

Coaxial High Pass Filter

VHF-1080+

50Ω 1150 to 5000 MHz

The Big Deal

- Pass band (1150 to 5000 MHz)
- Low insertion loss <1dB (1500-4000 MHz)
- Versatile small size, coaxial, 1.43" length



CASE STYLE: FF704

Product Overview

The VHF-1080+ High Pass Filter is constructed using internal LTCC High Pass Filter structure to achieve repeatable performance. Covering 1150-5000MHz, these filters offer a wide bandwidth, good rejection and low insertion loss. Built using Mini-Circuits proven unibody construction which integrates the RF connectors with the case body, the VHF-1080+ takes very little space and meets rugged field test lab system environment.

Key Features

Feature	Advantages
Rejection peaks at harmonic frequencies	Provides good rejection of signals at harmonic frequencies, for improved system performance.
Compact Versatile Case	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 High Pass Filter

50Ω 1150 to 5000 MHz

VHF-1080+



Features

- Low insertion loss <1dB (1500-4000 MHz)
- Temperature stable
- Rugged unibody construction, small size

CASE STYLE: FF704

Connectors SMA Model VHF-1080+

Electrical Specifications⁽¹⁾ at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	DC-F1	DC-600	40	45	-	dB
	Rejection Loss	F1-F2	20	30	-	
	F3	780	-	20	-	
	F4	1080	-	3	-	
	VSWR	DC-F3	-	20	-	:1
Pass Band	Insertion Loss	F5-F8	-	2.0	-	dB
	F6-F7	1500-4000	-	0.6	1.3	
	VSWR	F5-F7	-	2.0	-	:1

(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

Maximum Ratings

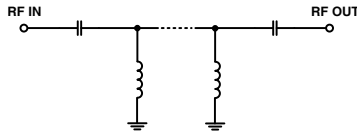
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	7 W

*Passband rating derated linearly to 3W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

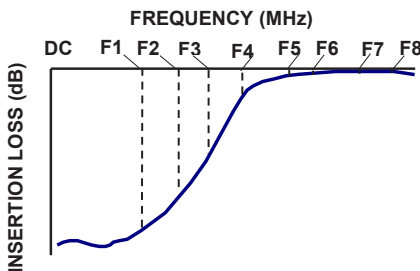
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	92.45	6470.90
100	71.34	1388.17
600	47.82	95.94
750	32.42	52.52
760	31.46	50.59
770	30.46	47.86
780	29.48	45.92
870	20.70	28.45
900	17.79	22.97
950	12.97	14.68
1000	8.42	8.06
1050	4.68	3.97
1080	3.11	2.64
1100	2.38	2.07
1150	1.40	1.34
1200	1.05	1.12
1500	0.61	1.24
3000	0.27	1.03
4000	0.55	1.66
5000	1.35	2.71

Functional Schematic

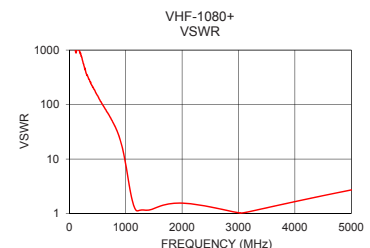
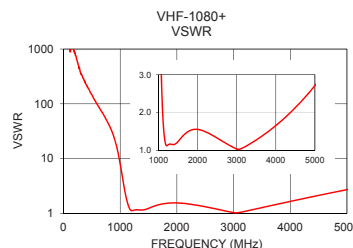
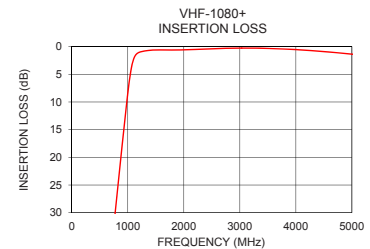
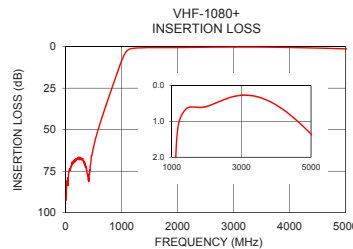


