Coaxial

Low Pass Filter

VLF-400+

50Ω *DC to 400 MHz

Generic photo used for illustration purposes only

CASE STYLE: FF704

Connectors	Model
SMA	VLF-400+

+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.

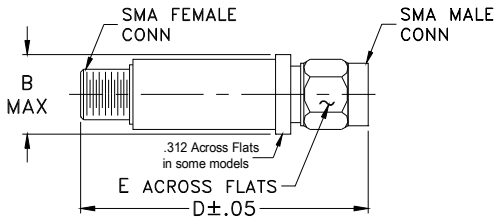
Features

- 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

Outline Drawing



Outline Dimensions (inch / mm)

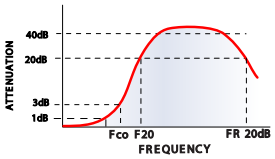
B	D	E	wt
.410	1.43	.312	grams
10.41	36.32	7.92	10.0

Electrical Specifications at 25°C

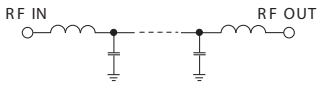
PASSBAND (MHz)	fco, MHz Nom.	STOP BAND (MHz) (loss, dB)			VSWR (:1)		NO. OF SECTIONS
(loss < 1 dB)	(loss 3 dB)	f 20	40	fr 20	Stopband	Passband	
Max.	Typ.	Min.	Typ.	Typ.	Typ.	Typ.	
*DC-400	560	660	680-3000	5500	20	1.2	7

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

typical frequency response

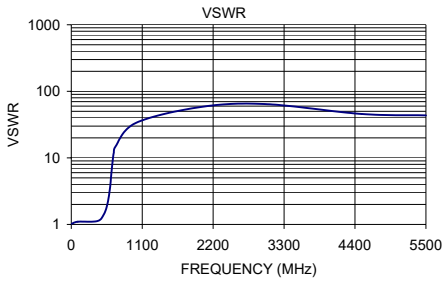


electrical schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1	0.06	1.02
100	0.27	1.10
400	0.80	1.12
500	1.44	1.39
560	2.77	2.01
600	5.87	3.54
620	9.82	5.72
650	20.09	10.62
660	24.64	12.01
680	35.49	14.50
1000	42.32	33.42
2000	59.01	57.91
3000	39.73	64.35
4500	23.58	45.72
5500	23.21	43.44



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 VLF-400+

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	0.14	0.17	0.20	31.43	30.24	29.51	30.13	28.95	28.32
100	0.22	0.26	0.29	30.27	29.70	29.58	27.66	26.85	26.44
120	0.23	0.27	0.31	29.82	29.83	30.13	26.77	26.19	25.98
130	0.25	0.29	0.34	29.79	30.10	30.59	26.04	25.69	25.55
140	0.25	0.30	0.34	29.18	29.73	30.47	25.61	25.39	25.34
150	0.27	0.32	0.36	28.82	29.60	30.72	25.04	24.92	24.92
160	0.28	0.31	0.35	28.68	29.73	31.17	24.72	24.65	24.76
170	0.28	0.34	0.37	28.60	29.94	31.71	24.22	24.24	24.38
180	0.29	0.33	0.39	28.57	30.17	32.21	24.00	24.13	24.28
190	0.31	0.38	0.41	28.31	30.12	32.47	23.79	23.94	24.16
200	0.33	0.39	0.44	28.01	29.92	32.40	23.48	23.65	23.88
220	0.34	0.41	0.45	27.71	29.72	32.37	23.02	23.26	23.49
230	0.35	0.41	0.46	27.71	29.79	32.43	22.87	23.06	23.31
260	0.39	0.48	0.54	27.27	28.99	31.09	22.54	22.61	22.79
300	0.43	0.53	0.61	26.81	27.95	29.15	22.33	22.22	22.23
320	0.48	0.57	0.65	26.67	27.53	28.43	22.61	22.43	22.36
330	0.50	0.58	0.69	26.67	27.43	28.24	22.73	22.51	22.41
360	0.54	0.65	0.75	26.48	27.17	27.80	23.05	22.82	22.59
400	0.63	0.77	0.90	25.97	26.50	26.62	23.09	22.86	22.41
420	0.70	0.86	1.00	24.85	25.01	24.74	22.53	22.21	21.63
430	0.74	0.88	1.05	24.08	24.02	23.59	22.13	21.75	21.11
460	0.88	1.08	1.26	20.34	19.88	19.26	19.53	19.01	18.37
500	1.24	1.50	1.75	15.01	14.50	13.99	15.26	14.92	14.51
520	1.51	1.84	2.16	12.76	12.36	11.90	13.58	13.45	13.27
530	1.69	2.05	2.39	11.75	11.38	10.97	12.93	12.95	12.95
560	2.47	2.96	3.49	9.21	8.86	8.52	12.45	13.27	14.25
600	5.78	7.15	8.56	4.65	4.25	3.90	9.94	9.71	9.15
620	10.67	12.64	14.55	2.42	2.36	2.29	5.17	5.09	4.95
650	22.57	25.07	27.46	1.19	1.33	1.41	2.48	2.69	2.81
660	27.58	30.27	32.81	1.04	1.18	1.29	2.11	2.32	2.47
680	39.99	41.56	41.87	0.87	1.02	1.12	1.67	1.89	2.06
700	42.80	42.18	41.99	0.74	0.89	1.00	1.43	1.65	1.82
800	45.78	44.83	44.08	0.47	0.59	0.68	0.95	1.14	1.29
900	40.24	40.36	40.49	0.38	0.48	0.57	0.71	0.87	1.00
1000	43.01	43.47	43.84	0.29	0.40	0.47	0.57	0.69	0.81
1500	57.26	57.49	57.77	0.17	0.27	0.35	0.25	0.34	0.40
2000	63.14	62.72	62.58	0.12	0.20	0.29	0.15	0.20	0.24
2500	47.75	47.49	47.24	0.14	0.22	0.30	0.12	0.18	0.22
3000	39.18	39.04	38.79	0.13	0.23	0.29	0.11	0.18	0.24
3500	34.21	34.18	34.06	0.13	0.24	0.30	0.05	0.13	0.23
4000	32.41	32.74	33.06	0.10	0.24	0.34	0.05	0.15	0.28
4500	24.14	24.40	24.62	0.11	0.27	0.40	0.10	0.22	0.39
5000	23.55	23.54	23.58	0.11	0.26	0.42	0.11	0.28	0.47
5500	22.17	22.19	22.28	0.14	0.31	0.49	0.14	0.31	0.52
6000	20.21	20.27	20.48	0.23	0.44	0.61	0.19	0.37	0.58
6500	19.92	20.86	20.74	0.72	0.84	1.04	0.49	0.60	0.81
7000	20.33	20.40	20.72	0.69	1.14	1.62	0.26	0.41	0.59
7500	19.18	19.15	19.20	0.43	0.60	0.76	0.25	0.37	0.54
8000	17.90	17.98	18.07	0.31	0.48	0.62	0.26	0.40	0.52
8500	16.88	17.06	17.20	0.30	0.47	0.60	0.30	0.42	0.52
9000	16.04	16.18	16.26	0.33	0.53	0.67	0.36	0.50	0.63
9500	15.44	15.43	15.38	0.42	0.70	0.92	0.43	0.65	0.87
10000	14.86	14.85	14.84	0.68	1.05	1.38	0.63	0.95	1.31
15000	7.01	7.01	7.03	5.03	7.20	10.13	3.07	3.57	4.11

