

Coaxial

Low Pass Filter

VLFX-105+

50Ω DC to 105 MHz (40 dB Typ. Isolation up to 20 GHz)

The Big Deal

- Very good rejection, 40 dB typ. up to 20 GHz
- Excellent power handling, 10W
- Rugged unibody construction



Generic photo used for illustration purposes only
CASE STYLE: FF1118

Product Overview

VLFX-105+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-105 MHz bandwidth, these units offer good matching within the passband and high rejection in stopband, 40 dB typ. up to 20 GHz. This will find its applications in harmonic rejection, transmitters / receivers and test instrumentation.

Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application
Fast roll-off	Provides very good adjacent band rejection
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups

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



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Connectors	Model
SMA	VLFX-105+

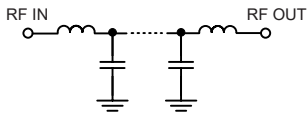
Features

- Very good isolation, 40 dB typ. up to 20 GHz
- Excellent power handling, 10W
- Temperature stable LTCC internal structure
- Re-entry frequency > 20 GHz
- Protected by US patent 6,943,646
- Rugged unibody construction

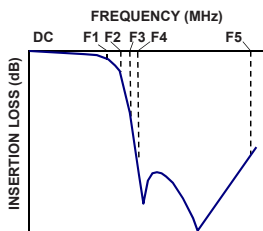
Applications

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

Functional Schematic



Typical Frequency Response



Electrical Specifications⁽¹⁾ at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-105	—	1.0	1.6 dB
	Freq. Cut-Off	F2	165	—	3.0	dB
	VSWR	DC-F1	DC-105	—	1.2	:1
Stop Band	Insertion Loss	F3	250	20	27	dB
		F4-F5	400-20000	—	40	dB
	VSWR	F3-F5	400-20000	—	10	:1

(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	10W max.

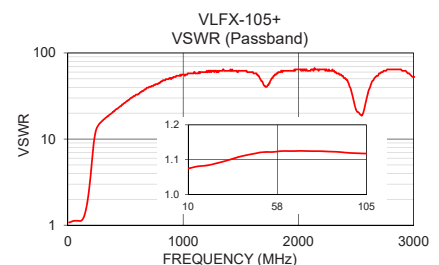
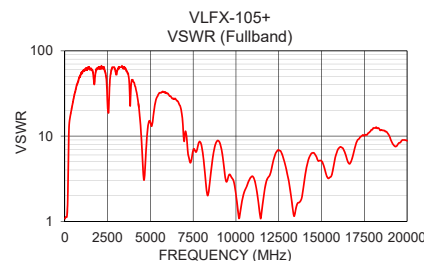
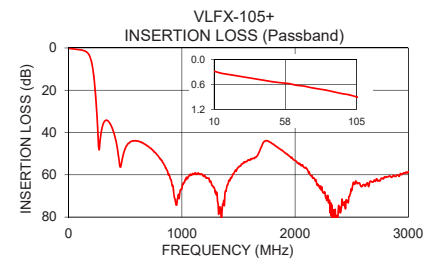
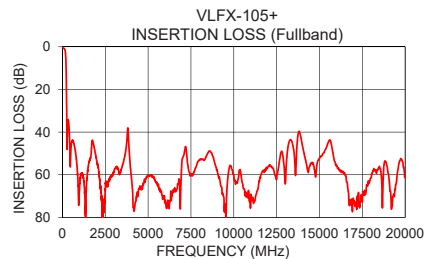
*Passband rating, derate linearly to 3.5W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.28	1.07
50	0.54	1.12
105	0.90	1.12
140	1.36	1.26
165	2.17	1.73
180	3.23	2.35
200	6.15	4.13
225	14.76	9.08
235	20.54	11.17
245	27.80	12.80
250	32.02	13.39
400	40.31	21.20
1000	66.46	56.04
3830	38.88	24.48
5000	60.40	14.50
10000	60.32	2.08
13800	39.71	1.77
17500	72.74	10.07
18400	57.52	11.93
20000	61.17	8.81

+RoHS Compliant

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



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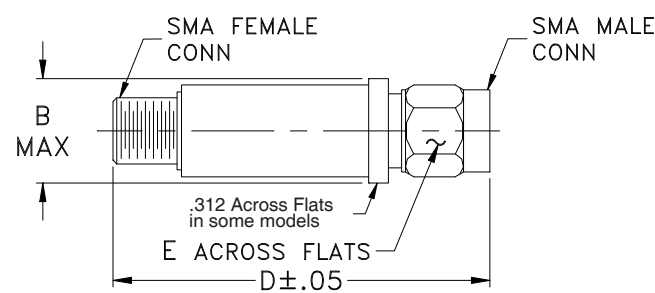


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Coaxial Connections

INPUT	SMA-Male
OUTPUT	SMA-Female

Outline Drawing



Outline Dimensions (^{inch}_{mm})

