Coaxial

Bandpass Filter

VBFZ-4000-S+

50Ω 3500 to 4500 MHz

Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input*	7W at 25°C

*Passband rating, derate linearly to 3W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Features

- Good Rejection, 30dB typ. up to 16GHz
- Low insertion loss
- Excellent power handling, 7W
- Temperature stable LTCC internal structure
- Rugged stainless steel unibody
- Protected by US Patent 6,943,646

Application

- Harmonic rejection
- Transmitters/receivers
- Lab use
- Test instrumentation

Generic photo used for illustration purposes only

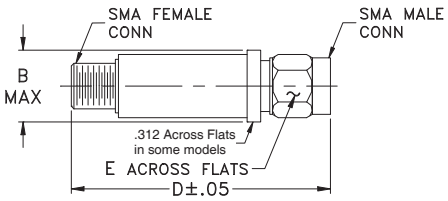
CASE STYLE: FF1145

Connectors	Model
SMA	VBFZ-4000-S+

+RoHS Compliant

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

Outline Drawing



Outline Dimensions (inch / mm)

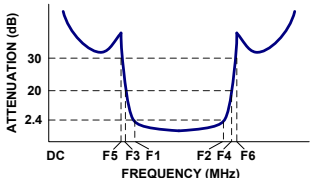
B	D	E	wt.
.410	**1.91**	**.312**	grams
10.41	48.51	7.92	11.8

Note: Please refer to case style drawing for details

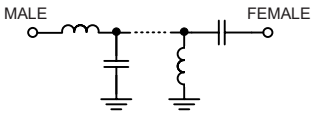
Band Pass Filter Electrical Specifications (T_{AMB}= 25°C)

MODEL NO.	CENTER FREQ. (MHz)	PASSBAND (MHz) (Loss < 2.4dB)	STOPBANDS (MHz) (Loss > 20dB)		(Loss 30dB) Typ.		VSWR (:1) Passband	VSWR (:1) Stopband
		F1 - F2	F3	F4	F5	F6	Max.	Typ.
VBFZ-4000+	4000	3500 - 4500	2550	5700	2570	5720 - 16000	2.0	20

Typical Frequency Response



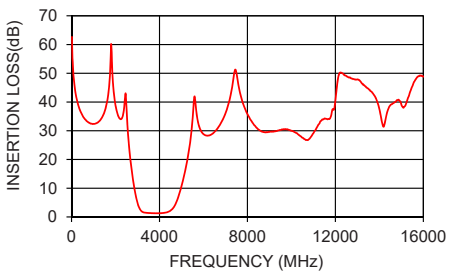
Functional Schematic



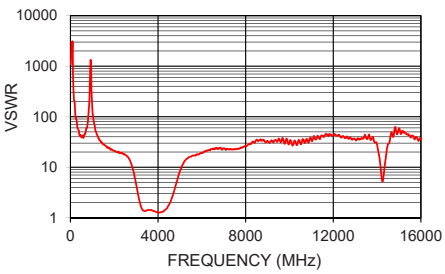
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
60	53.24	3052.52
500	35.26	39.09
1500	36.59	28.28
2550	31.05	16.96
2570	28.83	16.36
2700	18.48	12.92
2840	10.82	8.25
3000	4.89	3.77
3100	2.85	2.27
3500	1.39	1.43
4000	1.29	1.26
4500	2.19	1.95
4900	8.04	7.00
5100	13.77	11.58
5400	26.32	15.93
5570	40.77	17.08
5700	35.29	17.92
5720	34.31	17.82
10000	30.02	34.04
16000	48.83	32.98