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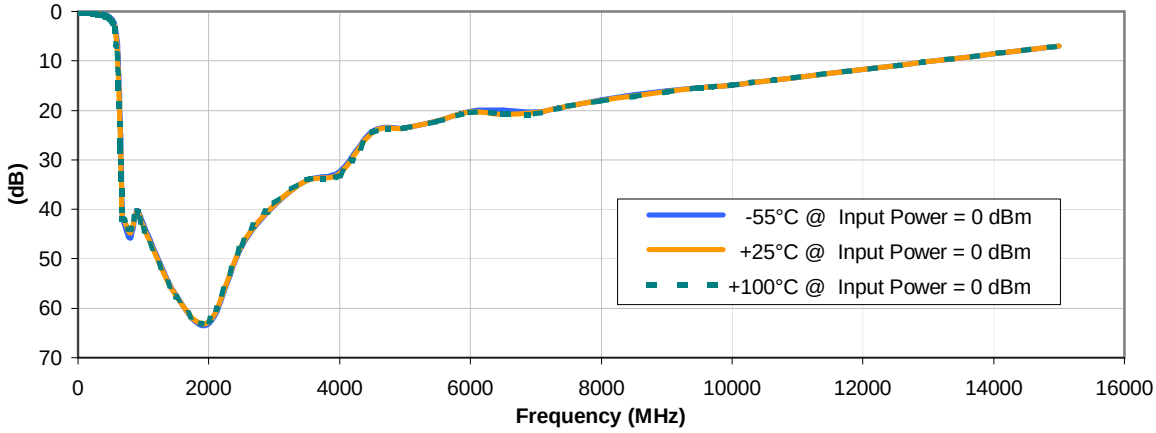
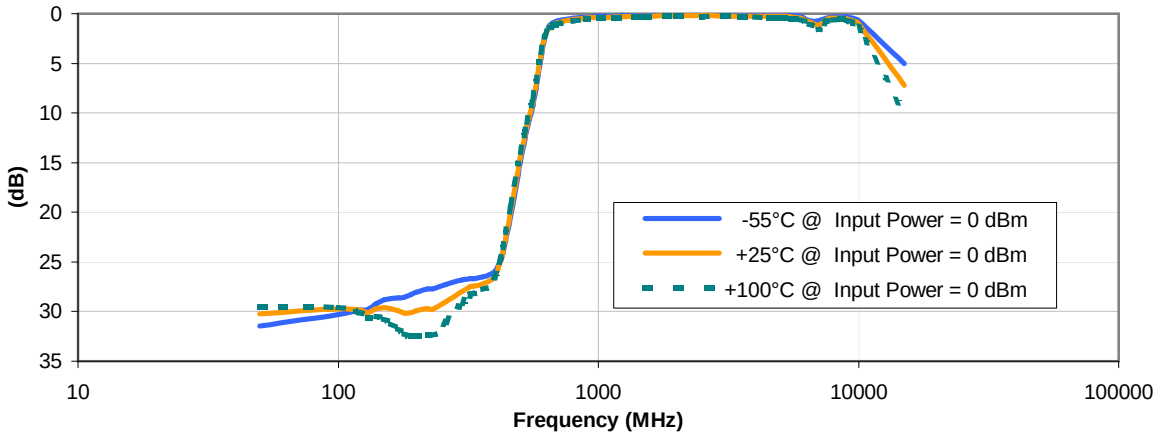
Coaxial Low Pass Filter VLF-400+

