

Coaxial Low Pass Filter

VLFG-2500+

50Ω DC to 2500 MHz



Generic photo used for illustration purposes only

CASE STYLE: FF704

The Big Deal

- Excellent power handling, 4.5W
- Temperature stable
- Rugged unibody construction
- Good rejection, 42 dB typical

Product Overview

VLFG-2500+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-2500 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-2500+ offer low insertion loss, and excellent power handling capability. It handles up to 4.5W RF input power and provides a wide operating temperature range from -55°C to 125°C.

Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application.
4.5W Power handling	Supports a range of system power requirements.
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups.

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



Low Pass Filter

50Ω

DC to 2500 MHz

VLFG-2500+



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+RoHS Compliant

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

Features

- Low loss, 1.2 dB typical
- Good rejection 42 dB typical
- Excellent power handling, 4.5W
- Temperature stable
- Connectorized package
- Rugged unibody construction

Applications

- Military radar applications
- Test and measurement
- Telecommunication and broadband wireless applications

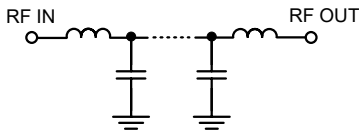
Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 2500	—	1.2	2.2	dB
	Freq. Cut-Off	F2*	2870	—	3.0	—	dB
	Return Loss	DC-F1	DC - 2500	—	16	—	dB
Stop Band	Rejection Loss	F3-F4	3500 - 4000	20	33	—	dB
		F4-F5	4000 - 7000	33	42	—	dB
		F5-F6	7000 - 10000	—	30	—	dB

In Application where DC voltage is present at either input or output port, DC blocks are required.

* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

Functional Schematic



Maximum Ratings

Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	4.5W max. @25°C

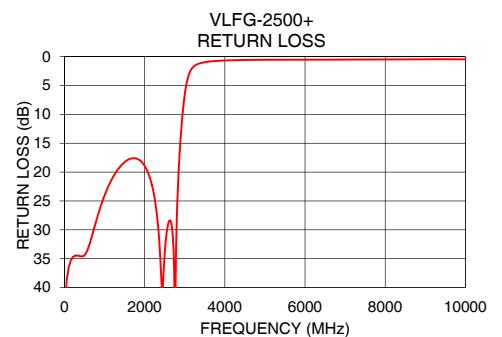
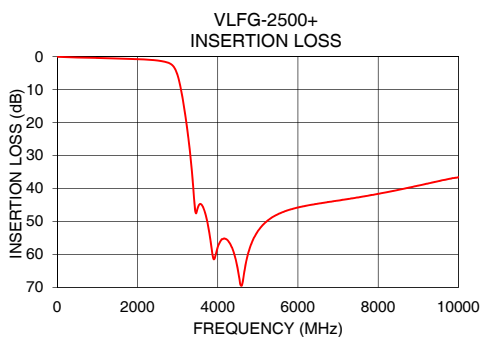
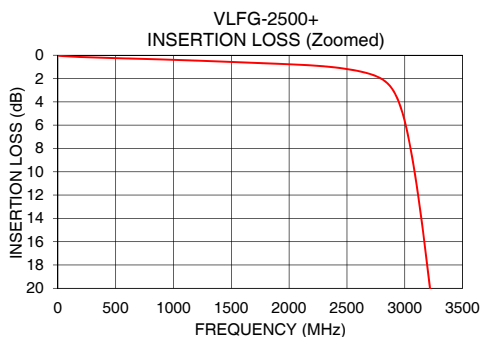
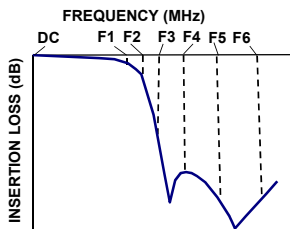
*Passband rating, derate linearly to 1W at 125°C ambient

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

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.05	43.75
100	0.10	36.72
1000	0.39	24.03
1400	0.54	18.95
1800	0.69	17.67
2000	0.77	18.91
2500	1.18	34.12
2870	2.61	17.01
2900	3.02	13.80
3000	5.67	6.54
3260	23.89	1.51
3360	35.32	1.19
3500	45.95	0.96
4000	57.75	0.66
5000	52.92	0.54
6000	45.75	0.52
7000	43.65	0.51
8500	40.41	0.47
9800	37.01	0.45
10000	36.57	0.45

