

# Low Pass Filter

## VLF-4400+

50Ω DC to 4400 MHz

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	8W at 25°C
DC Current Input to Output	0.5A max. at 25°C

\*Passband rating, derate linearly to 3 W 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, 8W
- Temperature stable
- Low cost
- Protected by US Patent 6,943,646

### Applications

- Harmonic rejection
- Transmitters/receivers
- Lab use



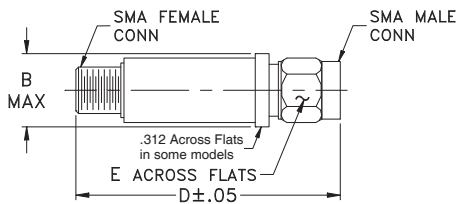
CASE STYLE: FF704

Connectors	Model
SMA	VLF-4400+

### +RoHS Compliant

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

### Outline Drawing



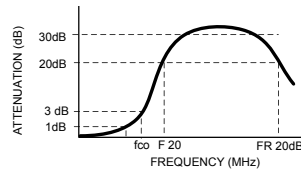
### Outline Dimensions (inch/mm)

B	D	E	wt.
.410	1.43	.312	grams
10.41	36.32	7.92	10

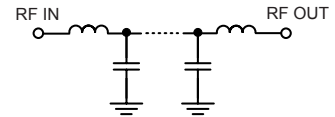
### Low Pass Filter Electrical Specifications (T<sub>AMB</sub> = 25°C)

PASSBAND (MHz)	f <sub>co</sub> , MHz Nom.	STOP BAND (MHz) (loss, dB)			VSWR (:1)		NO. OF SECTIONS
		F 20 Min.	30 Typ.	FR 20 Typ.	Stopband Typ.	Passband Typ.	
(loss < 1 dB) Max.	(loss 3 dB) Typ.						
DC-4400	5290	6700	6280-9800	13000	17	1.2	7

### Typical frequency response

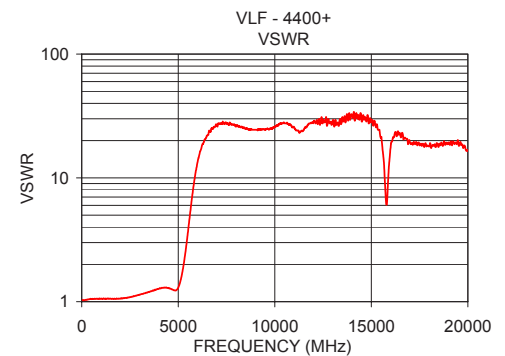
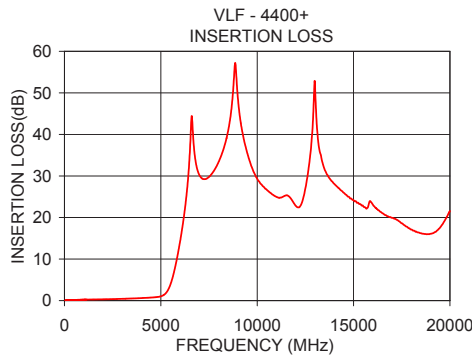


### Electrical schematic



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
50	0.05	1.03
320	0.12	1.05
1340	0.23	1.05
3740	0.55	1.27
4400	0.73	1.33
5170	1.79	1.90
5290	2.69	2.62
5580	7.10	6.76
5860	14.01	13.81
6280	30.56	21.46
6700	31.54	25.56
7400	29.23	27.16
9800	33.62	28.03
13000	40.36	34.75
20000	18.06	15.00



### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Coaxial Low Pass Filter

# VLF-4400+

## Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURNLOSS (dB)		
	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C
40	0.02	0.04	0.04	35.92	32.83	30.78	37.36	33.92	31.50
100	0.02	0.04	0.04	41.20	35.52	32.03	40.82	35.59	32.07
200	0.05	0.07	0.08	32.15	35.60	35.45	31.36	35.79	36.98
300	0.06	0.08	0.09	29.24	34.48	36.78	28.80	35.23	46.19
400	0.05	0.09	0.10	30.88	33.24	35.94	31.35	34.55	46.23
500	0.06	0.10	0.12	31.39	32.32	34.48	32.09	33.12	41.15
600	0.07	0.11	0.13	30.46	31.50	32.58	31.07	32.42	37.18
700	0.07	0.12	0.15	30.37	30.79	31.59	31.18	32.12	36.63
800	0.07	0.13	0.15	30.47	30.41	31.44	31.52	32.02	36.84
900	0.08	0.13	0.17	29.65	29.79	30.96	31.10	31.59	35.39
1000	0.09	0.15	0.18	28.91	29.24	30.08	30.68	31.03	33.21
1100	0.10	0.16	0.20	28.34	28.81	29.26	30.12	30.74	31.85
2000	0.13	0.22	0.27	27.94	28.41	28.37	28.28	30.15	30.74
2100	0.13	0.23	0.27	28.25	28.52	28.32	28.54	30.32	31.12
3000	0.19	0.30	0.39	27.15	25.53	24.03	27.70	26.91	26.07
3100	0.19	0.31	0.40	26.67	24.82	23.44	27.47	25.99	25.08
3500	0.25	0.38	0.47	20.42	20.47	20.08	21.15	21.40	21.05
3600	0.28	0.41	0.51	19.59	19.60	19.35	20.06	20.32	20.13
4000	0.35	0.50	0.63	17.48	17.17	16.94	17.80	17.66	17.54
4100	0.38	0.53	0.67	17.18	16.87	16.57	17.48	17.27	17.04
4400	0.42	0.59	0.76	17.49	17.17	16.42	17.52	17.18	16.50
5000	0.66	0.88	1.08	18.35	18.34	18.51	17.07	17.09	17.56
5100	0.85	1.09	1.31	14.56	14.20	14.15	13.91	13.69	13.92
6000	13.20	14.10	14.96	0.86	1.03	1.15	0.94	1.10	1.19
7000	30.43	30.64	30.71	0.31	0.47	0.58	0.38	0.55	0.68
8000	32.47	33.30	34.06	0.20	0.41	0.58	0.27	0.50	0.71
8500	39.62	40.92	42.52	0.18	0.44	0.68	0.29	0.53	0.78
9000	51.05	48.44	44.08	0.19	0.47	0.75	0.32	0.52	0.78
9900	30.10	30.53	30.70	0.19	0.43	0.61	0.37	0.55	0.74
10000	29.43	29.83	30.09	0.17	0.41	0.59	0.35	0.54	0.74
10100	28.82	29.20	29.54	0.15	0.37	0.54	0.31	0.51	0.74
10500	26.72	27.23	27.62	0.13	0.36	0.51	0.33	0.53	0.76
11000	24.60	25.12	25.38	0.13	0.34	0.47	0.40	0.61	0.89
11100	24.23	24.74	24.99	0.16	0.36	0.49	0.44	0.65	0.94
12000	21.93	21.81	22.40	0.33	0.45	0.41	2.43	3.62	4.96
12100	21.88	21.85	22.27	0.32	0.44	0.37	3.44	5.14	7.21
13000	40.80	41.04	41.74	0.02	0.20	0.34	0.94	1.18	1.22
13100	44.16	42.70	40.50	0.01	0.23	0.40	0.71	0.91	1.01
14000	29.39	28.76	27.42	0.23	0.35	0.68	0.16	0.39	0.59
14100	28.30	27.81	26.37	0.15	0.29	0.65	0.16	0.39	0.58
15000	23.38	23.52	23.31	0.02	0.25	0.58	0.15	0.36	0.55
15100	23.06	23.15	23.04	0.07	0.31	0.54	0.19	0.35	0.48
16000	22.89	22.12	22.19	0.62	0.78	0.95	0.22	0.47	0.59
16100	22.25	21.46	21.60	0.27	0.51	0.83	0.21	0.43	0.56
17000	20.48	19.72	19.88	0.18	0.42	0.97	0.24	0.66	0.95
17100	20.47	19.67	19.79	0.22	0.45	0.94	0.28	0.71	0.92
18000	16.88	17.40	18.22	0.31	0.40	0.53	0.45	1.00	1.63
18100	16.46	17.13	18.01	0.24	0.38	0.54	0.47	1.11	1.84
19000	14.36	15.27	17.34	0.28	0.48	0.54	2.04	2.23	2.66
19100	14.35	15.30	17.53	0.29	0.51	0.59	2.24	2.29	2.56
19500	16.31	16.58	18.31	0.20	0.55	0.72	1.93	2.10	2.17
19700	17.87	17.70	18.86	0.22	0.44	0.80	1.39	1.86	2.01
19800	18.80	18.51	19.13	0.21	0.51	0.95	1.23	1.82	1.94
19900	19.66	19.48	19.62	0.27	0.58	1.05	1.07	1.67	1.84
20000	20.56	20.39	20.27	0.31	0.57	1.12	0.91	1.48	1.76

