



Mini-Circuits

LTCC COAXIAL

Low Pass Filter

VLFG-4400+

50Ω

DC to 4400 MHz SMA Male/Female

KEY FEATURES

- Low Insertion Loss, 1.6 dB Typ.
- Return Loss, 15 dB Typ.
- Stopband Rejection, 45 dB Typ.
- Rugged Unibody Construction
- Power Handling: 4.5 Watts



Generic photo used for illustration purposes only

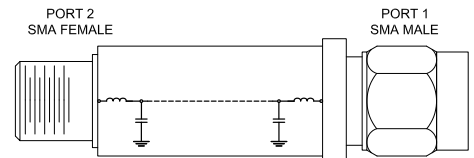
APPLICATIONS

- 5G Applications
- Test and Measurement

PRODUCT OVERVIEW

VLFG-4400+ is a Low Pass filter with DC to 4400 MHz passband supporting a variety of applications. This model provides 1.6 dB typical insertion loss over a wide band due to its rugged unibody construction. VLFG-4400+ offers low insertion loss, and excellent power handling capability. It handles up to 4.5 W RF input power and provides a wide operating temperature range from -55°C to 125°C.

FUNCTIONAL DIAGRAM

ELECTRICAL SPECIFICATIONS¹ AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC- 4400	—	1.6	2.1	dB
	Freq. Cut-Off ²	Fc	5200	—	3	—	dB
	Return Loss	DC-F1	DC - 4400	—	15	—	dB
Stopband	Rejection	F2-F3	6200 - 6700	20	40	—	dB
		F3-F4	6700 - 8800	35	45	—	
		F4-F5	8800 - 12200	25	34	—	
		F5-F6	12200 - 18000	—	23	—	

1. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

2. Typical variation $\pm 5\%$

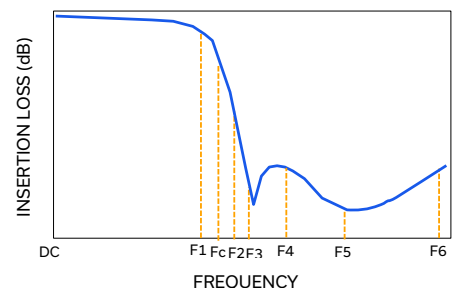
ABSOLUTE MAXIMUM RATINGS³

Parameter	Ratings
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
Input Power ⁴	4.5 W @+25°C

3. Permanent damage may occur if any of these limits are exceeded.

4. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 1 W at +125°C.

TYPICAL FREQUENCY RESPONSE AT +25°C



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

REV. OR
ECO-026769
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EDU5164
URJ
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Low Pass Filter