Typical Frequency Response



+RoHS Compliant

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



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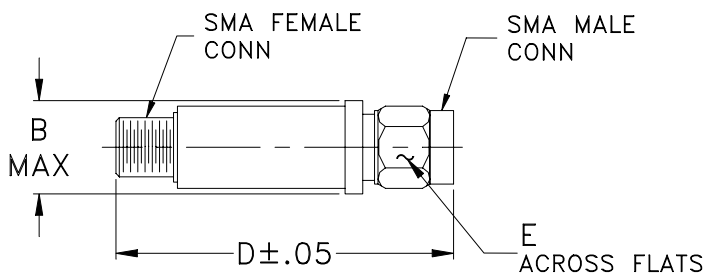
www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. OR
M159042
VHF-1080+
EDU2542
URJ
170524
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Coaxial Connections

INPUT	SMA-Female
OUTPUT	SMA-Male

Outline Drawing



Outline Dimensions (^{inch}/_{mm})

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

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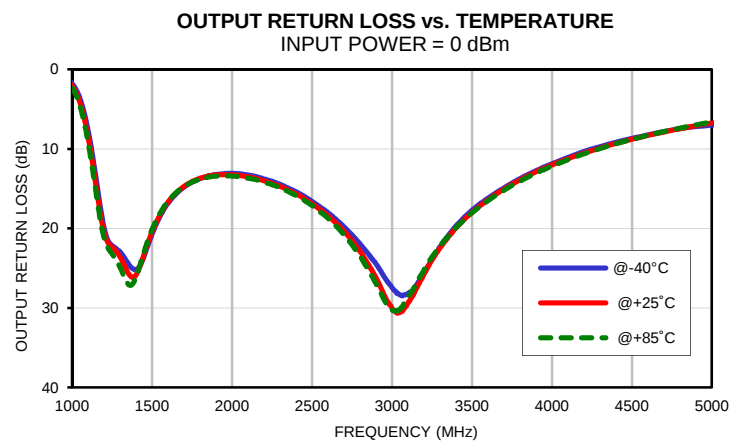
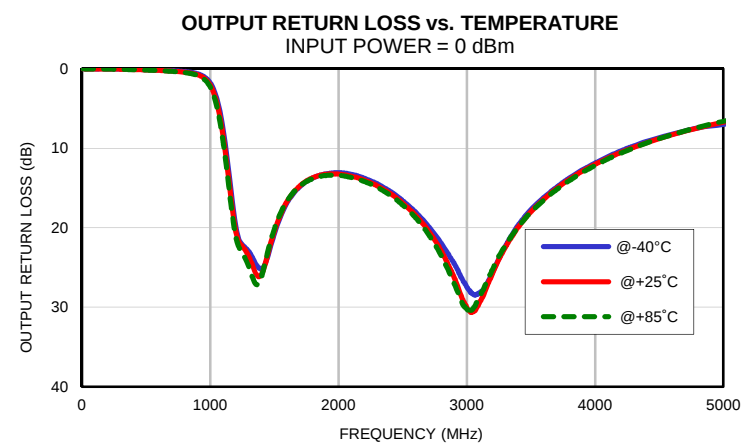
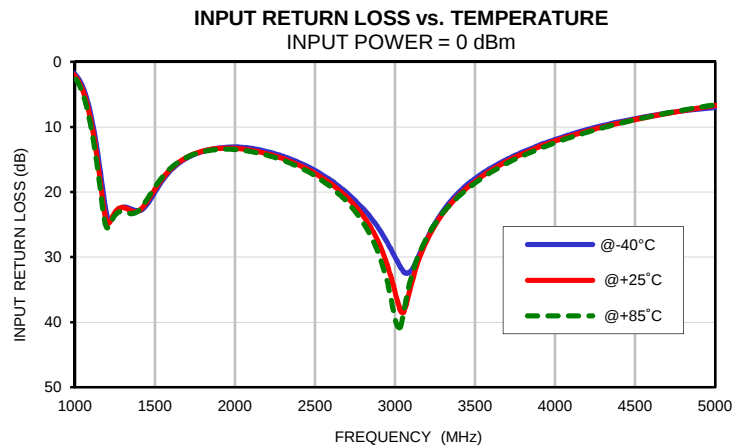
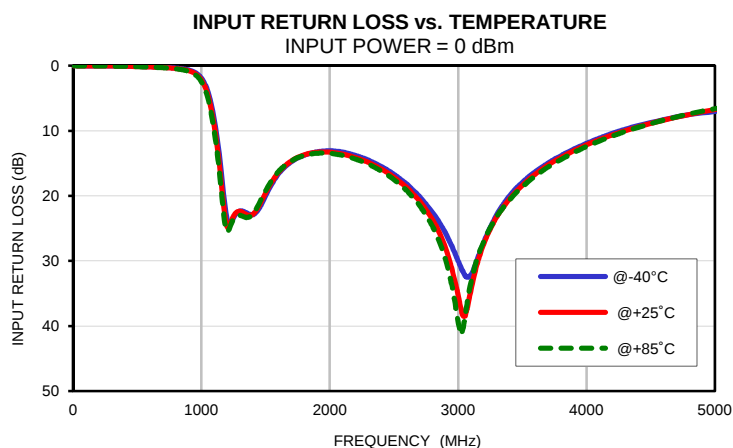
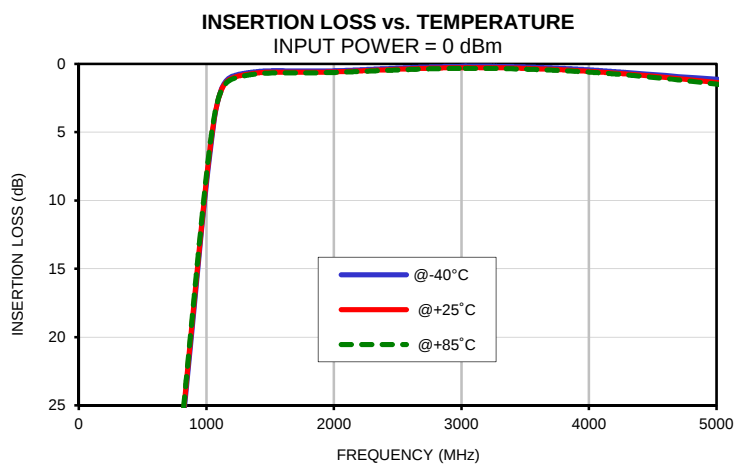
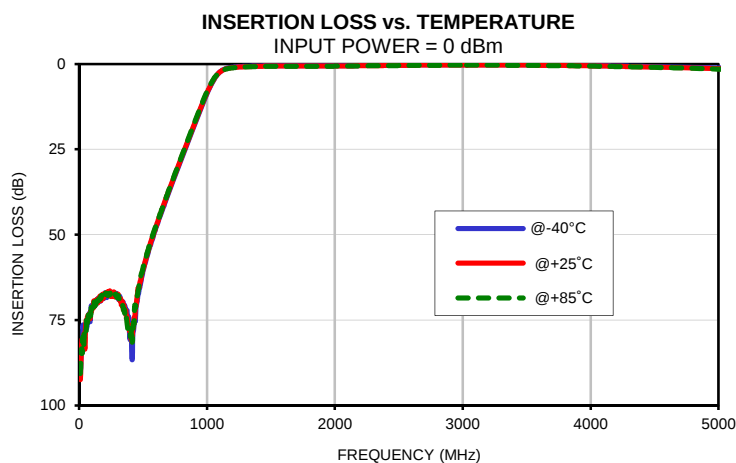
Typical Performance Data

