

Coaxial Low Pass Filter

VLF-5000+

50Ω *DC to 5000 MHz



Generic photo used for illustration purposes only

CASE STYLE: FF704

Connectors	Model
SMA	VLF-5000+

+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*	9W max. at 25°C
DC Current Input to Output	0.5A max. 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

- rugged uni-body construction, small size
- 7 sections
- excellent power handling, 9W
- temperature stable
- low cost
- protected by U.S. Patent 6,943,646

Applications

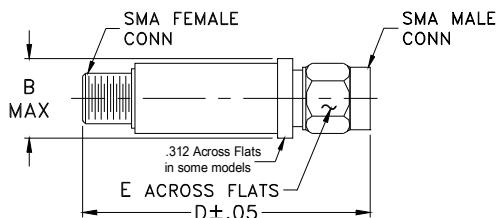
- harmonic rejection
- transmitters/receivers
- lab use

Electrical Specifications at 25°C

PASSBAND (MHz) (loss < 1 dB)	fco, MHz Nom. (loss 3 dB)	STOP BAND (MHz) (loss, dB)			VSWR (:1)		NO. OF SECTIONS
		f 20 Min.	30 Typ.	fr 20 Typ.	Stopband Typ.	Passband Typ.	
Max.	Typ.	Min.	Typ.	Typ.	Typ.	Typ.	7
*DC-5000	5580	6850	7050-10000	18000	20	1.2	

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

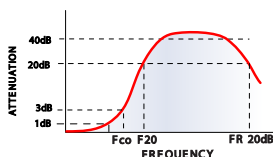
Outline Drawing



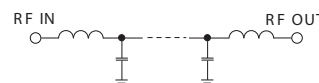
Outline Dimensions (inch/mm)

B	D	E	wt
.410	1.43	.312	grams
10.41	36.32	7.92	10.0

typical frequency response

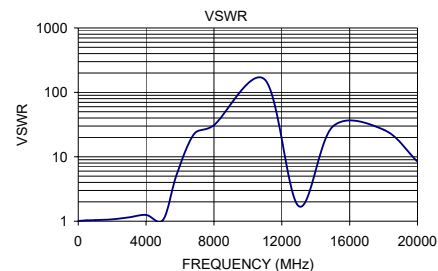


electrical schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
50.00	0.01	1.01
500.00	0.10	1.03
1000.00	0.14	1.04
2000.00	0.26	1.07
3000.00	0.31	1.15
4000.00	0.51	1.25
5000.00	0.68	1.05
5800.00	4.91	5.30
6830.00	40.67	22.58
8000.00	28.12	31.03
11000.00	32.43	157.93
13000.00	25.15	1.71
15000.00	24.88	29.46
18000.00	18.17	26.33
20000.00	23.63	8.43



Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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

