

Low Pass Filter

50Ω

*DC to 160 MHz

VLF-160+

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



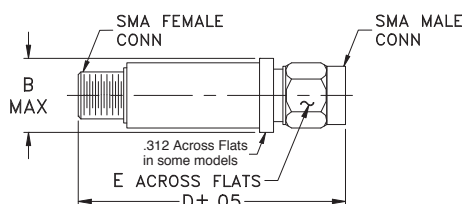
CASE STYLE: FF704

Connectors	Model
SMA	VLF-160+

+RoHS Compliant

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

Outline Drawing



Outline Dimensions (inch mm)

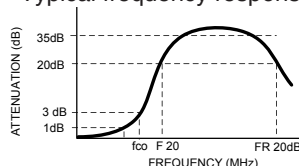
B	D	E	wt.
.410	1.43	.312	grams
10.41	36.32	7.92	10

Low Pass Filter Electrical Specifications (T_{AMB} = 25°C)

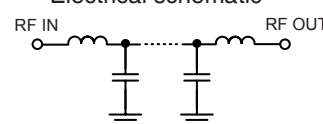
PASSBAND (MHz) (loss < 1 dB) Max.	fco, MHz Nom. (loss 3 dB) Typ.	STOP BAND (MHz) (loss, dB)			VSWR (:1)		NO. OF SECTIONS
		F 20 Min.	35 Typ.	FR 20 Typ.	Stopband Typ.	Passband Typ.	
*DC - 160	230	330	480 - 2700	6100	17	1.2	7

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

Typical frequency response



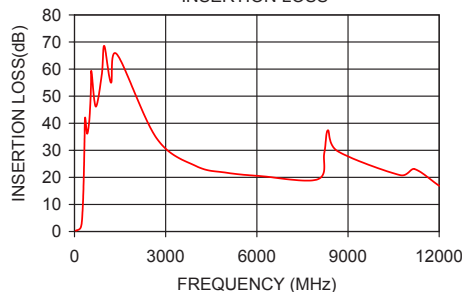
Electrical schematic



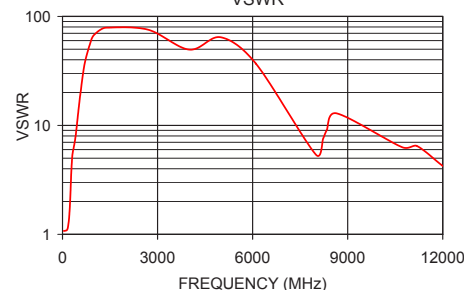
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
40	0.32	1.07
100	0.52	1.08
150	0.78	1.11
160	0.85	1.13
210	1.64	1.44
230	2.55	1.77
260	6.08	2.81
280	10.97	3.87
310	22.74	5.27
330	33.27	5.81
350	42.12	6.19
480	40.13	11.85
1000	64.46	69.49
2700	34.45	75.53
6100	20.50	36.97
9000	23.14	15.13
12000	16.88	4.24