REV. X1  
VLF-4400+  
080730



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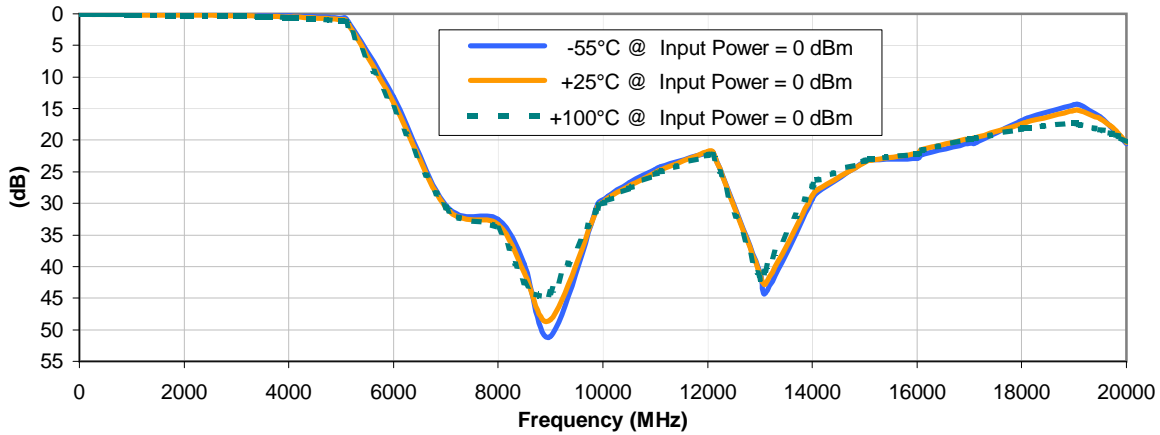
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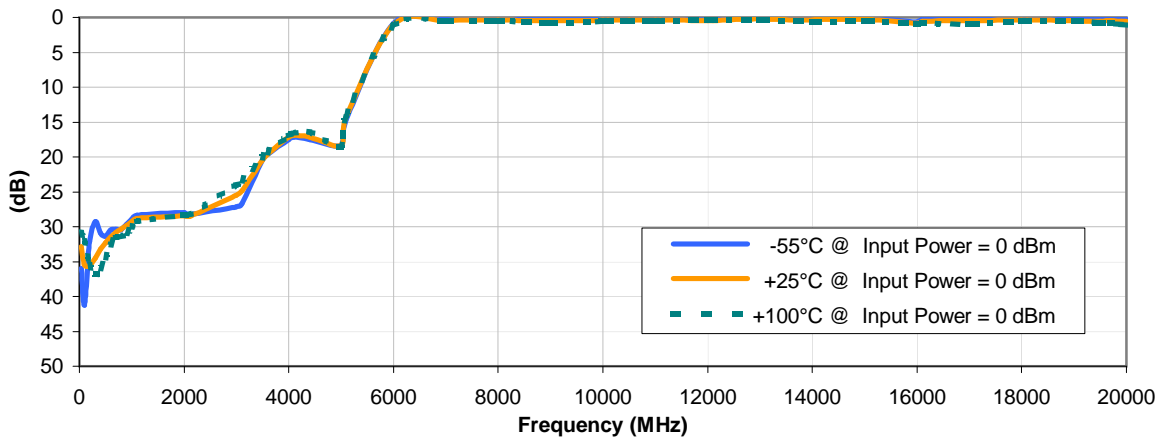
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## Typical Performance Curves

