

FBI Series

Fullband Isolators



Smiths Interconnect's FBI Series millimeter-wave fullband isolators are Faraday rotation ferrite devices. They consist of a section of waveguide containing low loss ferrite material and impedance matching elements. An external magnetic bias field is supplied to the ferrite core by means of a permanent magnet.

The isolators are available in full waveguide bandwidths from 18 to 220 GHz. They provide isolation of 25 dB minimum up to 26.5 GHz, 27 dB minimum up to 110 GHz, and 20 dB minimum up to 220 GHz.

The FBI Series is available in a wide range of input and output waveguide configurations. Isolators are also available in a "DC block" version in which the input and output waveguides are DC insulated. This action blocks DC current on the input waveguide from appearing on the output waveguide. This feature is also useful when the isolators are used in conjunction with a detector to measure power.

The full waveguide bandwidth of FBI isolators makes them particularly useful in broadband instruments and systems, and for swept frequency applications. Also see WBI Series wide band isolators for coolable applications and JFD Series ferrite circulators and isolators for narrow band applications.

FBI Series,
full waveguide
bandwidth up to
220 GHz

Features and Benefits

- High Isolation
- Low Insertion Loss
- Full Waveguide Bandwidths
- Available with DC Block

Applications

- Broadband Subsystems
- Test and Instrumentation
- Frequency Multiplied Sources and Sweepers

Technical Characteristics

Electrical

	FBI-42	FBI-28	FBI-22	FBI-19	FBI-15	FBI-12	FBI-10	FBI-08	FBI-06	FBI-05
Frequency Band and Range (GHz)	K 18-26.5	Ka 26.5-40	Q 33-50	U 40-60	V 50-75	E 60-90	W 75-110	F 90-140	D 110-170	G* 140-220
Insertion Loss (dB) (max)	CF	1.5	1.5	1.7	1.8	2.0	2.5	2.8	3.2	4.0
Insertion Loss (dB) (typ)	CF	1.0	1.1	1.2	1.6	1.7	2.0	2.2	2.9	3.5
Isolation (dB) (min)	25	27	27	27	27	27	27	20	20	20
Input/Output VSWR (max)	CF	1.4:1	1.4:1	1.4:1	1.4:1	1.4:1	1.4:1	1.4:1	1.4:1	1.4:1
Power Rating (W) (max)	3.0	2.5	2.0	1.5	1.5	1.0	1.0	0.75	0.75	0.75

*The performance of G-band (WR-05) isolators is measured at selected frequencies within the band. Performance specifications given above are typical values measured in the frequency band.
CF= Consult our Northampton, MA office for specifications.

Outline Drawings

Figure 1 - G-Band FBI-05-ASES0

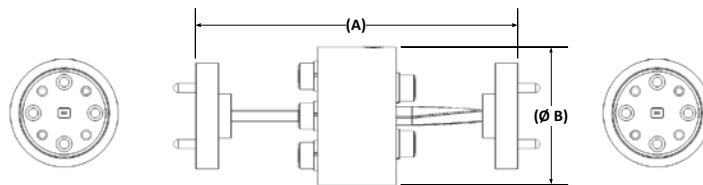


Figure 2 - W-Band FBI-10-RSES0

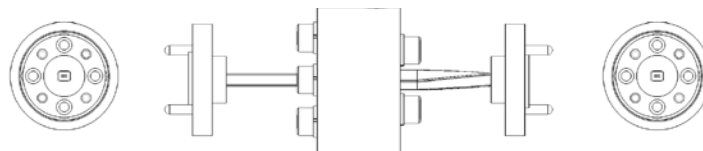
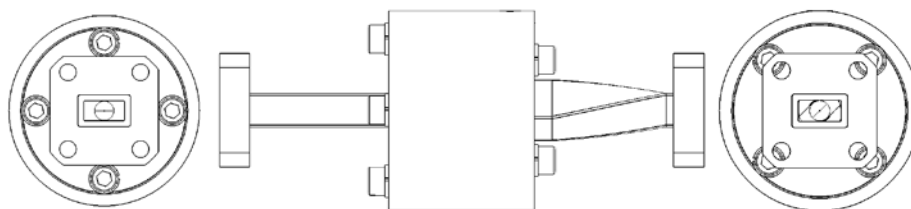


Figure 3 - Ka-Band FBI-28-SSES0



Technical Characteristics

Mechanical

	FBI-42	FBI-28	FBI-22	FBI-19	FBI-15	FBI-12	FBI-10	FBI-08*	FBI-06*	FBI-05*
A (in/mm)	4.32/109.73	3.19/81.03	2.69/68.33	2.62/66.55	2.56/65.02	2.51/63.75	2.46/62.48	2.33/59.18	2.31/58.67	2.29/58.17
B (in/mm)	1.44/36.58	1.31/33.27	1.31/33.27	1.31/33.27	0.98/24.89	0.98/24.89	0.98/24.89	0.98/24.89	0.98/24.89	0.98/24.89
Flange MIL-DTL-3922	/54-001	/54-003 OR /67C-005	/67C-006	/67C-007	/67C-008	/67C-009	/67C-010	/67C-M08	/67C-M06	/67C-M05

*Flange Pattern Compatible with MIL-DTL-3922/67C. Refer to IS000131.

How To Order

Specify Model Number: **FBI-XX-YBCDO Series**

	FBI	-	XX	-	Y		B		C		D		O
FBI Series Name	FBI Series												
XX Waveguide Band	WR - Number -42 -28 -22 -19 -15 -10 -08 -06 -05												
Y Flange Type	A Precision, Flat (WR-08 to WR-05 Only) R Round (WR-28 to WR-10) S Square (WR-42 and WR-28 Only)												
B Input Waveguide Configuration	S Straight (Standard) E 90° E-plane bend (WR-42 through WR-10 Only) H 90° H-plane bend (WR-42 through WR-10 Only)												
C Input to Output Waveguide Configuration	E E-plane to E-plane (Standard) H H-plane to E-plane												
D D.C. Block Options	S Standard Version (No D.C. Block) B Block Version (WR-42 through WR-10 only)												

Example: To order a FBI Series fullband isolator in WR-10 waveguide band with a round flange, 90° E-plane bend, E- to E-plane configuration and a D.C. block, specify: FBI-10-REEBO

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