Typical Frequency Response



Notes

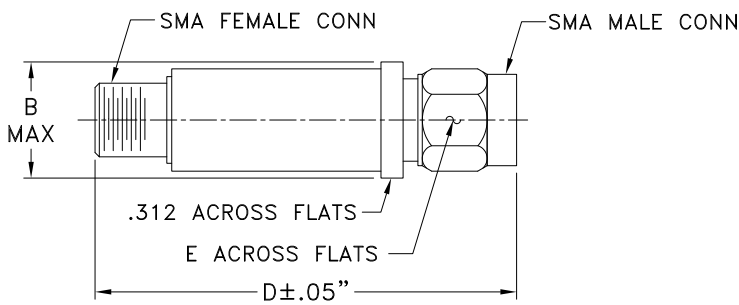
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Coaxial Connections

PORT - 1	SMA-Male
PORT - 2	SMA-Female

Outline Drawing



Outline Dimensions (inch mm)

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

Note: Please refer to case style drawing for details

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Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C
10	0.08	0.10	0.11	45.87	42.29	41.76	44.20	41.31	40.15
40	0.09	0.11	0.12	43.74	39.69	37.44	44.29	40.09	37.37
100	0.10	0.13	0.14	40.19	37.56	34.64	39.83	36.56	33.87
160	0.12	0.15	0.16	33.80	36.20	34.79	33.35	34.21	32.93
220	0.13	0.16	0.17	30.41	35.72	37.01	29.37	32.52	32.92
280	0.14	0.18	0.19	29.55	35.94	39.95	27.81	30.98	32.11
340	0.14	0.19	0.20	30.45	35.59	42.54	27.96	29.60	30.83
400	0.15	0.20	0.22	32.65	35.16	47.71	28.29	28.28	29.42
460	0.16	0.22	0.23	33.60	34.36	47.54	27.51	26.98	27.70
520	0.16	0.23	0.25	32.48	33.13	38.74	26.42	25.94	26.22
580	0.17	0.24	0.26	30.84	31.58	34.12	25.27	24.85	24.82
640	0.18	0.25	0.28	28.98	29.74	31.06	24.16	23.85	23.68
700	0.19	0.27	0.30	27.29	28.08	29.00	23.08	22.90	22.71
760	0.20	0.28	0.31	25.71	26.52	27.26	22.09	22.01	21.88
820	0.21	0.30	0.33	24.28	25.06	25.70	21.15	21.15	21.05
880	0.23	0.31	0.35	23.11	23.81	24.34	20.44	20.43	20.35
940	0.24	0.33	0.37	22.10	22.68	23.05	19.79	19.73	19.61
1000	0.25	0.35	0.39	21.14	21.60	21.81	19.17	19.06	18.87
1060	0.27	0.37	0.41	20.22	20.68	20.75	18.55	18.47	18.19
1120	0.29	0.39	0.44	19.32	19.84	19.78	17.94	17.94	17.59
1180	0.31	0.41	0.46	18.54	19.08	18.94	17.38	17.43	17.03
1240	0.33	0.44	0.49	17.88	18.40	18.24	16.93	16.99	16.58
1300	0.35	0.46	0.51	17.28	17.80	17.64	16.51	16.59	16.20
1360	0.37	0.48	0.54	16.74	17.29	17.14	16.14	16.26	15.89
2000	0.54	0.72	0.80	16.39	16.47	16.62	16.68	16.37	16.40