VBFZ-4000-S+
INSERTION LOSS



VBFZ-4000-S+
VSWR



Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

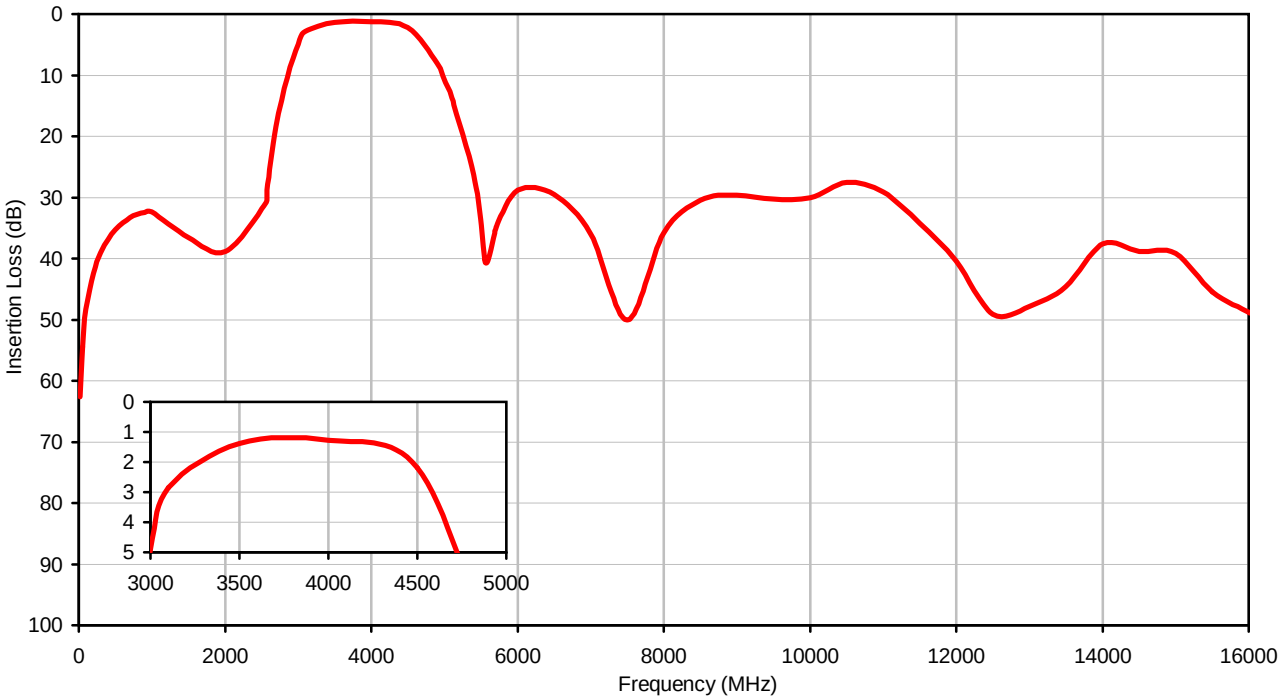
Coaxial SMA Band Pass Filter VBFZ-4000-S+

Typical Performance Data

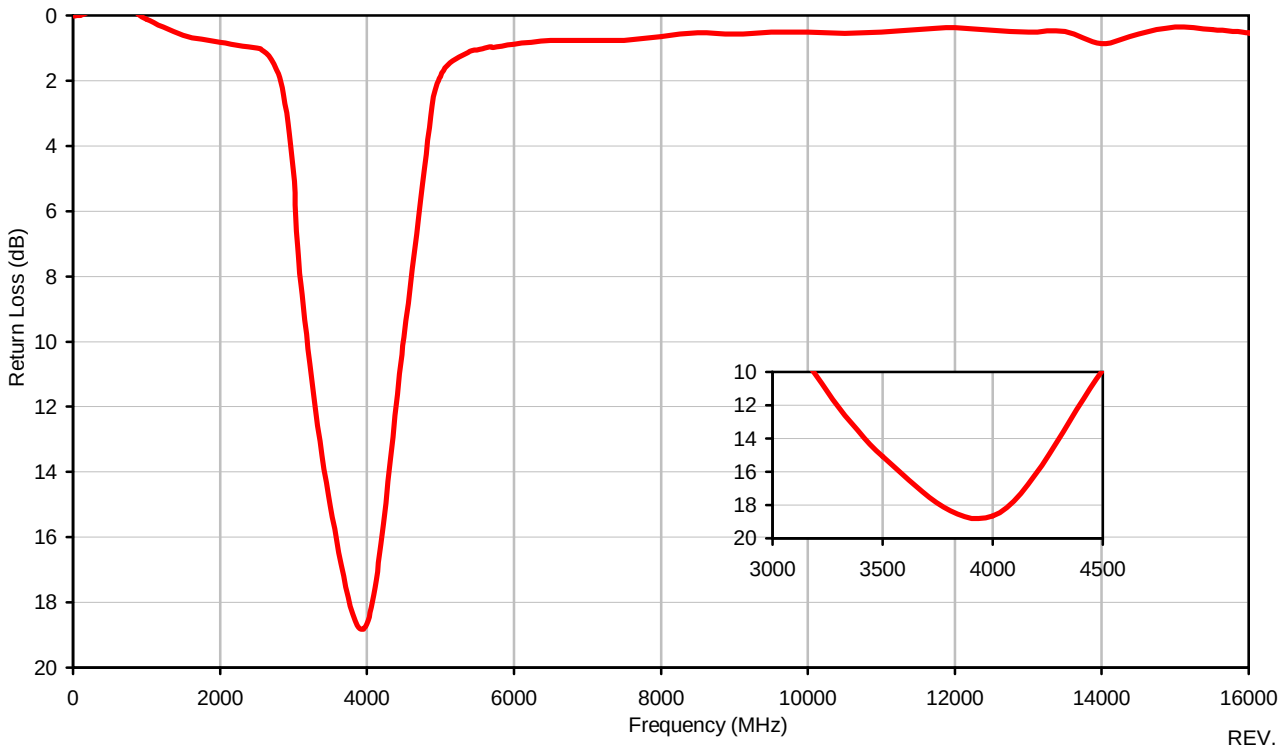
FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
20	62.64	0.02
50	54.46	0.00
100	48.24	0.00
200	42.36	-0.10
300	39.05	-0.24
400	36.88	-0.38
500	35.26	-0.44
600	34.11	-0.46
700	33.30	-0.35
800	32.78	-0.21
900	32.48	-0.02
1000	32.40	0.12
1500	36.59	0.61
2000	38.87	0.83
2550	31.05	1.03
2570	28.83	1.06
2700	18.48	1.35
2850	10.37	2.22
3000	4.89	4.72
3100	2.85	8.23
3500	1.39	15.06
4000	1.29	18.67
4500	2.19	9.87
4900	8.04	2.50
5000	10.70	1.89
5100	13.77	1.50
5400	26.32	1.09
5500	33.60	1.05
5570	40.77	1.02
5700	35.29	0.97
5720	34.31	0.98
6000	28.83	0.88
6500	29.56	0.77
7000	36.02	0.76
7500	50.07	0.76
8000	35.85	0.65
8500	30.47	0.52
9000	29.58	0.56
9500	30.25	0.51
10000	30.02	0.51
10500	27.57	0.55
11000	29.14	0.51
11500	34.25	0.44
12000	40.43	0.38
12500	49.07	0.46
13000	47.88	0.51
13500	44.60	0.48
14000	37.62	0.86
14500	38.89	0.57
15000	39.13	0.35
15500	45.46	0.44
16000	48.83	0.53
16020	48.86	0.56

