

Coaxial

Low Pass Filter

VLF-45+

50Ω

DC to 45 MHz

The Big Deal

- Low Insertion Loss (1.2 dB typical)
- Good close-in rejection
- Versatile small size, coaxial, 1.43" length



CASE STYLE: FF704

Product Overview

The VLF-45+ Low Pass Filter is constructed using internal LTCC Low Pass Filter structure to achieve repeatable performance. The Pass Band frequency range DC-45 MHz is ideal for rejecting down converted harmonics of base band signals. Built using Mini-Circuits proven unibody construction which integrates the RF connectors with the case body, the VLF-45+ takes very little space and meets rugged field and test lab and system environment.

Key Features

Feature	Advantages
High Rejection	Achieving 50dB rejection at 180 MHz; The VLF-45 is ideal for test setups.
Compact Versatile Case (1.43"x0.41")	Enables use in a variety of applications including space constrained connectorized systems. Connectors: SMA Female (1), SMA Male (1)
Rugged Unibody Construction	Mini-Circuits Unibody construction allows survivability in critical applications including militarized or industrial systems.

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 Low Pass Filter

50Ω *DC to 45 MHz

VLF-45+



Generic photo used for illustration purposes only

CASE STYLE: FF704

Connectors	Model
SMA	VLF-45+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	8.5W max. at 25°C

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

Features

- rugged uni-body construction, small size
- 7 sections
- excellent power handling, 8.5W
- temperature stable
- low cost
- protected by U.S. Patent 6,943,646

Applications

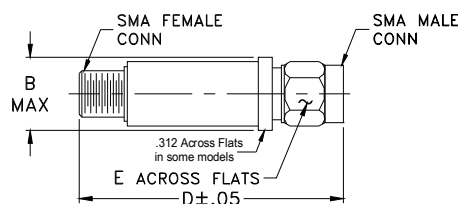
- harmonic rejection
- transmitters/receivers
- lab use

Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	*DC-45	—	1.0	1.2	dB
	Freq. Cut-Off	F2	77	—	3.0	—	dB
	VSWR	DC-F1	*DC-45	—	1.2	1.3	:1
Stop Band	Rejection Loss	F3	120	20	27	—	dB
		F4-F5	150-910	—	33	—	dB
	VSWR	F6	1000	—	20	—	dB
		F3-F6	120-1000	—	18	—	:1

* Not for use with DC voltage at input and output ports

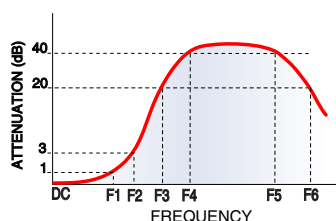
Outline Drawing



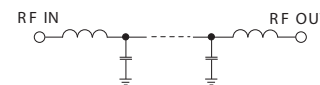
Outline Dimensions (inch/mm)

B	D	E	gra
.410	1.43	.312	1
10.41	36.32	7.92	

Typical Frequency Response

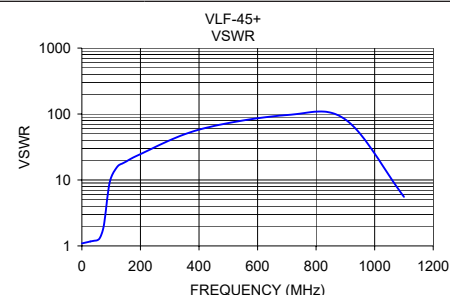
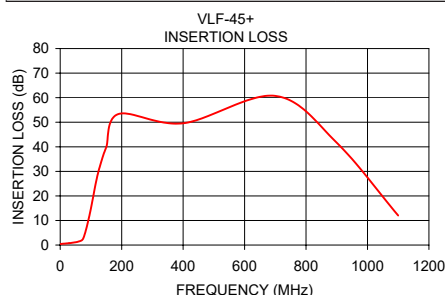


Electrical Schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
0.30	0.42	1.09
29.00	0.74	1.17
37.00	0.89	1.19
40.00	0.95	1.19
60.00	1.43	1.29
75.00	2.66	2.03
95.00	11.96	9.18
120.00	27.64	15.67
140.00	36.43	17.93
150.00	39.88	18.90
190.00	53.36	23.49
400.00	49.60	57.91
700.00	60.72	96.51
900.00	41.65	82.73
1100.00	12.04	5.54