B	D	E	wt.
.410	2.67	.312	grams
10.41	67.82	7.92	17.0

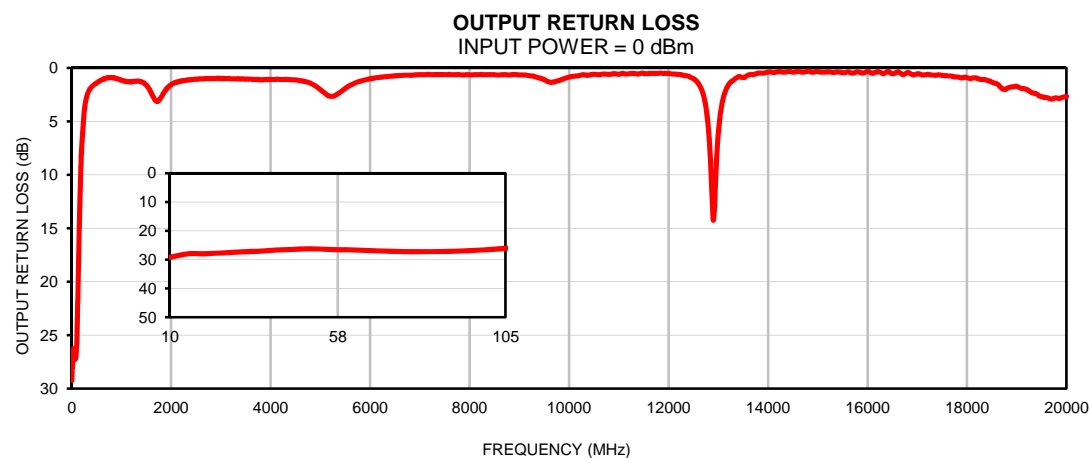
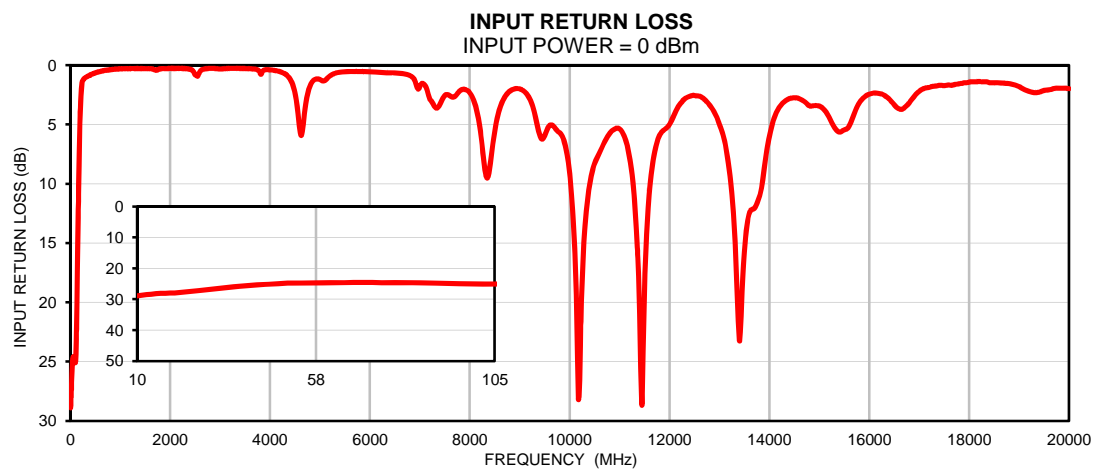
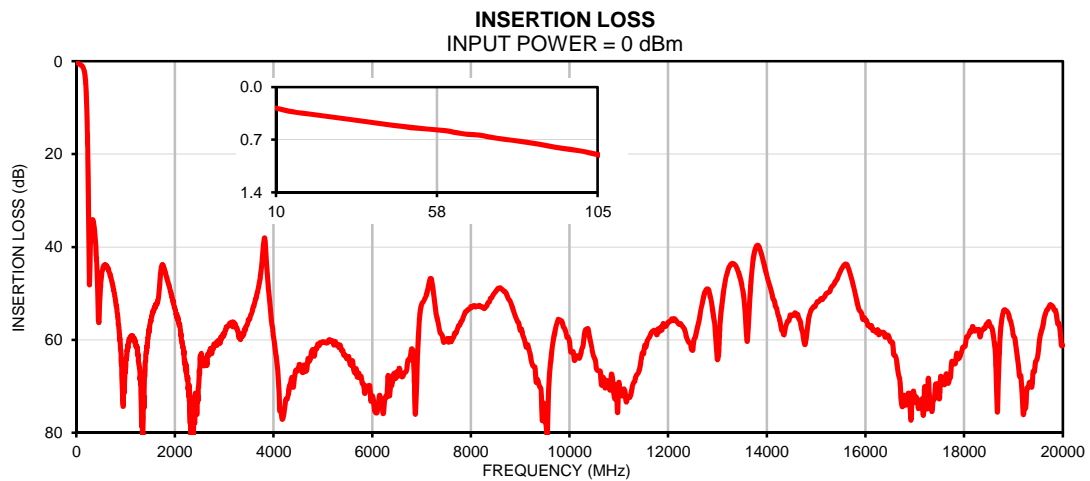
Note: Please refer to case style drawing for details