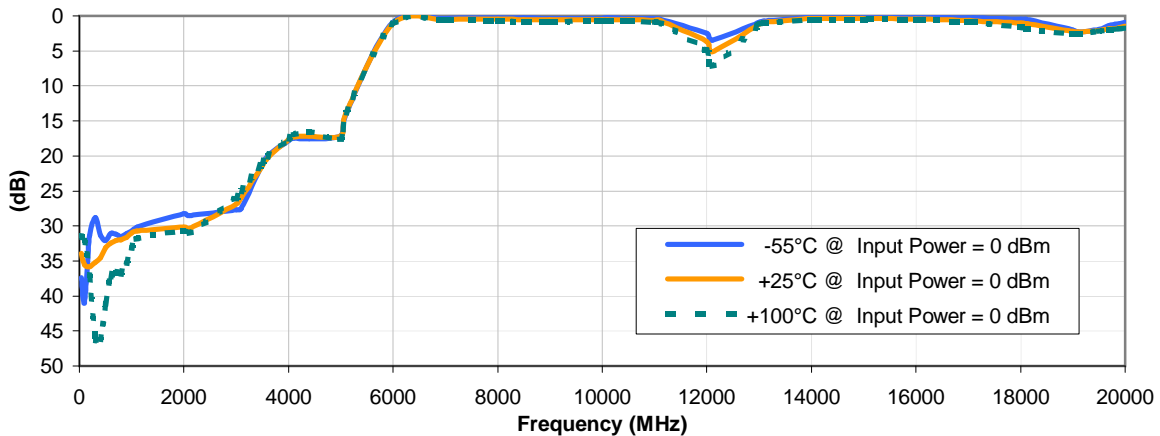
### INSERTION LOSS vs. TEMPERATURE



### INPUT RETURN LOSS vs. TEMPERATURE



### OUTPUT RETURN LOSS vs. TEMPERATURE

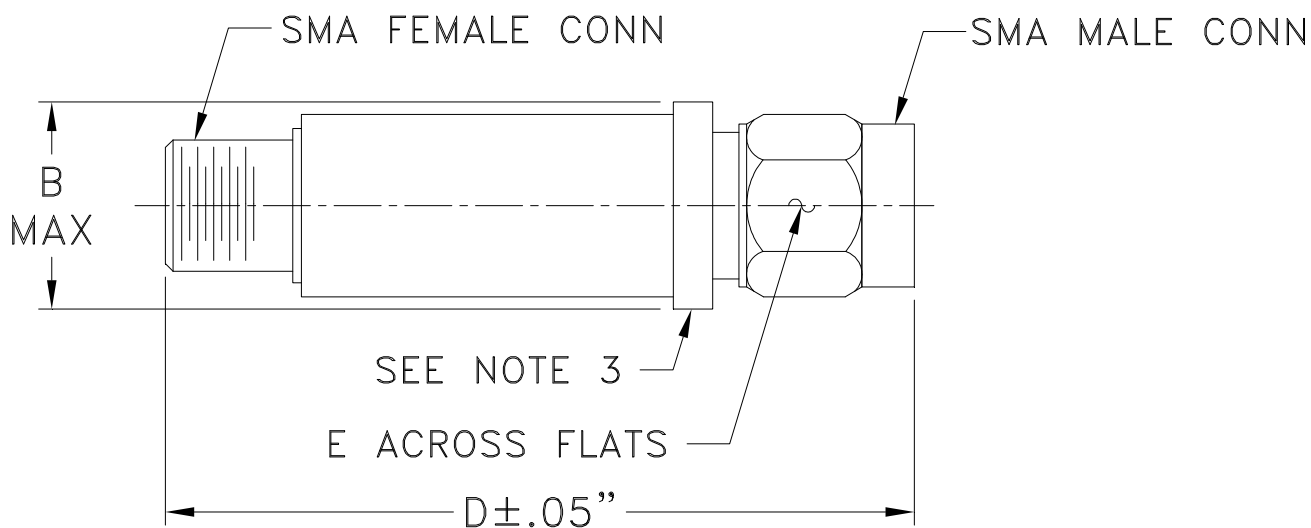


# Case Style

# 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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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.

<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
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