Typical Performance Curves

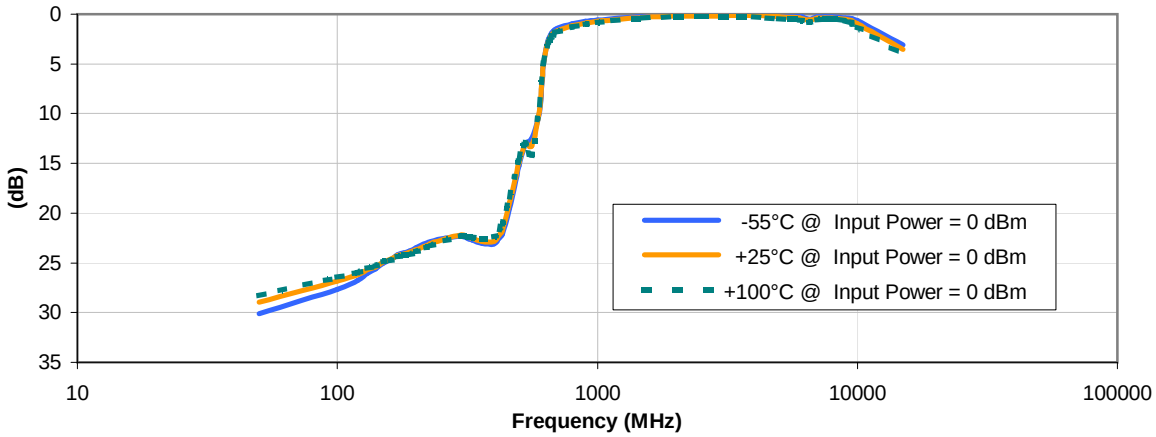
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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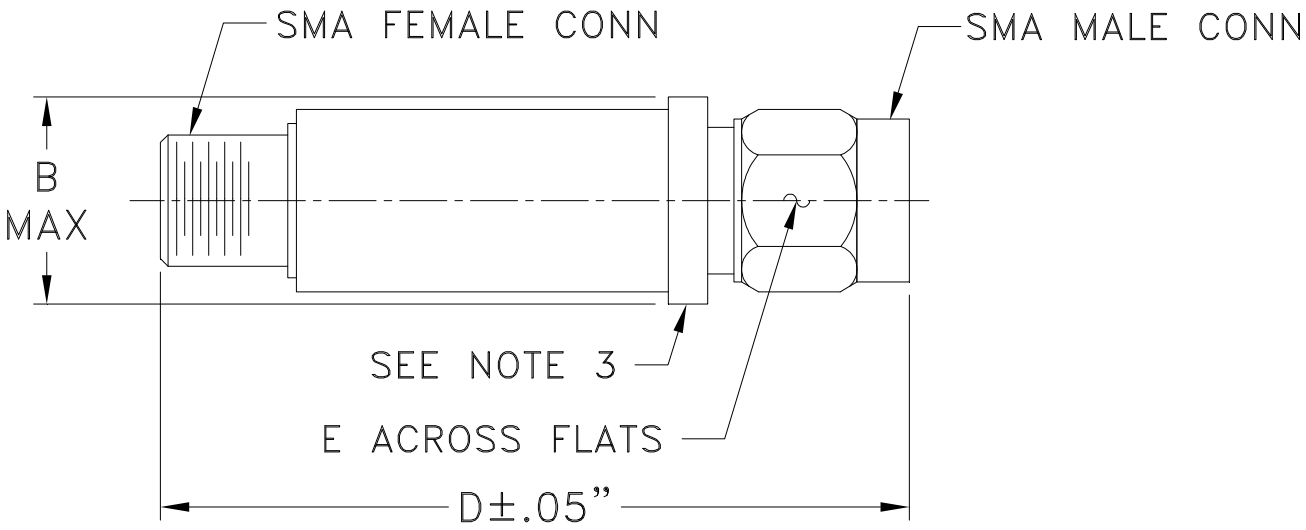
Case Style FF

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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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

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