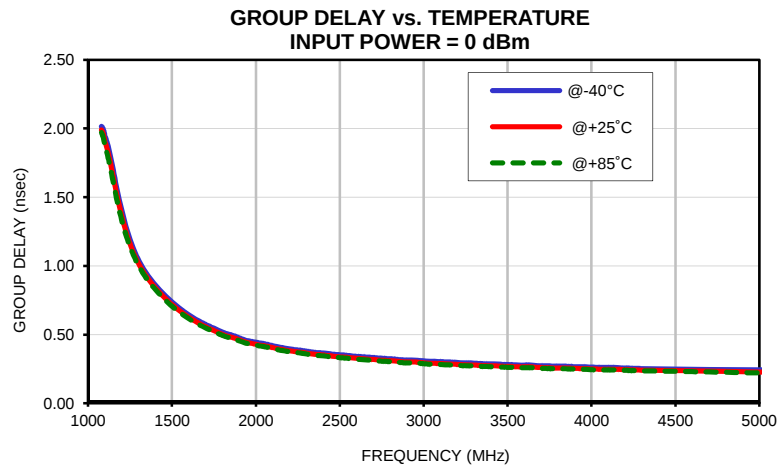
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
10	92.01	92.45	90.64	0.00	0.00	0.00	0.00	0.00	0.00
20	82.06	81.24	83.40	0.00	0.00	0.00	0.01	0.01	0.01
40	79.78	78.98	78.98	0.01	0.01	0.01	0.01	0.01	0.01
60	77.18	75.18	73.66	0.01	0.01	0.01	0.01	0.01	0.01
80	72.99	73.35	73.90	0.01	0.01	0.01	0.01	0.01	0.01
100	70.98	71.34	71.29	0.01	0.01	0.02	0.00	0.01	0.02
120	70.27	70.93	70.97	0.02	0.02	0.02	0.01	0.02	0.02
140	70.06	68.95	70.49	0.01	0.01	0.02	0.00	0.02	0.02
150	68.64	68.95	69.18	0.01	0.01	0.02	0.00	0.01	0.02
175	68.05	68.73	67.78	0.01	0.02	0.02	0.01	0.02	0.03
200	67.28	67.30	68.05	0.01	0.02	0.03	0.01	0.03	0.03
400	80.71	78.22	79.79	0.06	0.08	0.09	0.06	0.09	0.10
600	48.11	47.82	47.56	0.14	0.18	0.20	0.15	0.20	0.22
650	42.88	42.48	42.27	0.17	0.22	0.24	0.19	0.24	0.27
700	37.75	37.38	37.17	0.22	0.27	0.29	0.23	0.29	0.32
750	32.79	32.42	32.19	0.27	0.33	0.37	0.28	0.35	0.39
760	31.79	31.46	31.18	0.29	0.34	0.38	0.29	0.37	0.40
770	30.83	30.46	30.19	0.30	0.36	0.40	0.30	0.38	0.42
780	29.83	29.48	29.20	0.32	0.38	0.42	0.32	0.40	0.44
800	27.88	27.52	27.25	0.35	0.41	0.46	0.35	0.43	0.47
820	25.93	25.56	25.28	0.38	0.46	0.51	0.38	0.47	0.52
840	23.97	23.61	23.32	0.43	0.51	0.57	0.42	0.52	0.57
850	22.99	22.64	22.34	0.46	0.54	0.60	0.44	0.54	0.60
860	22.02	21.66	21.36	0.48	0.57	0.64	0.47	0.57	0.64
870	21.04	20.70	20.38	0.52	0.61	0.68	0.50	0.61	0.68
880	20.08	19.73	19.40	0.55	0.65	0.73	0.54	0.65	0.72
900	18.13	17.79	17.46	0.64	0.76	0.85	0.62	0.74	0.83
950	13.29	12.97	12.63	1.01	1.18	1.33	0.97	1.14	1.28
970	11.40	11.10	10.77	1.27	1.48	1.67	1.20	1.41	1.58
1000	8.68	8.42	8.12	1.87	2.17	2.44	1.77	2.05	2.29