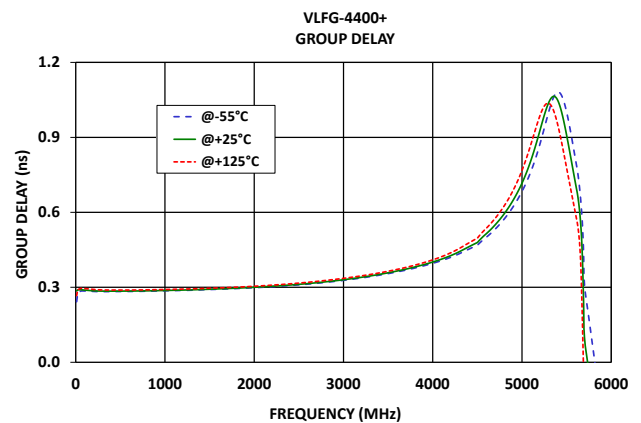
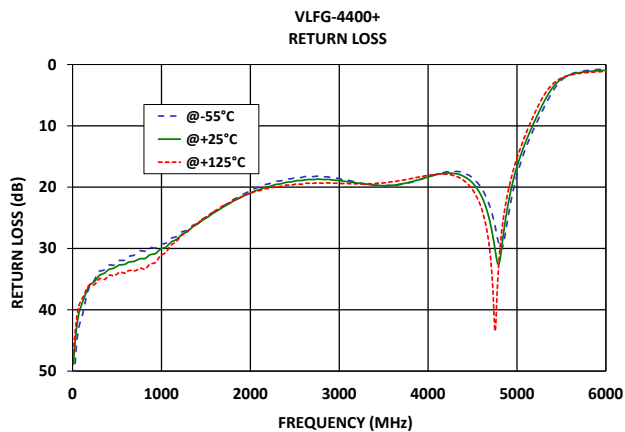
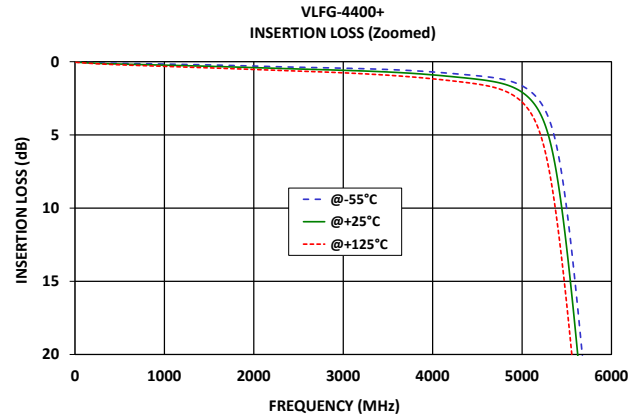
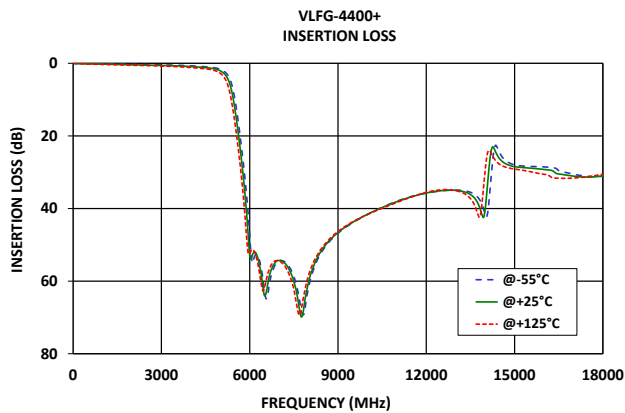
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TYPICAL PERFORMANCE GRAPHS AT +25°C

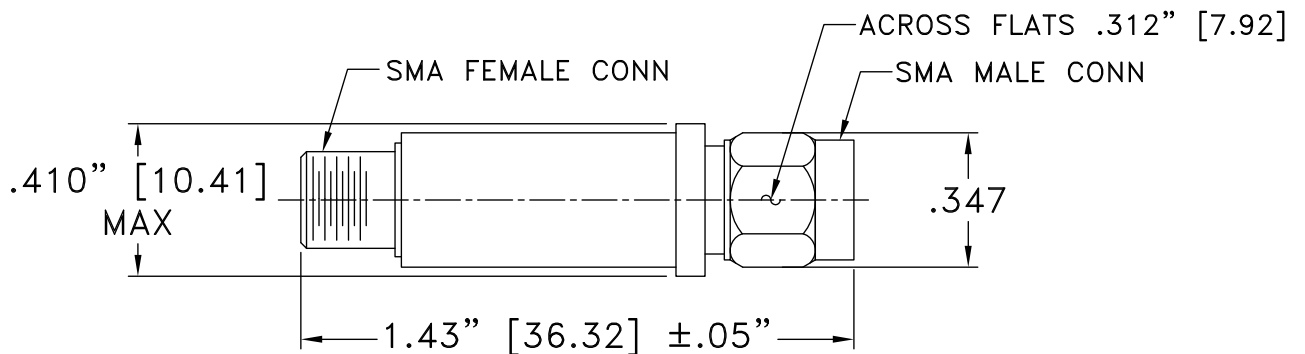




CONNECTOR DESCRIPTION

Function	Functionality	Connector
RF1	Port-1	SMA MALE
RF2	Port-2	SMA FEMALE

CASE STYLE DRAWING



Unit weight: 10.0grams

Dimensions are in inches (mm). Tolerances: 2 Pl. ± 0.04 "; 3 Pl. ± 0.30 "

PRODUCT MARKING*: VLFG-4400+

*Marking may contain other features or characters for internal lot control.



