

Coaxial

Low Pass Filter

VLFG-3000+

50Ω

DC to 3000 MHz



Generic photo used for illustration purposes only

CASE STYLE: FF704

The Big Deal

- Excellent power handling, 4.5W
- Temperature stable
- Rugged unibody construction
- Very good rejection, 50 dB typical

Product Overview

VLFG-3000+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-3000 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-3000+ 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 3000 MHz

VLFG-3000+



Features

- Low loss, 1.4 dB typical
- Good rejection 50 dB typical
- Excellent power handling, 4.5W
- Temperature stable
- Connectorized package
- Rugged unibody construction

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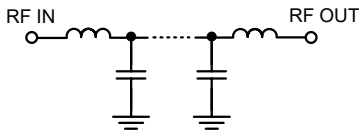
+RoHS Compliant

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

Applications

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

Functional Schematic



Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 3000	—	1.4	2.2	dB
	Freq. Cut-Off	F2*	3460	—	3.0	—	dB
	Return Loss	DC-F1	DC - 3000	—	16	—	dB
Stop Band	Rejection Loss	F3-F4	4550 - 4800	20	50	—	dB
		F4-F5	4800 - 7000	35	45	—	dB
		F5-F6	7000 - 11000	—	30	—	dB
		F6-F7	11000 - 15000	—	25	—	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.

Maximum Ratings

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

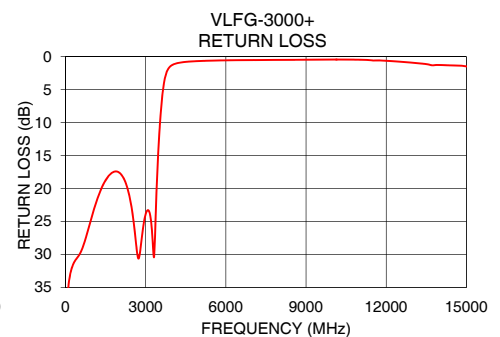
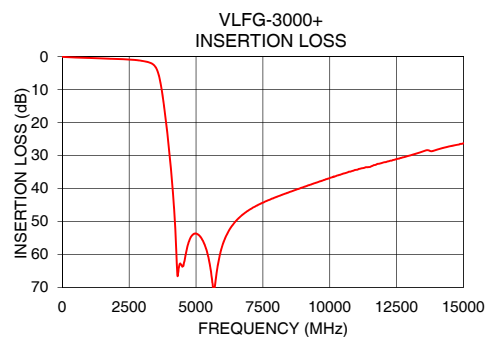
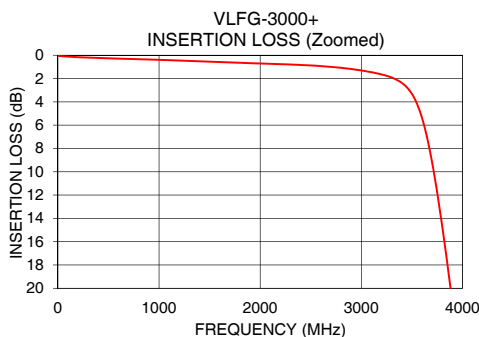
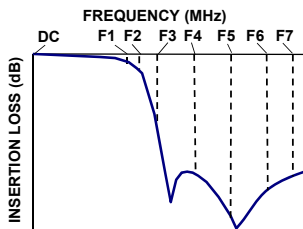
*Passband rating, derate linearly to 1W at 125°C ambient

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	0.06	42.21
100	0.12	35.18
1000	0.39	24.05
1400	0.52	19.50
1800	0.65	17.47
3000	1.31	23.86
3460	2.85	15.35
3500	3.32	12.35
3880	19.92	1.64
4000	28.81	1.25
4550	62.53	0.77
4600	60.58	0.76
4800	54.80	0.70
5000	53.65	0.66
7000	46.42	0.52
10000	36.80	0.44
11000	34.31	0.47
12000	32.12	0.62
13000	29.98	0.92
15000	26.30	1.48