1050	4.82	4.68	4.51	3.92	4.47	4.98	3.69	4.18	4.64
1080	3.16	3.11	3.04	6.15	6.93	7.63	5.76	6.44	7.04
1100	2.37	2.38	2.36	8.18	9.14	9.98	7.61	8.40	9.09
1120	1.81	1.87	1.89	10.67	11.83	12.82	9.82	10.72	11.48
1150	1.30	1.40	1.46	15.28	16.83	18.04	13.68	14.65	15.46
1200	0.93	1.05	1.13	23.62	24.75	25.49	19.89	20.49	21.15
1220	0.85	0.98	1.05	24.41	24.51	24.91	21.30	21.62	22.28
1250	0.78	0.90	0.97	23.40	23.12	23.59	22.15	22.34	23.19
1300	0.69	0.80	0.86	22.32	22.37	22.98	22.97	23.58	24.89
1400	0.56	0.67	0.73	22.89	22.85	22.81	25.21	25.87	26.17
1500	0.51	0.61	0.67	19.99	19.55	19.21	20.75	20.43	20.14
1600	0.51	0.60	0.66	16.61	16.39	16.26	16.82	16.67	16.59
1700	0.51	0.61	0.66	14.77	14.63	14.64	14.81	14.71	14.74
1750	0.52	0.61	0.66	14.17	14.07	14.13	14.17	14.11	14.17
1800	0.52	0.62	0.66	13.76	13.70	13.80	13.74	13.71	13.81
1850	0.52	0.61	0.66	13.44	13.43	13.55	13.43	13.42	13.56
2000	0.50	0.59	0.63	13.07	13.28	13.47	13.08	13.25	13.41
2200	0.44	0.52	0.56	13.78	14.11	14.34	13.78	14.02	14.18
2500	0.31	0.40	0.44	16.68	17.12	17.51	16.62	16.91	17.15
2600	0.27	0.36	0.41	18.19	18.70	19.20	18.02	18.39	18.72
2700	0.24	0.33	0.37	20.13	20.80	21.50	19.80	20.37	20.81
2800	0.21	0.31	0.36	22.52	23.62	24.66	21.96	22.90	23.50
3000	0.18	0.27	0.33	30.01	35.38	39.49	27.45	30.05	30.25
3200	0.17	0.28	0.34	27.12	27.40	26.96	25.65	25.77	25.24
3500	0.22	0.33	0.38	17.91	18.36	18.61	17.72	17.97	18.03
4000	0.44	0.55	0.60	11.92	12.14	12.40	11.87	12.01	12.16
4250	0.60	0.71	0.77	10.06	10.30	10.45	10.01	10.20	10.28
4500	0.78	0.90	0.98	8.72	8.84	8.88	8.67	8.78	8.79
4750	0.97	1.12	1.22	7.65	7.68	7.62	7.61	7.66	7.60
5000	1.11	1.35	1.48	7.02	6.72	6.60	7.00	6.73	6.61