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VLFG-4400+

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DC to 4400 MHz SMA Male/Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	FF704
RoHS Status	Compliant
Environmental Ratings	ENV113

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-Circuits' 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/terms/viewterm.html



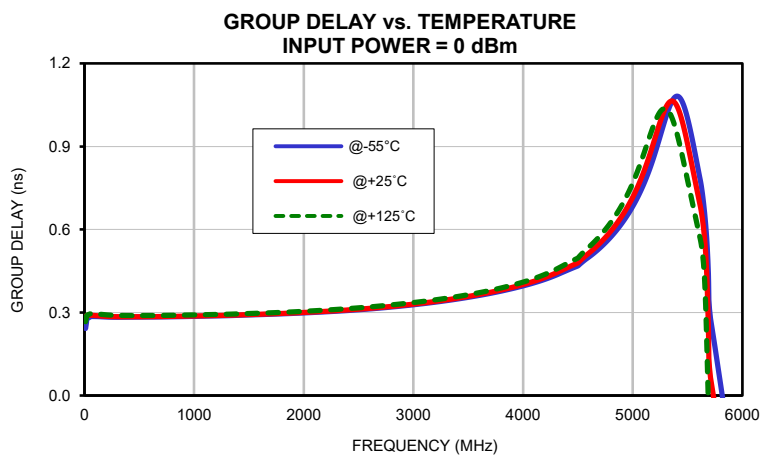
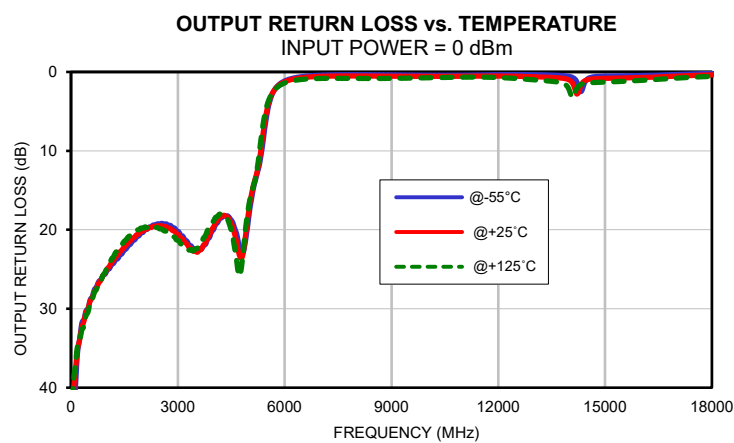
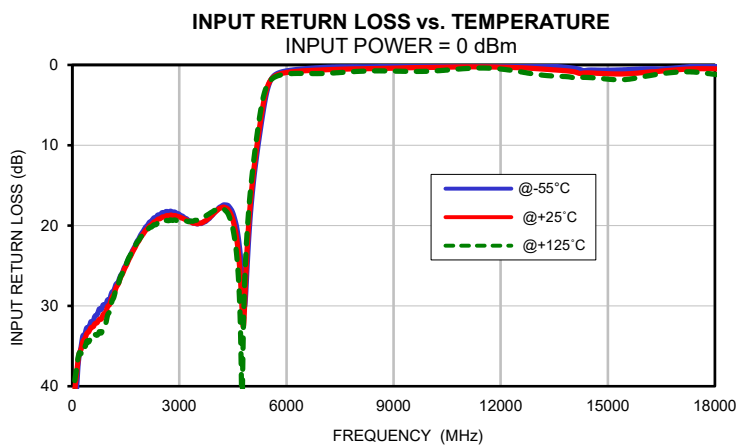
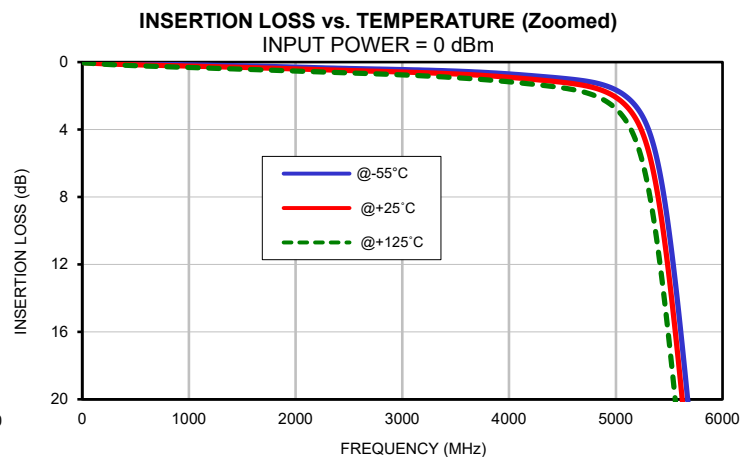
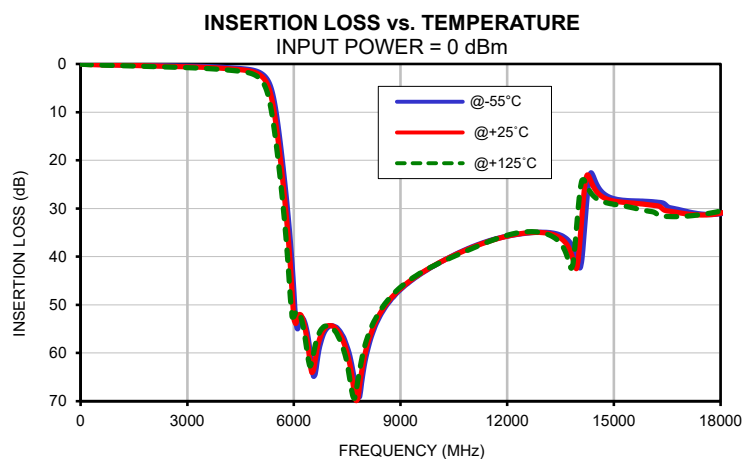
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C
10	0.02	0.03	0.04	54.67	48.90	47.09	54.83	49.07	46.73
100	0.04	0.07	0.08	41.43	39.26	38.42	41.37	38.88	37.92
200	0.07	0.10	0.12	35.90	35.85	35.81	34.92	34.74	34.54
400	0.10	0.14	0.19	32.79	33.50	34.49	30.64	30.81	31.28
600	0.12	0.18	0.24	31.83	32.53	34.00	28.44	28.57	28.76
800	0.14	0.21	0.28	30.44	31.67	33.36	26.44	26.60	26.67
1000	0.16	0.24	0.32	29.22	30.02	31.03	25.27	25.07	24.89
1200	0.18	0.27	0.36	27.65	28.12	28.32	24.21	23.84	23.35
1400	0.21	0.30	0.40	25.91	26.06	25.94	23.13	22.68	22.02
1600	0.24	0.33	0.44	23.95	24.09	23.87	22.07	21.65	20.93
1800	0.27	0.37	0.49	22.12	22.35	22.19	21.22	20.85	20.24
2000	0.30	0.40	0.53	20.61	20.96	21.01	20.36	20.20	19.80