Typical Frequency Response



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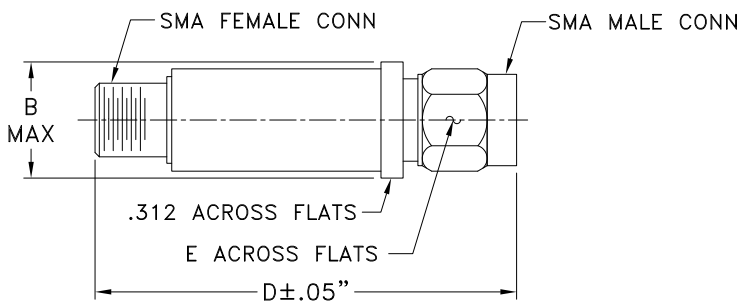


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Coaxial Connections

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	46.70	44.32	41.82	46.78	43.29	42.06
40	0.08	0.11	0.12	45.54	41.10	37.27	44.08	42.13	38.15
100	0.09	0.12	0.14	43.93	38.27	33.76	40.69	38.40	34.69
160	0.11	0.14	0.16	34.95	36.64	34.43	34.52	35.65	34.96
220	0.12	0.16	0.18	30.81	35.98	36.88	30.53	33.58	34.41
280	0.13	0.17	0.20	30.02	35.89	38.49	29.33	32.03	32.35
340	0.14	0.19	0.22	31.52	35.88	39.56	29.28	30.65	30.68
400	0.14	0.20	0.24	33.41	35.91	41.65	28.60	29.34	29.46
460	0.15	0.21	0.25	33.63	35.93	46.05	27.59	28.18	28.44
520	0.16	0.22	0.27	33.10	35.51	51.84	27.08	27.16	27.51
580	0.17	0.24	0.28	32.94	34.52	46.30	26.77	26.16	26.45
640	0.18	0.25	0.30	32.38	32.99	39.10	26.12	25.18	25.27
700	0.19	0.26	0.31	31.11	31.47	35.04	25.13	24.30	24.20
760	0.19	0.27	0.33	29.49	30.02	32.31	24.15	23.57	23.39
820	0.21	0.29	0.35	27.77	28.53	30.16	23.13	22.77	22.64
880	0.22	0.30	0.36	26.25	27.10	28.34	22.21	22.00	21.88
940	0.23	0.32	0.38	25.08	25.85	26.67	21.52	21.36	21.17
1000	0.24	0.33	0.40	24.08	24.69	25.16	20.96	20.75	20.46
1060	0.25	0.35	0.42	23.11	23.57	23.83	20.39	20.12	19.78
1120	0.27	0.36	0.44	22.13	22.62	22.75	19.78	19.58	19.21
1180	0.28	0.38	0.46	21.09	21.76	21.78	19.11	19.10	18.72
1240	0.30	0.40	0.48	20.11	20.94	20.94	18.43	18.62	18.26
1300	0.32	0.42	0.50	19.37	20.22	20.22	17.89	18.17	17.82
1360	0.33	0.44	0.52	18.84	19.57	19.53	17.59	17.80	17.44
1500	0.37	0.49	0.58	17.81	18.26	18.20	17.04	17.03	16.69
1600	0.40	0.52	0.62	17.11	17.53	17.50	16.58	16.62	16.28
1780	0.44	0.58	0.68	16.46	16.56	16.63	16.35	16.12	15.89
2000	0.51	0.66	0.77	16.01	16.00	16.16	16.35	16.03	15.92
2100	0.54	0.69	0.81	16.05	16.03	16.22	16.59	16.27	16.26
2200	0.56	0.73	0.84	16.24	16.21	16.45	16.98	16.66	16.75
3000	0.97	1.23	1.45	24.99	24.56	23.41	27.56	28.84	28.19
3400	1.99	2.53	3.00	15.71	14.21	13.27	16.63	15.48	14.72
3460	2.42	3.10	3.71	12.87	11.45	10.63	14.34	13.19	12.60
3480	2.61	3.35	4.01	11.94	10.56	9.78	13.61	12.46	11.94
3900	19.46	22.39	24.83	1.33	1.46	1.62	2.71	2.87	2.97
4030	28.71	32.10	34.90	0.90	1.09	1.26	1.95	2.10	2.20
4550	62.68	60.43	59.19	0.39	0.55	0.67	0.78	0.90	0.96
4700	57.19	56.28	55.82	0.33	0.48	0.58	0.64	0.76	0.81
4800	55.47	54.97	54.82	0.30	0.44	0.54	0.57	0.70	0.75
5650	59.87	61.71	62.50	0.12	0.25	0.33	0.29	0.43	0.54
5800	63.39	66.85	69.71	0.09	0.23	0.31	0.25	0.40	0.53
5950	68.98	75.84	70.16	0.07	0.22	0.31	0.21	0.38	0.53
6000	68.39	69.47	70.13	0.08	0.22	0.31	0.21	0.38	0.53
6250	59.83	58.57	57.21	0.04	0.20	0.30	0.17	0.36	0.55
6400	59.99	58.63	56.71	0.02	0.18	0.30	0.13	0.34	0.54
6550	59.77	59.59	57.34	0.00	0.18	0.31	0.11	0.33	0.55
6600	57.44	56.45	55.30	0.00	0.18	0.31	0.11	0.33	0.57
6850	56.17	54.61	55.06	0.02	0.17	0.33	0.08	0.33	0.59
7000	52.88	54.31	52.42	0.04	0.16	0.34	0.07	0.31	0.60
7150	51.81	50.97	51.04	0.06	0.16	0.37	0.05	0.31	0.63
7300	49.58	51.10	51.12	0.05	0.17	0.39	0.07	0.33	0.64
7450	50.81	49.78	49.09	0.08	0.16	0.41	0.03	0.30	0.65
7500	49.01	48.86	49.00	0.08	0.16	0.41	0.03	0.30	0.64
7600	48.86	47.97	46.59	0.09	0.16	0.43	0.02	0.29	0.65
8000	45.58	44.78	44.91	0.11	0.17	0.49	0.00	0.29	0.66
9000	40.50	40.72	41.55	0.10	0.21	0.62	0.09	0.13	0.45
10000	36.04	35.73	35.83	0.01	0.27	0.64	0.14	0.06	0.11
11000	33.76	32.42	33.10	0.12	0.34	0.64	0.17	0.13	0.05
12000	31.44	31.15	30.76	0.12	0.32	0.51	0.20	0.12	0.01
15000	25.37	24.85	25.37	0.01	0.63	1.68	0.16	0.19	0.55