VLF-5000+

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C
50	0.01	0.04	0.05	45.35	41.98	40.29	43.32	39.57	38.30
100	0.05	0.07	0.08	43.60	41.33	39.10	45.08	40.62	37.90
200	0.04	0.06	0.07	39.52	39.70	40.65	38.82	39.43	39.99
300	0.03	0.06	0.08	36.54	37.64	38.26	36.13	38.16	41.62
400	0.07	0.09	0.13	35.44	37.26	38.28	36.74	38.81	42.64
500	0.06	0.09	0.13	33.89	35.57	37.47	35.05	37.25	40.52
600	0.07	0.11	0.15	33.15	34.47	36.46	34.68	36.96	40.56
700	0.07	0.13	0.15	32.84	34.14	35.84	33.79	36.10	39.80
800	0.06	0.13	0.17	33.84	35.46	37.49	35.24	38.23	44.34
900	0.08	0.14	0.17	34.30	36.13	38.53	35.26	37.80	43.57
1000	0.07	0.13	0.19	34.88	37.65	41.07	36.68	39.75	44.73
1500	0.10	0.17	0.24	45.24	56.68	43.73	38.89	38.22	35.04
1600	0.12	0.21	0.27	49.04	45.75	40.82	37.48	36.16	33.57
2000	0.12	0.21	0.31	37.79	34.83	33.25	34.47	31.52	29.58
2500	0.17	0.27	0.36	29.84	29.73	29.30	29.56	28.24	26.89
2600	0.18	0.31	0.41	28.83	29.01	28.85	28.55	27.42	26.29
2800	0.17	0.31	0.40	27.87	27.97	28.40	27.80	26.90	26.23
3000	0.18	0.30	0.43	26.59	26.80	27.36	26.56	25.86	25.49
3500	0.23	0.38	0.52	24.12	24.46	24.99	23.64	23.54	23.53
3600	0.22	0.39	0.51	23.46	23.74	24.16	23.13	23.04	23.07
4000	0.28	0.46	0.61	21.65	21.48	21.15	21.03	20.85	20.52
4500	0.35	0.56	0.73	21.91	21.55	20.79	21.25	21.02	20.70
5000	0.46	0.72	0.93	32.82	29.86	27.74	27.32	26.06	24.28
5500	1.48	1.99	2.50	8.80	8.12	7.47	8.61	7.90	7.25
5600	2.11	2.71	3.34	6.62	6.16	5.72	6.51	6.02	5.57
5800	4.15	4.95	5.73	3.59	3.48	3.37	3.59	3.44	3.32
6000	7.31	8.24	9.15	1.84	1.97	2.05	1.89	1.97	2.05
6500	19.66	21.00	22.38	0.54	0.80	1.00	0.67	0.87	1.04
6830	36.38	39.89	42.48	0.37	0.66	0.85	0.51	0.70	0.84
7000	38.23	36.32	35.02	0.34	0.63	0.85	0.48	0.66	0.79
7500	28.19	28.46	28.78	0.28	0.58	0.84	0.39	0.57	0.69
8000	28.43	29.01	29.51	0.21	0.53	0.86	0.34	0.53	0.67
8500	31.10	31.91	32.77	0.19	0.52	0.85	0.30	0.53	0.74
9000	36.99	38.42	39.46	0.17	0.50	0.84	0.27	0.52	0.80
9500	43.65	42.54	37.42	0.18	0.50	0.87	0.26	0.51	0.85
10000	32.64	32.61	42.07	0.32	0.67	0.78	0.32	0.59	0.76
10500	39.84	39.87	39.77	0.18	0.54	0.74	0.21	0.43	0.65
11000	37.57	36.90	34.73	0.13	0.46	0.72	0.10	0.33	0.53
11500	32.73	32.57	31.47	0.14	0.46	0.71	0.08	0.32	0.52
12000	29.10	29.39	28.95	0.26	0.59	0.87	0.09	0.32	0.51
12500	25.63	25.95	25.96	1.21	2.20	3.73	0.08	0.32	0.51
13000	35.59	36.36	34.66	2.96	1.94	1.60	0.09	0.33	0.51
13500	30.36	30.17	29.69	0.17	0.55	0.86	0.06	0.28	0.44
14000	28.81	28.28	27.74	0.05	0.37	0.80	0.03	0.21	0.38
14500	27.72	27.10	26.43	0.08	0.34	0.88	0.06	0.22	0.41
15000	26.34	25.96	25.56	0.05	0.37	0.91	0.02	0.26	0.47
15500	24.79	24.73	24.67	0.00	0.46	0.95	0.05	0.32	0.58
16000	23.18	23.53	23.83	0.09	0.57	1.03	0.13	0.40	0.65
16500	22.54	23.19	24.04	0.20	0.68	1.13	0.22	0.60	1.01
17000	18.53	18.25	19.28	0.43	0.90	1.30	1.67	1.24	1.21
17500	18.93	19.42	20.12	0.39	0.96	1.46	0.27	0.64	0.97
18000	19.24	20.01	20.78	0.73	1.23	1.60	0.18	0.57	0.92
18500	20.47	21.21	21.84	0.80	1.38	1.86	0.13	0.52	0.89
19000	22.35	22.92	23.41	0.89	1.67	2.43	0.12	0.55	0.96