2200	0.33	0.44	0.58	19.47	19.93	20.21	19.64	19.71	19.60
2400	0.37	0.48	0.62	18.69	19.22	19.67	19.30	19.51	19.71
2600	0.39	0.52	0.66	18.34	18.86	19.45	19.25	19.58	20.09
2800	0.42	0.55	0.71	18.31	18.73	19.35	19.47	19.88	20.58
3000	0.44	0.59	0.76	18.61	18.92	19.38	20.20	20.57	21.33
3200	0.47	0.63	0.82	19.15	19.32	19.45	21.26	21.60	22.22
3500	0.53	0.70	0.92	19.78	19.76	19.31	22.45	22.73	22.41
4000	0.70	0.90	1.17	18.31	18.33	18.08	19.99	19.66	18.90
4040	0.72	0.92	1.19	18.12	18.17	18.00	19.54	19.29	18.56
4100	0.75	0.95	1.23	17.83	17.94	17.87	19.17	18.90	18.33
4140	0.77	0.98	1.26	17.69	17.84	17.86	18.90	18.67	18.15
4180	0.79	1.00	1.29	17.59	17.77	17.88	18.59	18.43	18.01
4200	0.80	1.01	1.30	17.53	17.73	17.89	18.54	18.37	18.03
4220	0.81	1.02	1.31	17.48	17.71	17.90	18.51	18.33	18.04
4280	0.84	1.06	1.35	17.43	17.75	18.09	18.22	18.17	18.02
4300	0.85	1.07	1.37	17.44	17.79	18.18	18.19	18.17	18.10
4360	0.88	1.11	1.41	17.50	17.97	18.51	18.25	18.30	18.45
4400	0.90	1.13	1.44	17.70	18.24	18.92	18.24	18.39	18.70
4800	1.22	1.53	1.98	29.53	32.37	31.46	22.89	23.55	24.32
5100	2.06	2.62	3.53	13.54	12.52	11.27	15.33	14.82	14.80
5200	2.72	3.50	4.88	10.14	9.18	7.91	13.36	13.11	13.02
5330	4.43	5.87	8.35	6.26	5.38	4.42	10.77	9.96	8.71
5580	14.31	17.35	21.51	1.73	1.75	1.79	3.77	3.50	3.29
