temperature range for the product is 10°C to 30°C.

* Only applicable to conventional isolators.

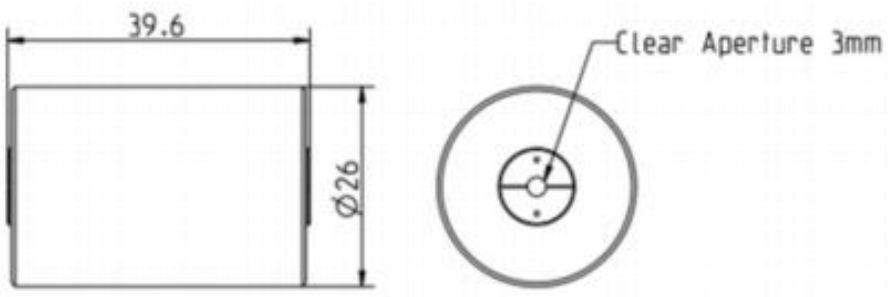
**Only applicable to dual-stage isolators.

Packaging Dimension Diagram (mm)

A04 (Aperture≤5mm)



A46 (Compact, 1064nm)



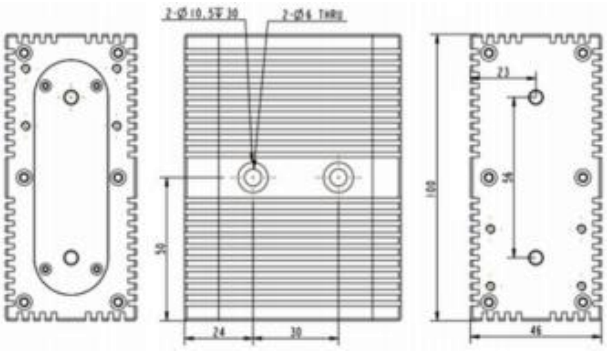
Type(t)	Power(p)	Aperture(a)	Wavelength(λ)	Wavelength(w)	Waveplate(h)
PI (Polarization-Insensitive)	50 W 100 W 500 W 1000 W ...	1.5 mm 5 mm 8 mm ...	980 nm 1030 nm 1064 nm ...	C (Contain) N (Not Contain)	A16 A29 A38 A4 1 ...

Typical Specifications Reference				
Aperture	Damage Threshold	Power Handling	Transmission	Peak Isolation
1.5 mm	10J/cm² at 10ns @(980~1064)nm	50 W	>93%	>33 dB
5 mm	10J/cm² at 10ns @(980~1064)nm	100 W	>93%	>33 dB
8 mm	10J/cm² at 10ns @(980~1064)nm	1000 W	>93%	>33 dB

* The operating temperature range for the product is 10°C-30°C

Packaging Dimension Diagram (mm)

A16 (Aperture≤5mm)



A41(Aperture≤8，water-cool)