VLF-160+
INSERTION LOSS



VLF-160+
VSWR



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-160+

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	0.25	0.32	0.36	31.60	30.04	28.08	31.23	29.65	27.93
50	0.27	0.32	0.36	30.79	29.57	27.77	30.19	29.00	27.41
80	0.36	0.42	0.47	30.14	29.19	27.83	28.64	27.64	26.64
100	0.43	0.50	0.55	30.44	29.37	28.28	28.29	27.08	26.25
150	0.66	0.76	0.83	27.70	28.11	29.55	24.83	24.46	24.46
160	0.73	0.83	0.90	25.45	26.06	27.74	23.29	23.20	23.41
175	0.86	0.97	1.06	21.73	22.28	23.48	20.74	20.90	21.24
205	1.35	1.48	1.59	14.23	14.58	14.96	15.14	15.53	15.77
230	2.44	2.56	2.68	8.56	8.94	9.18	10.34	10.99	11.36
235	2.82	2.92	3.04	7.55	7.94	8.18	9.42	10.13	10.55
250	4.54	4.56	4.64	4.90	5.30	5.56	6.94	7.74	8.32
275	10.14	9.89	9.78	2.23	2.53	2.75	4.24	4.87	5.49
290	15.43	14.96	14.72	1.56	1.79	1.96	3.44	3.92	4.40
300	19.78	19.14	18.80	1.33	1.54	1.69	3.12	3.53	3.92
315	27.53	26.61	26.11	1.15	1.34	1.47	2.82	3.17	3.48
325	33.39	32.36	31.78	1.09	1.27	1.40	2.68	3.03	3.30
330	36.36	35.40	34.82	1.06	1.24	1.37	2.62	2.97	3.24
335	39.08	38.38	37.94	1.05	1.23	1.36	2.59	2.97	3.23
350	42.18	43.21	44.22	1.01	1.19	1.31	2.47	2.84	3.14
420	35.06	35.15	35.20	0.85	1.01	1.15	1.84	2.15	2.48
480	39.79	39.40	39.15	0.74	0.89	1.01	1.28	1.48	1.68
515	46.45	45.45	44.83	0.67	0.81	0.92	1.01	1.17	1.33
535	53.05	51.16	49.97	0.64	0.77	0.88	0.88	1.03	1.16
550	58.87	56.79	55.06	0.63	0.76	0.87	0.81	0.94	1.06
560	56.89	57.85	57.54	0.62	0.75	0.85	0.76	0.89	1.00
680	44.95	45.08	45.20	0.46	0.57	0.65	0.41	0.49	0.55
800	48.84	48.32	48.04	0.35	0.43	0.50	0.30	0.35	0.40
920	62.22	59.17	57.62	0.27	0.34	0.41	0.24	0.27	0.31
1350	59.41	60.01	60.47	0.16	0.21	0.25	0.21	0.23	0.26
1900	41.76	41.93	42.07	0.16	0.19	0.22	0.19	0.23	0.26
2700	35.54	34.80	34.32	0.81	0.65	0.59	0.18	0.22	0.28
2900	24.17	23.97	25.35	2.32	5.05	7.60	0.33	0.33	0.38
3200	27.02	27.12	27.21	0.37	0.42	0.45	0.44	0.75	1.07
6100	18.76	19.67	20.19	3.66	4.52	4.43	0.52	0.58	0.67
7200	14.44	14.67	14.93	0.32	0.54	0.78	2.56	2.20	1.99
8500	31.97	33.45	36.12	0.24	0.49	0.80	1.29	1.52	1.75
11000	20.60	19.33	19.24	1.41	1.37	1.28	2.15	2.31	2.59
12000	17.34	19.28	22.22	3.78	2.87	2.37	3.81	3.32	3.41
13000	18.06	20.19	22.79	1.35	1.26	1.41	3.26	3.29	3.99
14000	11.97	12.64	13.73	1.69	2.04	2.50	4.71	3.99	3.91
16000	11.11	11.50	12.06	0.73	1.05	1.33	2.83	2.80	2.85
18000	14.37	17.17	19.70	0.25	0.62	1.23	1.27	1.88	2.59

REV. X1

VLF-160+

071008

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED RoHS compliant

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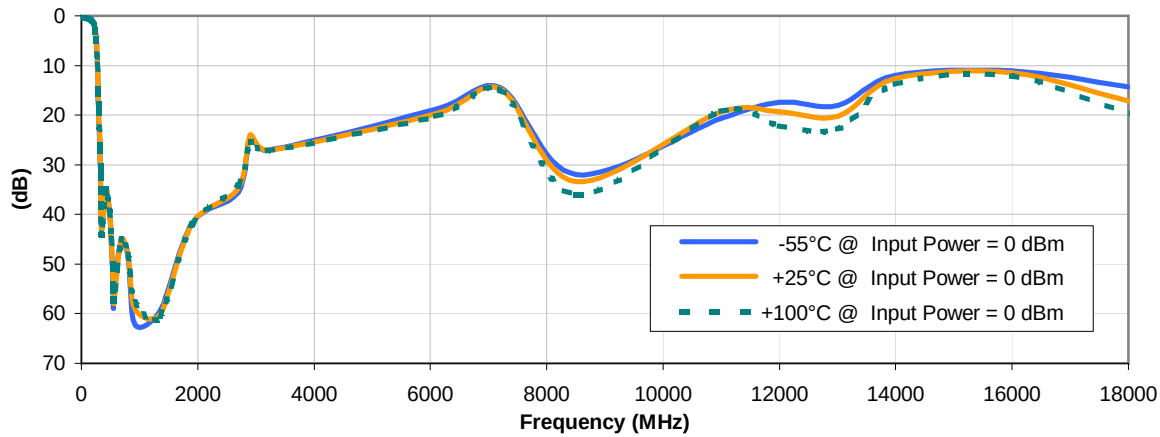