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Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
0.3	0.42	27.05
1.0	0.42	26.81
5.0	0.45	26.27
10.0	0.49	25.51
15.0	0.54	24.64
20.0	0.60	23.74
25.0	0.68	22.90
26.0	0.69	22.74
27.0	0.71	22.60
28.0	0.73	22.45
29.0	0.74	22.30
30.0	0.76	22.17
31.0	0.78	22.03
32.0	0.80	21.90
33.0	0.81	21.78
34.0	0.83	21.66
35.0	0.85	21.55
36.0	0.87	21.44
37.0	0.89	21.33
38.0	0.91	21.23
39.0	0.93	21.14
40.0	0.95	21.05
45.0	1.05	20.60
55.0	1.28	19.27
60.0	1.43	17.83
65.0	1.65	15.59
75.0	2.66	9.38
80.0	3.86	6.35
85.0	5.87	4.06
90.0	8.67	2.65
95.0	11.96	1.90
100.0	15.38	1.53
110.0	21.94	1.23
115.0	24.91	1.16
120.0	27.64	1.11
130.0	32.42	1.03
140.0	36.43	0.97
150.0	39.88	0.92
160.0	43.05	0.87
170.0	46.16	0.83
180.0	49.45	0.78
190.0	53.36	0.74
200.0	58.53	0.70
250.0	55.12	0.54
300.0	50.68	0.44
350.0	49.58	0.36
400.0	49.6	0.3
450.0	50.14	0.26
500.0	51.01	0.23
600.0	54.02	0.2
700.0	60.72	0.18
800.0	58.31	0.18
900.0	41.65	0.21
1000.0	20.25	0.91
1100.0	12.04	3.17

Coaxial Low Pass Filter

Typical Performance Curves

VLF-45+

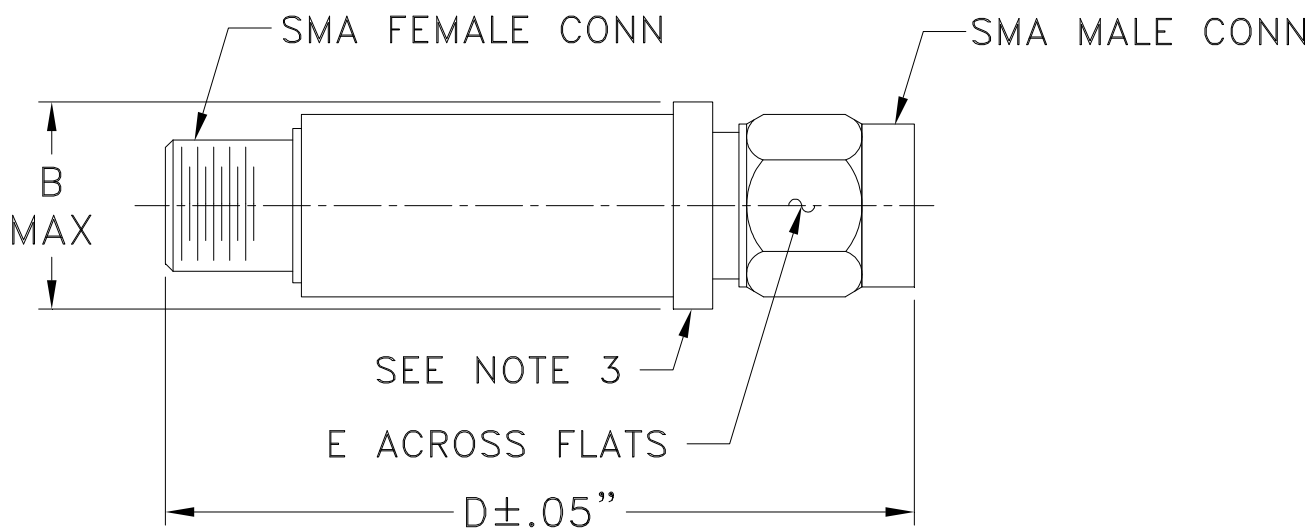


Case Style

FF

FF704

Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF704	--	.410 (10.41)	--	1.43 (36.32)	.312 (7.92)	10.0

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.

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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