Photonics On Crystals

POC-OC-120203-Fiber-Free Space Isolators Datasheet

Key Features of Fiber-Free Space Isolators

- Efficiently blocks reverse transmission beams to enhance optical system stability.
- Available in expanded and non-expanded beam isolator designs tailored to diverse optical systems.
- High isolation levels: >33 dB for single-stage and >50 dB for dual-stage configurations.
- Low insertion loss, superior beam quality, and excellent environmental stability.
- Customizable options for various power ranges, fiber types, and housing configurations.

General Description

Fiber-Free Space Isolators are designed to prevent reverse transmission beams, ensuring the stability and precision of fiber laser systems. POC offers two primary types: non-expanded and expanded beam isolators. The **non-expanded beam isolator** includes birefringent crystals, Faraday rotators, and wave plates, enabling effective reverse beam isolation in optical systems. In contrast, the **expanded beam isolator** integrates a beam expander to produce high-quality, focused beams with minimized divergence angles.

These isolators feature high isolation levels (up to 50 dB for dual-stage designs), low thermal lens effects, and exceptional environmental performance. POC uses advanced crystal fabrication techniques and premium optical components to ensure consistent performance. The devices are customizable, offering a range of options to meet specific application requirements, including fiber type, wavelength, and housing configurations.

Applications

1. **Fabrication of Fiber Lasers**
   Fiber-free space isolators are essential in fiber laser systems for preventing back reflections, maintaining system stability, and improving overall efficiency in industrial and scientific applications.

2. **Optical Fiber Sensors**
   These isolators are used in high-precision optical fiber sensing systems, ensuring minimal noise and enhanced measurement accuracy by blocking reverse transmission beams.
3. **Laser Gauging**
   In laser measurement systems, the isolators ensure precision and stability, critical for gauging applications in advanced manufacturing and research.

Standard Products and Model Numbers

Model Number: HPISO-t-p-f-λ-e-b-s-d-h

- **t:** Type (FF for Non-Expanded Beam, EB for Expanded Beam)
- **p:** Power (1-500 W)
- **f:** Fiber Type (1/10/125SCF)
- **λ:** Wavelength (980-2000 nm)
- **e:** Pigtail Diameter (C, E, H, L, N for different cable types)
- **b:** Beam Diameter (0.3-11 mm)
- **s:** Stage (S for Single, D for Dual)
- **d:** Spot Shape (G for Gaussian)
- **h:** Housing (A08, A09, etc.)

Typical Specifications

Withstand Power	Wavelength	Spot Diameter	Transmission	Peak Isolation
1-50 W	980-2000 nm	0.4-10 mm	>93%*	>33 dB*
50-120 W	980-2000 nm	0.4-10 mm	>93%	>33 dB
200-350 W	1064 nm	1-10 mm	>93%	>33 dB

*Applicable only to single-stage isolators.

Operating temperature range: 10°C - 30°C

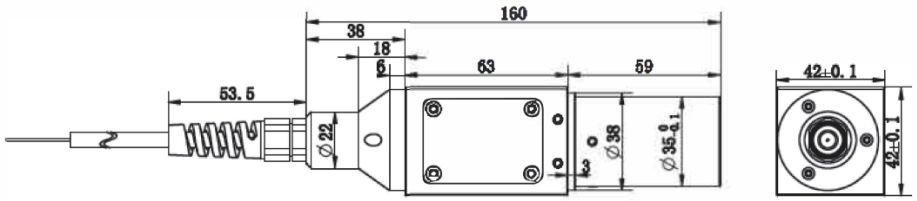
Housing Dimensions

Model A28:

- Length: 160 mm
- Width: 63 mm
- Height: 42 mm

- Pigtail diameter: 0.4-10 mm

A28



POC Strength and Capabilities

Photonics On Crystals (POC) is a trusted leader in the design and fabrication of high-performance photonics devices, specializing in Fiber-Free Space Isolators. Our advanced manufacturing facilities and expert engineering team allow us to deliver tailored solutions for diverse optical applications. We are dedicated to maintaining high quality through stringent quality control and leveraging cutting-edge technology for crystal growth and device assembly.

Our isolators are crafted with precision to meet the highest industry standards. With customizable options for power, wavelength, fiber types, and housing, POC ensures that our products cater to the unique demands of our clients. Partnering with us guarantees exceptional product performance, reliability, and long-term support.