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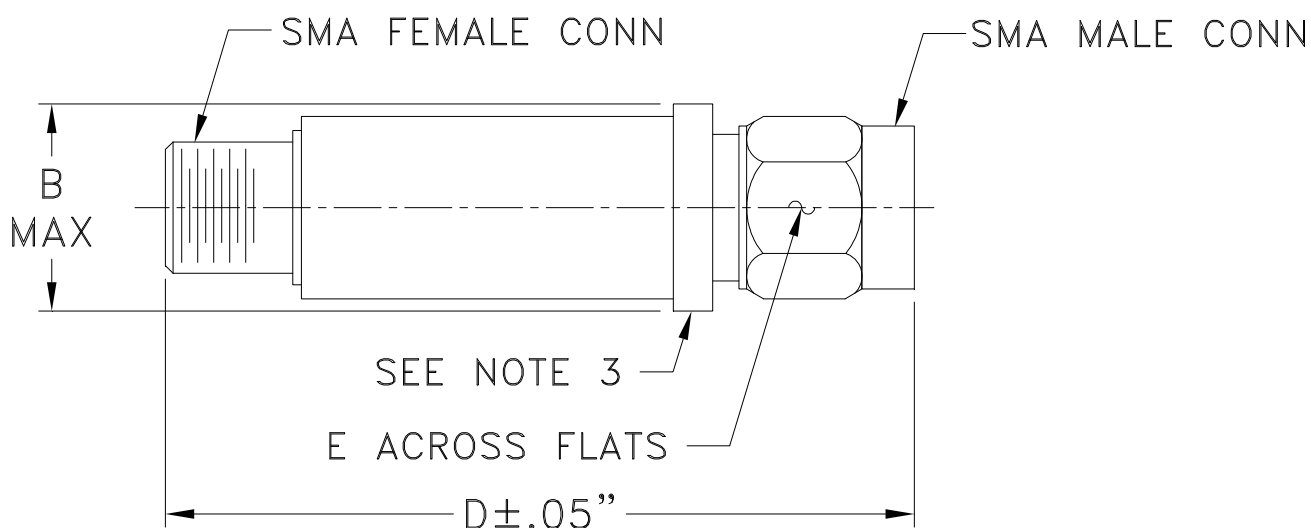
Typical Performance Data

FREQ.	INSERTION LOSS	INPUT RETURN LOSS	OUTPUT RETURN LOSS
(MHz)	(dB)	(dB)	(dB)
10	0.28	28.89	29.23
50	0.54	24.81	26.22
75	0.68	24.63	27.22
100	0.85	25.04	26.52
105	0.90	25.09	26.06
110	0.94	24.96	25.45
120	1.05	23.86	23.69
125	1.11	22.84	22.65
150	1.60	15.75	17.03
160	1.94	12.86	14.80
165	2.17	11.50	13.73
170	2.45	10.23	12.71
175	2.81	9.03	11.75
180	3.23	7.90	10.85
185	3.76	6.86	10.03
200	6.15	4.29	8.08
210	8.72	3.05	7.19
230	17.47	1.71	5.80
235	20.54	1.56	5.45
240	23.98	1.44	5.10
245	27.80	1.36	4.78
250	32.02	1.30	4.48
255	36.71	1.26	4.22
260	42.03	1.23	3.98
270	48.15	1.17	3.58
300	36.71	1.06	2.80
500	47.48	0.65	1.41
1000	66.46	0.31	1.12
1500	56.36	0.28	1.56
2000	53.30	0.27	1.56
2500	67.42	0.79	1.05
3000	58.55	0.33	0.96
3500	55.68	0.28	1.04
4000	59.29	0.40	1.05
4500	66.12	2.32	1.11
5000	60.40	1.20	2.00
5500	64.07	0.55	1.92
6000	72.02	0.55	1.01
6500	66.86	0.65	0.73
7000	52.38	1.79	0.62
8000	52.85	2.32	0.63
9000	57.92	2.00	0.64
10000	60.32	9.12	0.84
11000	69.25	5.37	0.58
11500	63.05	18.68	0.50
12000	56.22	4.99	0.50
12500	62.22	2.55	0.99
13000	64.27	4.98	6.16
13500	48.68	15.61	0.89
14000	46.03	5.99	0.38
14500	54.87	2.76	0.39
15000	52.28	3.45	0.31
15500	45.12	5.45	0.43
16000	55.81	2.44	0.32
16500	60.31	3.35	0.54
17000	73.40	2.20	0.54
18500	56.07	1.47	1.31
19000	59.10	1.80	1.71
19500	63.09	2.13	2.68
20000	61.17	1.98	2.65

Typical Performance Curves



Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF1118	--	.410 (10.41)	--	2.67 (67.82)	.312 (7.92)	17.0

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.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS



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