Typical Performance Data

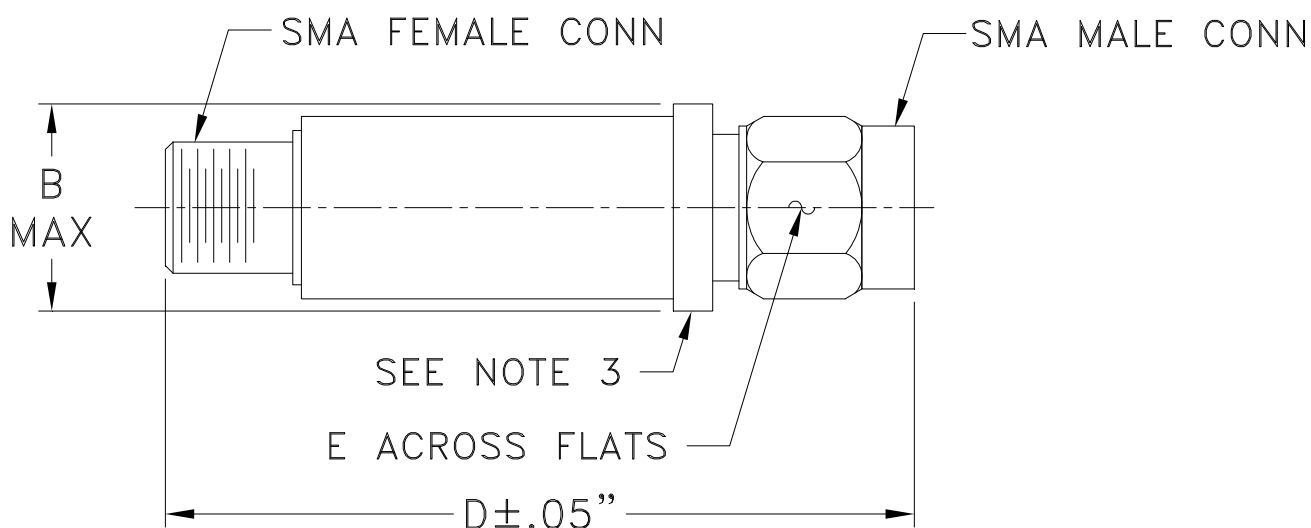
FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
1150	1.70	1.65	1.61
1180	1.52	1.47	1.44
1200	1.41	1.37	1.34
1250	1.19	1.16	1.14
1300	1.05	1.02	1.00
1350	0.94	0.92	0.91
1400	0.86	0.84	0.83
1450	0.80	0.78	0.76
1500	0.74	0.72	0.71
1550	0.69	0.67	0.66
1600	0.64	0.63	0.62
1650	0.61	0.59	0.58
1700	0.57	0.56	0.55
1750	0.55	0.53	0.52
1800	0.52	0.50	0.49
1850	0.50	0.48	0.48
1900	0.48	0.46	0.46
1950	0.46	0.44	0.44
2000	0.44	0.43	0.42
2050	0.43	0.42	0.41
2100	0.42	0.41	0.40
2150	0.41	0.39	0.39
2200	0.40	0.38	0.38
2250	0.39	0.37	0.37
2300	0.38	0.37	0.36
2400	0.37	0.35	0.35
2450	0.36	0.35	0.34
2500	0.35	0.34	0.33
2550	0.35	0.33	0.33
2600	0.34	0.33	0.32
2650	0.34	0.32	0.32
2700	0.33	0.32	0.31
2750	0.33	0.31	0.31
2800	0.32	0.31	0.30
2850	0.32	0.31	0.30
2900	0.31	0.30	0.29
3000	0.31	0.29	0.29
3100	0.30	0.29	0.28
3200	0.30	0.28	0.28
3300	0.29	0.28	0.27
3400	0.29	0.27	0.27
3500	0.28	0.27	0.26
3600	0.28	0.27	0.26
3700	0.27	0.26	0.25
3800	0.27	0.26	0.25
3900	0.27	0.25	0.25
4000	0.26	0.25	0.25
4100	0.26	0.25	0.24
4200	0.26	0.25	0.24
4300	0.25	0.24	0.24
4350	0.25	0.24	0.23
4400	0.25	0.24	0.23
4450	0.25	0.24	0.23
4500	0.25	0.24	0.23
4550	0.25	0.24	0.23
4600	0.25	0.24	0.23
4700	0.25	0.23	0.23
4800	0.25	0.23	0.23
4900	0.24	0.23	0.22
5000	0.24	0.23	0.22

Typical Performance Curves





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.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

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