Coaxial Reflectionless

High Pass Filter

VXHF-23+

50Ω **2010 to 10100 MHz**

The Big Deal

- Match to 50Ω in the stop band, eliminates undesired reflections
- Cascadable
- Excellent Power handling
- Temperature stable, up to 100°C

Generic photo used for illustration purposes only

CASE STYLE: FF704

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Product Overview

Mini-Circuits' VXHF-23+ reflectionless filter employs a novel filter topology which absorbs and terminates stop band signals internally rather than reflecting them back to the source. This new capability enables unique applications for filter circuits beyond those suited to traditional approaches. Traditional filters are reflective in the stop band, sending signals back to the source at 100% of the power level. These reflections interact with neighboring components and often result in inter-modulation and other interferences. Reflectionless filters eliminate stop band reflections, allowing them to be paired with sensitive devices and used in applications that otherwise require circuits such as isolation amplifiers or attenuators.

Key Features

Feature	Advantages
Easy integration with sensitive reflective components, e.g. mixers, multipliers	Reflectionless filters absorb unwanted signals, preventing reflections back to the source. This reduces generation of additional unwanted signals without the need for extra components like attenuators, improving system dynamic range.
Enables stable integration of wideband amplifiers	Because reflectionless filters maintain good impedance in the stop band; they can be integrated with high gain, wideband amplifiers without the risk of creating instabilities in these out of band regions.
Cascadable	Reflectionless filters can be cascaded in multiple sections to provide sharper and higher attenuation, while also preventing any standing waves that could affect pass band signals.
Excellent power handling	High power handling extends the usability of these filters to the transmit path for inter-stage filtering.
Excellent repeatability of RF performance	Through semiconductor IPD process, X-series filters are inherently repeatable for large volume production.
Excellent stability over temperature	With ±0.3 dB variation over temperature ideal for use in wide temperature range applications without the need for additional temperature compensation.
Operating temperature up to 100°C	Suitable for operation close to high power components.
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups.

*IPD – Integrated Passive Device, is a GaAs semiconductor process

Notes

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Connectors	Model
SMA	VXHF-23+

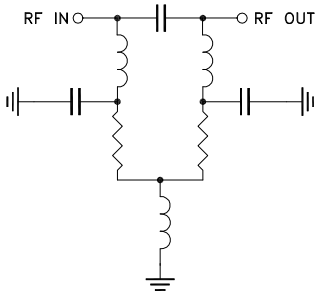
Features

- Match to 50Ω in the stop band, eliminates undesired reflections
- Cascadable
- Excellent power handling
- Temperature stable, up to 100°C
- Protected by US Patent No. 8,392,495

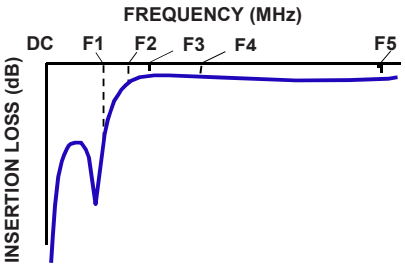
Applications

- Wi-Fi
- WiMax
- Microwave Radio
- Military & Space

Functional Schematic



Typical Frequency Response



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Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	Rejection Loss	DC-F1	DC-1210	12	14	-	dB
	Freq. Cut-Off	F2	1650	-	3.0	-	dB
	VSWR	DC-F1	DC-1210	-	1.2	-	:1
Pass Band	Insertion Loss	F3-F5	2010-10100	-	1.2	2.0	dB
	VSWR	F3-F4	2010-3200	-	1.6	-	:1
		F4-F5	3200-10100	-	2.0	-	:1

Absolute Maximum Ratings[3]

Parameter	Ratings
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
RF Power Input, Passband (F3-F5)[1]	2W at 25°C
RF Power Input, Stopband (DC-F3)[2]	0.5W at 25°C

[1] Passband rating derates linearly to 1W at 100°C ambient
[2] Stopband rating derates linearly to 0.25W at 100°C ambient
[3] Permanent damage may occur if any of these limits are exceeded.

ESD rating

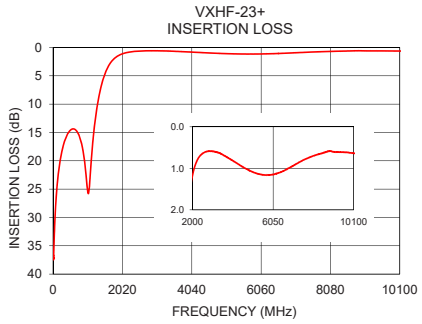
Human body model (HBM): Class 2(2000 to <4000 V) in accordance with ANSI/ESD 5.1-2001

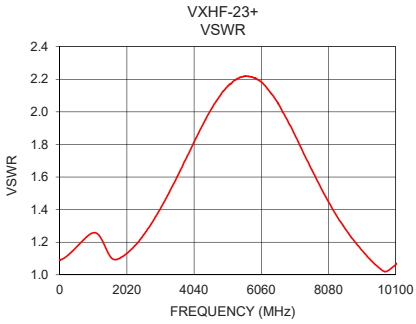
MSL rating

Moisture Sensitivity: MSL1 in accordance with IPC/JEDEC J-STD-020D

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	37.80	1.09
100	25.65	1.10
500	14.62	1.17
750	15.43	1.22
1000	25.02	1.26
1040	25.53	1.26
1100	21.00	1.26
1210	13.65	1.24
1300	9.83	1.20
1600	3.45	1.09
1650	2.93	1.08
2000	1.17	1.12
2010	1.15	1.12
3200	0.61	1.44
4000	0.80	1.76
5650	1.20	2.24
8000	0.83	1.62
9000	0.70	1.32
10000	0.69	1.10
10100	0.69	1.09





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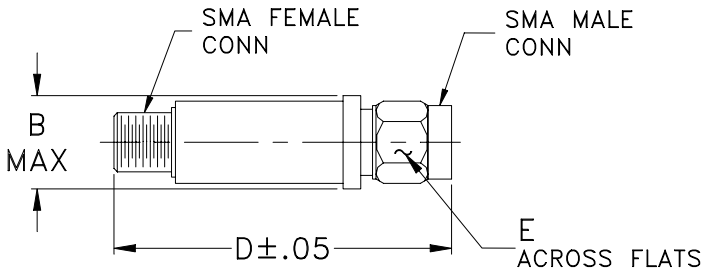
Coaxial Connections

INPUT	SMA-Male
OUTPUT	SMA-Female

Outline Drawing



Outline Dimensions (inch / mm)

B	D	E	wt.
.410	**1.43**	**.312**	grams
10.41	36.32	7.92	10

Note: Please refer to case style drawing for details

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