REV. X2
VLF-5000+
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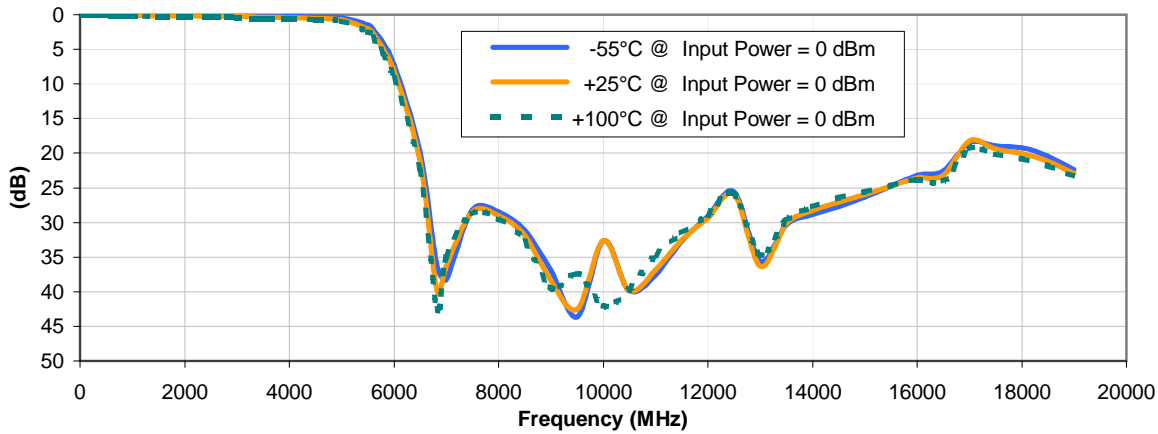


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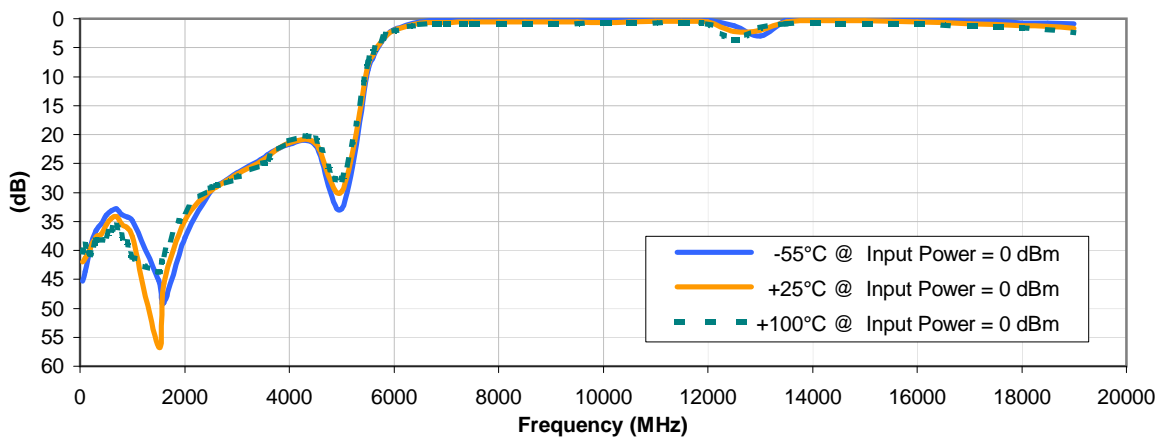