5750	25.18	28.83	33.84	1.05	1.22	1.36	2.03	2.06	2.11
5900	36.92	41.89	48.65	0.83	1.03	1.19	1.39	1.48	1.61
6200	52.72	52.16	52.74	0.61	0.83	1.07	0.83	0.96	1.14
6300	53.56	54.39	56.21	0.56	0.79	1.06	0.73	0.86	1.06
6400	56.80	58.66	61.18	0.52	0.76	1.06	0.65	0.79	1.00
6700	59.43	57.62	56.05	0.40	0.68	1.07	0.49	0.63	0.87
7000	54.43	54.32	54.37	0.32	0.62	1.07	0.42	0.57	0.83
7200	54.70	55.11	55.89	0.28	0.58	1.03	0.37	0.53	0.81
7500	58.82	60.15	62.31	0.24	0.54	0.95	0.36	0.53	0.82
7800	69.22	69.37	65.53	0.23	0.50	0.86	0.33	0.51	0.81
8000	61.70	60.20	58.34	0.23	0.48	0.80	0.35	0.52	0.82
8100	58.55	57.34	56.08	0.23	0.48	0.79	0.35	0.53	0.83
8200	56.10	55.29	54.24	0.23	0.47	0.77	0.35	0.52	0.83
8300	54.13	53.52	52.80	0.23	0.46	0.75	0.34	0.52	0.82
8400	52.62	52.06	51.43	0.22	0.46	0.74	0.34	0.52	0.82
8500	51.31	50.87	50.38	0.22	0.45	0.74	0.35	0.53	0.82
8600	50.16	49.80	49.39	0.21	0.44	0.74	0.37	0.54	0.83
8800	48.35	48.06	47.71	0.18	0.42	0.75	0.37	0.54	0.83
9000	46.81	46.64	46.32	0.15	0.40	0.77	0.36	0.54	0.80
9300	44.97	44.83	44.62	0.08	0.37	0.79	0.39	0.55	0.81
10000	41.66	41.61	41.64	0.01	0.31	0.78	0.41	0.56	0.74
12200	35.47	35.44	35.19	0.06	0.30	0.62	0.34	0.53	0.75
15000	27.96	28.46	29.13	0.65	1.10	1.77	0.53	0.82	1.29
16000	28.55	29.25	30.58	0.50	0.95	1.45	0.45	0.70	1.07
18000	31.08	30.98	30.51	0.06	0.49	1.18	0.18	0.37	0.56