Coaxial Low Pass Filter

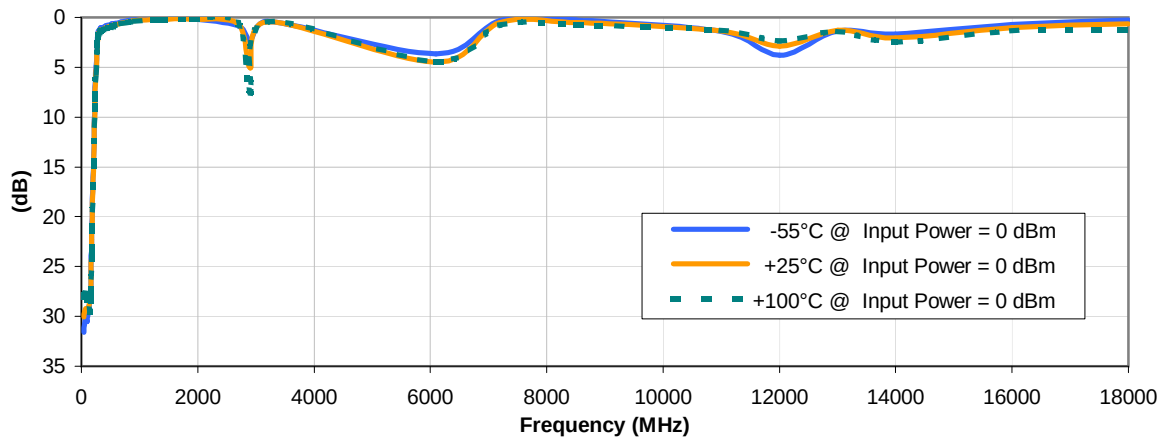
Typical Performance Curves

VLF-160+

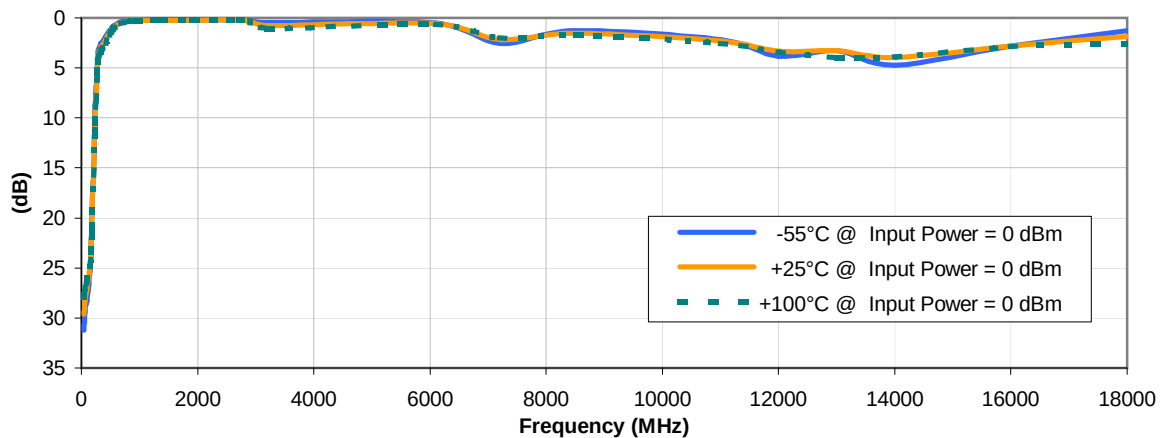
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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VLF-160+
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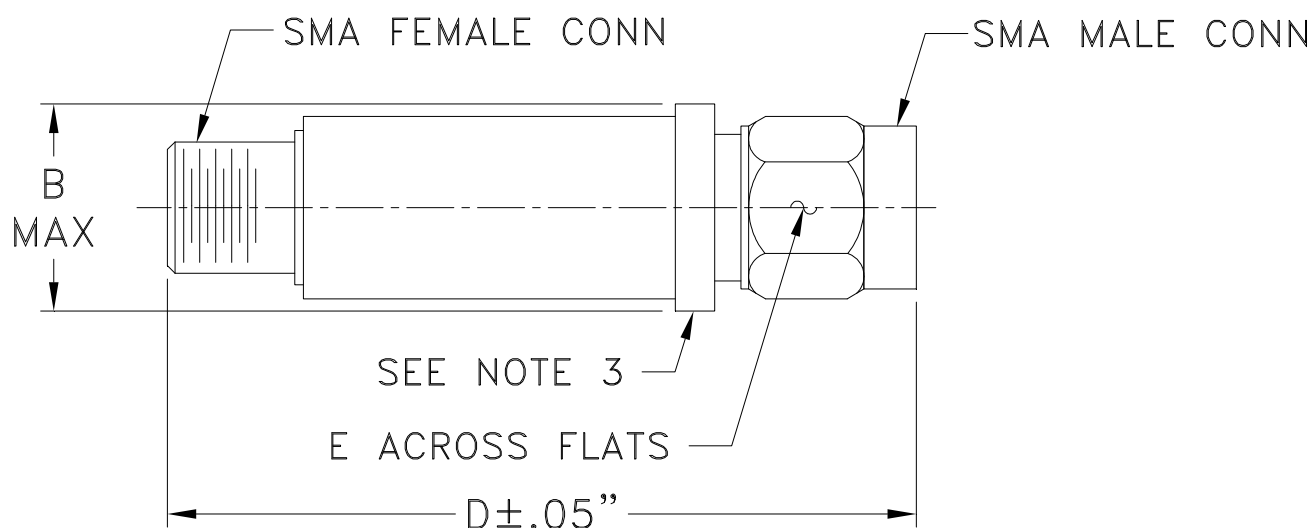
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Outline Dimensions



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