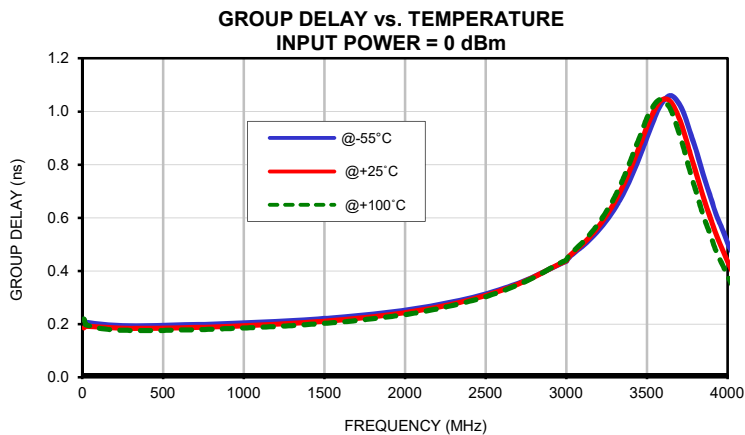
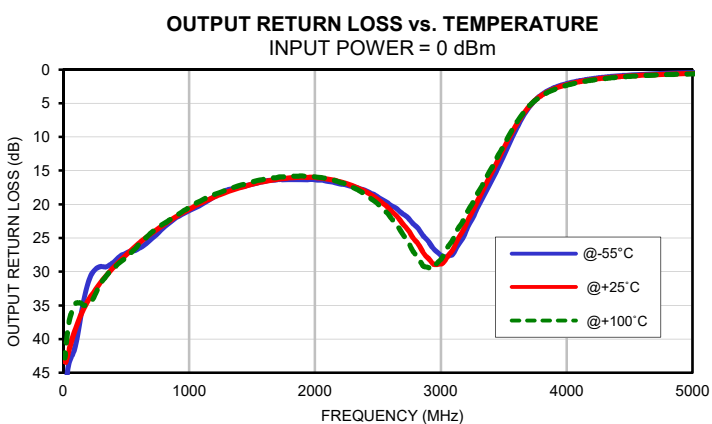
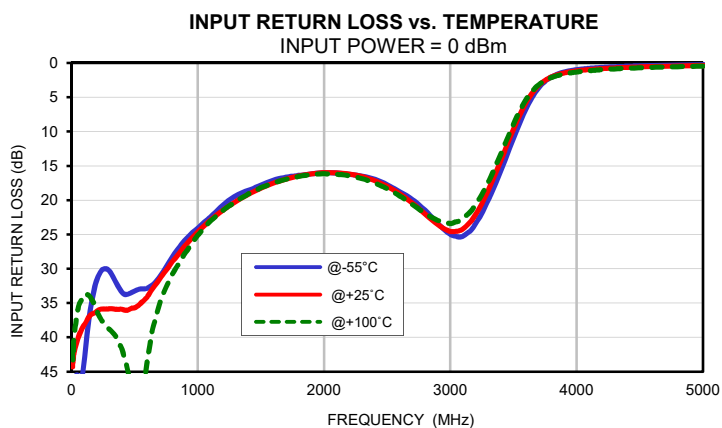
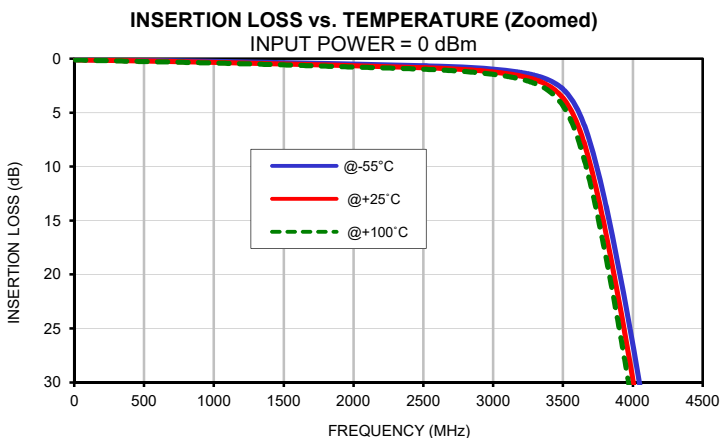
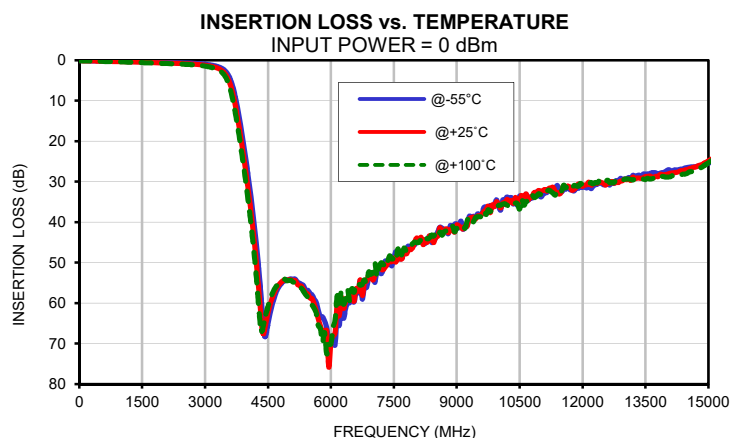
*Temperature test data was based on the underlying chip.

Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-55°C	@+25°C	@+100°C
10	0.21	0.19	0.22
80	0.20	0.19	0.19
140	0.20	0.19	0.18
200	0.20	0.19	0.18
260	0.19	0.18	0.18
320	0.19	0.18	0.18
380	0.19	0.18	0.18
440	0.19	0.18	0.18
500	0.20	0.18	0.18
560	0.20	0.19	0.18
620	0.20	0.19	0.18
680	0.20	0.19	0.18
740	0.20	0.19	0.18
800	0.20	0.19	0.18
860	0.20	0.19	0.18
920	0.20	0.19	0.18
980	0.20	0.19	0.18
1040	0.21	0.19	0.19
1100	0.21	0.20	0.19
1160	0.21	0.20	0.19
1220	0.21	0.20	0.19
1280	0.21	0.20	0.19
1340	0.21	0.20	0.20
1400	0.22	0.21	0.20
1460	0.22	0.21	0.20
1520	0.22	0.21	0.20
1580	0.22	0.21	0.21
1640	0.23	0.22	0.21
1700	0.23	0.22	0.21
1760	0.23	0.22	0.22
1820	0.24	0.23	0.22
1880	0.24	0.23	0.23
1940	0.25	0.24	0.23
2000	0.25	0.24	0.24
2060	0.26	0.25	0.24
2120	0.26	0.25	0.25
2180	0.27	0.26	0.25
2240	0.28	0.27	0.26
2500	0.31	0.31	0.30
2700	0.35	0.35	0.35
3000	0.44	0.44	0.44