2500	0.80	1.07	1.22	24.11	25.08	27.04	21.12	21.02	21.54
2870	1.98	2.78	3.39	14.61	12.28	10.91	12.16	10.14	9.06
2885	2.14	3.01	3.68	13.41	11.26	9.99	11.26	9.38	8.36
2900	2.32	3.28	4.01	12.27	10.30	9.14	10.38	8.64	7.71
2950	3.15	4.43	5.41	9.01	7.55	6.72	7.75	6.48	5.81
3000	4.42	6.09	7.34	6.45	5.45	4.92	5.64	4.82	4.43
3100	8.44	10.93	12.67	3.26	2.97	2.85	3.09	2.97	2.98
3235	16.61	20.11	22.50	1.57	1.68	1.76	1.99	2.28	2.50
3345	25.44	30.23	33.69	1.06	1.27	1.38	1.81	2.20	2.46
3500	45.40	44.32	42.42	0.72	0.96	1.08	1.74	2.15	2.38
3700	41.20	41.97	42.76	0.49	0.73	0.84	1.54	1.86	2.01
4000	53.34	57.45	60.29	0.31	0.53	0.62	1.06	1.26	1.34
5350	55.78	53.24	53.81	0.05	0.25	0.29	0.14	0.32	0.38
5500	54.33	52.57	52.41	0.06	0.25	0.29	0.12	0.32	0.38
5650	52.61	51.72	50.26	0.06	0.26	0.30	0.10	0.32	0.40
5800	50.53	51.07	50.29	0.07	0.27	0.30	0.09	0.31	0.39
5950	50.33	50.54	48.64	0.08	0.28	0.31	0.10	0.32	0.42
6100	49.91	46.70	46.80	0.06	0.27	0.32	0.09	0.34	0.44
6250	46.68	46.90	46.09	0.07	0.27	0.32	0.10	0.36	0.47
6400	46.63	48.10	49.49	0.06	0.26	0.30	0.11	0.36	0.46
6550	48.61	45.06	46.18	0.05	0.26	0.30	0.11	0.38	0.49
6600	46.58	47.59	48.56	0.06	0.26	0.30	0.13	0.38	0.49
6850	47.55	46.81	46.10	0.04	0.25	0.31	0.13	0.39	0.52
7000	45.75	47.37	46.84	0.03	0.24	0.31	0.14	0.39	0.50
7150	46.08	47.60	48.29	0.00	0.23	0.31	0.14	0.40	0.51
7300	46.56	44.72	44.43	0.02	0.22	0.33	0.14	0.39	0.52
7450	43.06	43.55	43.69	0.02	0.23	0.34	0.16	0.41	0.54
7600	43.41	42.11	44.04	0.02	0.24	0.36	0.16	0.41	0.52
7750	39.61	40.32	42.84	0.01	0.27	0.41	0.18	0.43	0.53
7900	40.67	41.93	39.82	0.01	0.28	0.44	0.18	0.42	0.53
8050	41.63	40.79	39.38	0.03	0.28	0.47	0.16	0.40	0.53
8200	39.88	40.78	39.27	0.02	0.30	0.51	0.18	0.41	0.55
9000	39.13	39.66	36.97	0.04	0.40	0.66	0.17	0.40	0.52
9800	34.81	34.91	36.02	0.15	0.54	0.71	0.16	0.40	0.44
10000	33.46	33.37	35.05	0.21	0.61	0.75	0.18	0.42	0.44