Typical Performance Curves

Insertion Loss



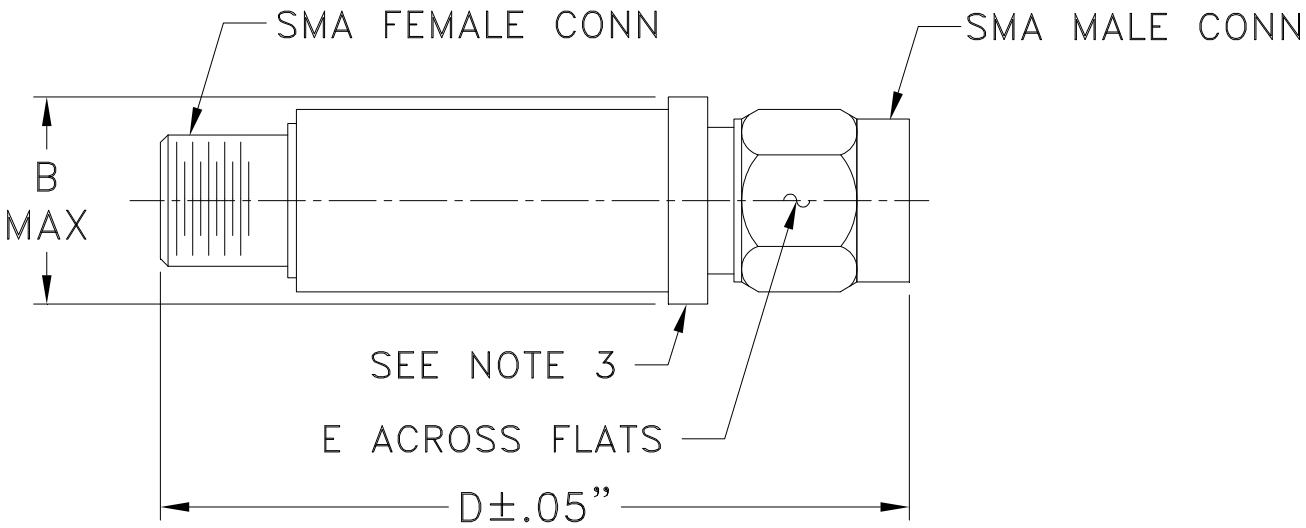
Return Loss



Case Style FF

FF1145

Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF1145	-- --	.410 (10.41)	-- --	1.91 (48.51)	.312 (7.92)	11.8

Dimensions are in inches (mm). Tolerances: 2Pl. ± .04; 3Pl. ± .030

Notes:

1. Case material: Stainless steel.
2. Case finish: Gold plated.
3. Round Flange may have .312 Across Flats in some models.

Mini-Circuits

Environmental Specifications ENV28

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I