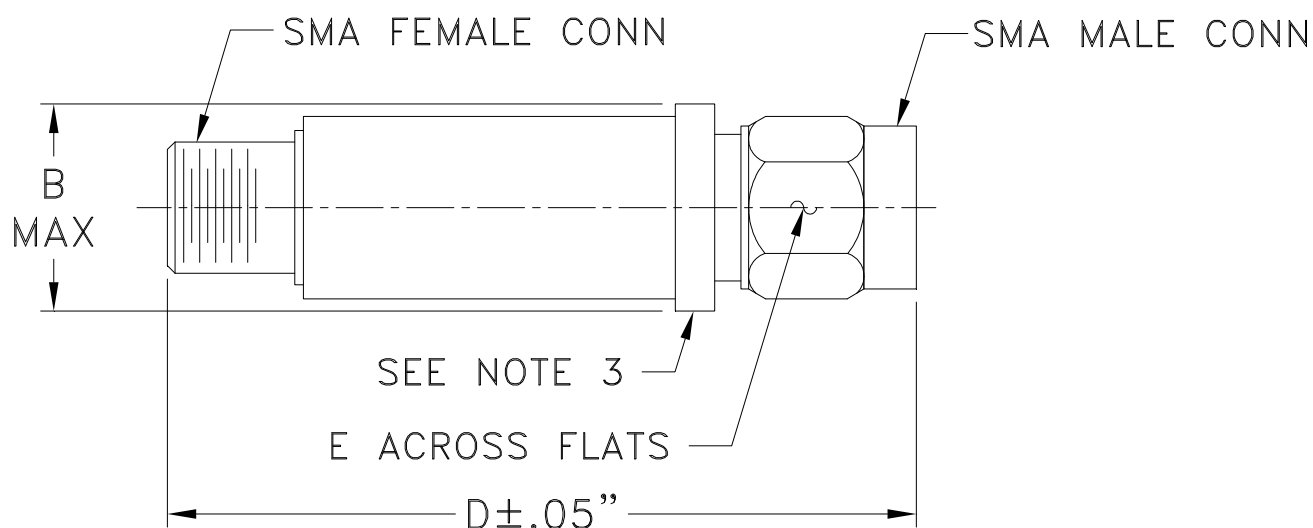
*Temperature test data was based on the underlying chip.

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.



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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
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