Typical Performance Curves

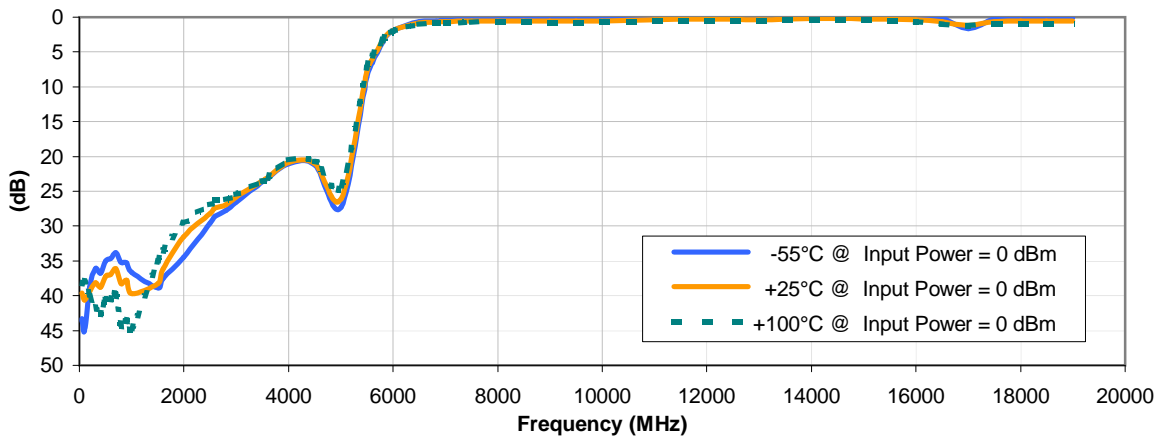
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE

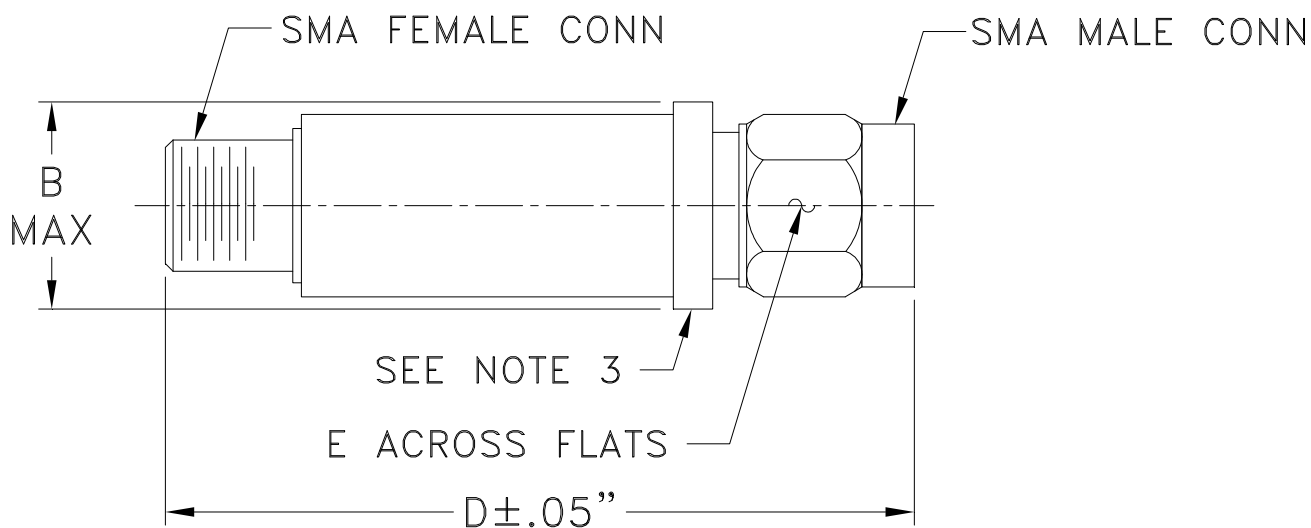


Case Style

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