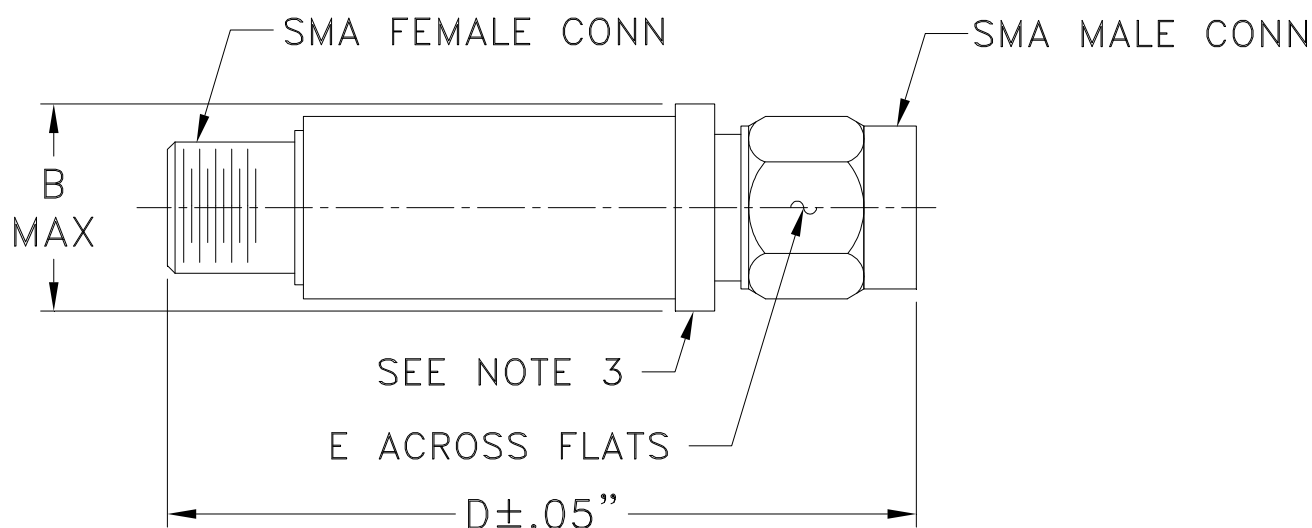
Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-55°C	@+25°C	@+125°C
10	0.24	0.29	0.27
60	0.29	0.29	0.30
100	0.29	0.29	0.30
200	0.28	0.29	0.29
300	0.28	0.28	0.29
400	0.28	0.28	0.29
500	0.28	0.28	0.29
600	0.28	0.29	0.29
700	0.28	0.29	0.29
800	0.28	0.29	0.29
900	0.29	0.29	0.29
1000	0.29	0.29	0.29
1100	0.29	0.29	0.29
1200	0.29	0.29	0.29
1300	0.29	0.29	0.29
1400	0.29	0.29	0.30
1500	0.29	0.29	0.30
1600	0.29	0.29	0.30
1700	0.29	0.30	0.30
1800	0.30	0.30	0.30
1900	0.30	0.30	0.30
2000	0.30	0.30	0.30
2100	0.30	0.30	0.31
2200	0.30	0.30	0.31
2300	0.30	0.31	0.31
2400	0.31	0.31	0.31
2500	0.31	0.31	0.32
2600	0.31	0.31	0.32
2700	0.32	0.32	0.32
2800	0.32	0.32	0.33
2900	0.32	0.33	0.33
3000	0.33	0.33	0.34
3100	0.33	0.33	0.34
3200	0.34	0.34	0.35
3300	0.34	0.35	0.35
3400	0.35	0.35	0.36
3500	0.35	0.36	0.36
3600	0.36	0.37	0.37
4000	0.40	0.40	0.41
4200	0.42	0.43	0.44
4400	0.45	0.46	0.48

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
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
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	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A, Except +100°C