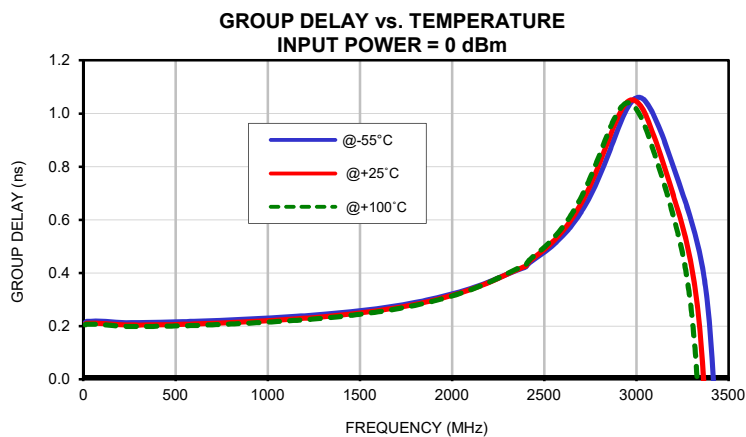
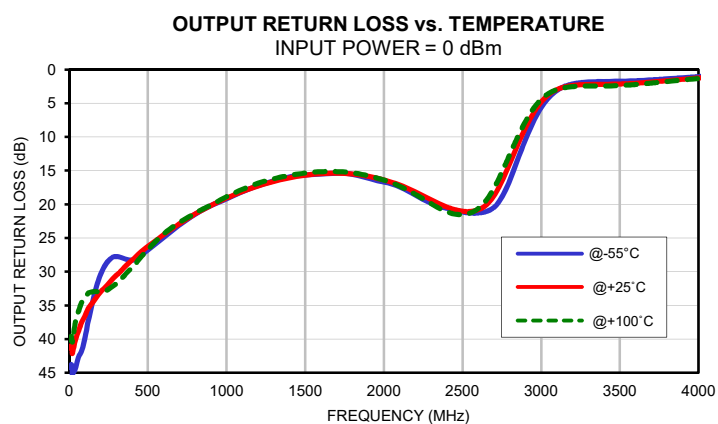
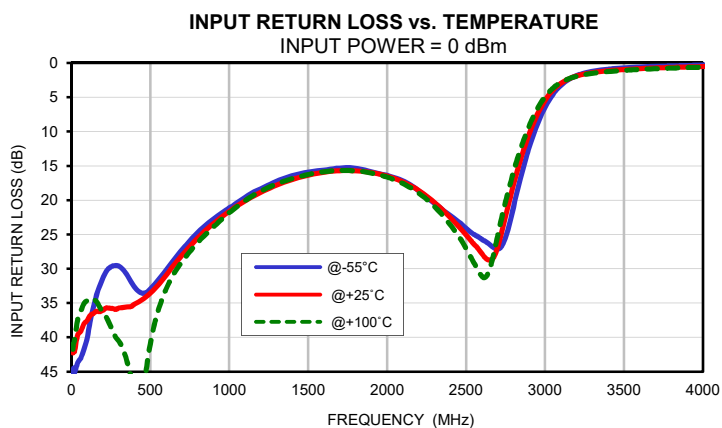
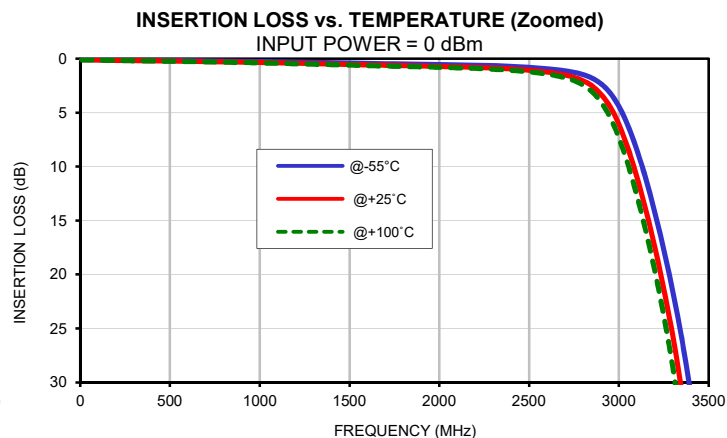
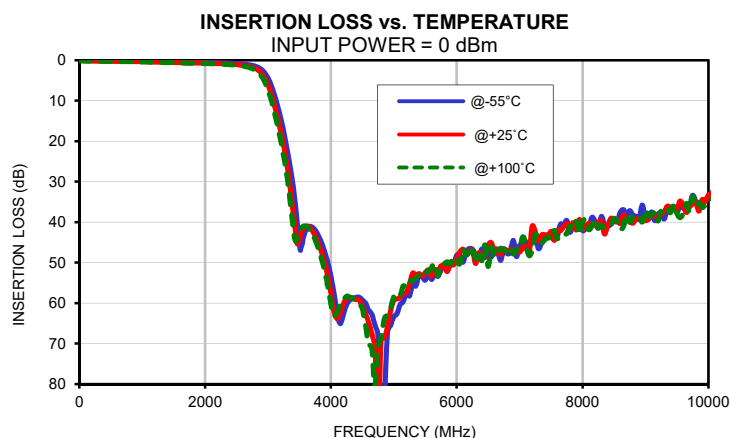
*Temperature test data was based on the underlying chip.

Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-55°C	@+25°C	@+100°C
10	0.21	0.21	0.21
80	0.22	0.21	0.21
140	0.22	0.21	0.20
200	0.21	0.20	0.20
260	0.21	0.20	0.20
320	0.21	0.20	0.20
380	0.21	0.20	0.20
440	0.21	0.21	0.20
500	0.22	0.21	0.20
560	0.22	0.21	0.20
620	0.22	0.21	0.20
680	0.22	0.21	0.20
740	0.22	0.21	0.21
800	0.22	0.21	0.21
860	0.22	0.22	0.21
920	0.23	0.22	0.21
980	0.23	0.22	0.21
1040	0.23	0.22	0.22
1100	0.23	0.22	0.22
1160	0.24	0.23	0.22
1220	0.24	0.23	0.22
1280	0.24	0.23	0.23
1340	0.25	0.24	0.23
1400	0.25	0.24	0.24
1460	0.25	0.25	0.24
1520	0.26	0.25	0.25
1580	0.26	0.26	0.25
1640	0.27	0.26	0.26
1700	0.28	0.27	0.26
1760	0.28	0.28	0.27
1820	0.29	0.28	0.28
1880	0.30	0.29	0.29
1940	0.31	0.30	0.30
2000	0.32	0.32	0.31
2060	0.33	0.33	0.33
2120	0.35	0.34	0.34
2180	0.36	0.36	0.36
2240	0.38	0.38	0.38
2300	0.40	0.40	0.40
2400	0.42	0.43	0.43
2500	0.48	0.49	0.50

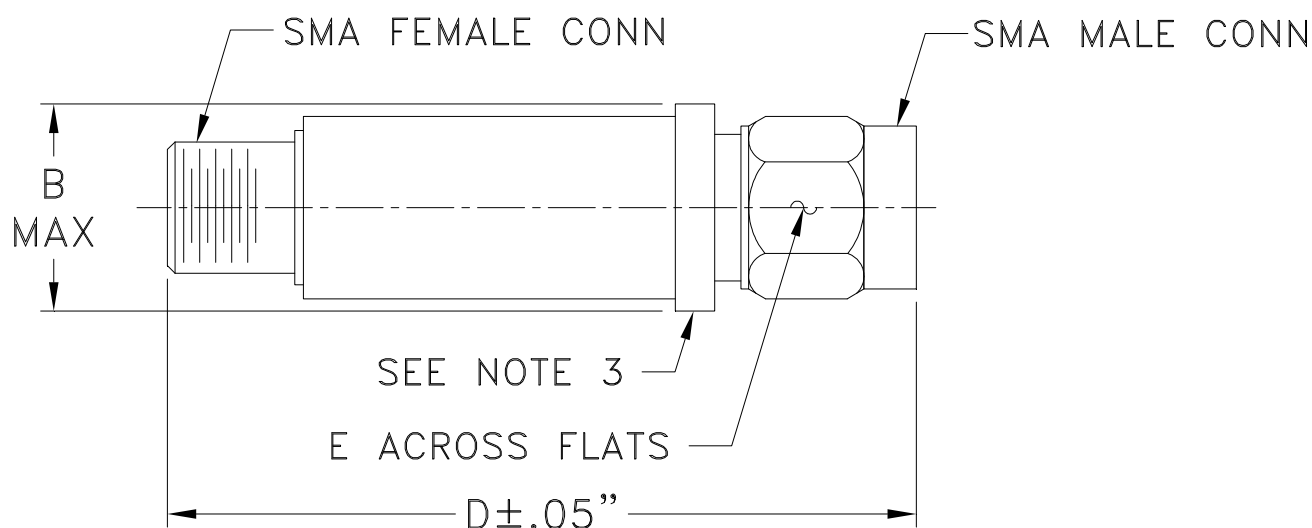
*Temperature test data was based on the underlying chip.

Typical Performance Curves



*Temperature test data was based on the underlying chip.

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