

Coaxial Low Pass Filter

VLFG-1400+

50Ω

DC to 1400 MHz



Generic photo used for illustration purposes only

CASE STYLE: FF704

The Big Deal

- Excellent power handling, 5.5W
- Temperature stable
- Rugged unibody construction
- Good rejection, 45 dB typical

Product Overview

VLFG-1400+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-1400 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-1400+ offer low insertion loss, and excellent power handling capability. It handles up to 5.5W 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.
5.5W 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

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VLFG-1400+



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+RoHS Compliant

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

Features

- Low loss, 1.0 dB typical
- Good rejection 45 dB typical
- Excellent power handling, 5.5W
- Temperature stable
- Connectorized package
- Rugged unibody construction

Applications

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

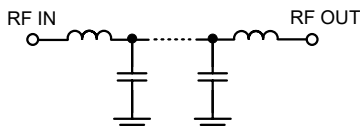
Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 1400	—	1.0	1.9	dB
	Freq. Cut-Off	F2*	1650	—	3.0	—	dB
	Return Loss	DC-F1	DC - 1400	—	20	—	dB
Stop Band	Rejection Loss	F3-F4	2015 - 2300	20	45	—	dB
		F4-F5	2300 - 6600	36	46	—	dB
		F5-F6	6600 - 10000	—	35	—	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*	5.5W max. @25°C

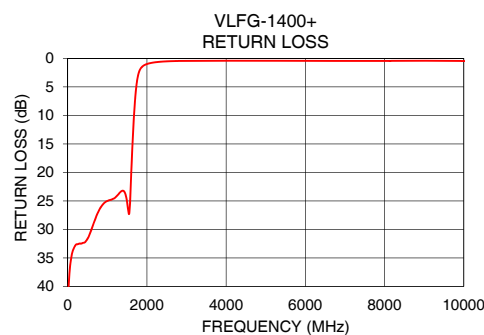
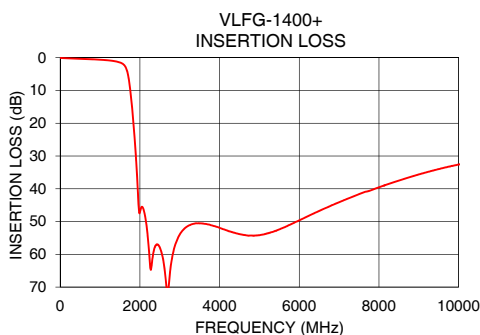
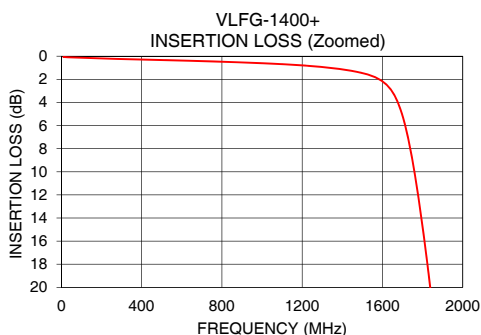
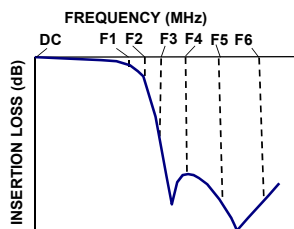
*Passband rating, derate linearly to 1W at 125°C ambient

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	0.07	42.40
100	0.14	34.51
500	0.33	31.66
1000	0.61	25.01
1400	1.14	23.22
1645	2.97	13.63
1650	3.10	12.94
1800	14.78	2.38
1830	18.85	1.90
1885	27.55	1.42
2015	46.38	0.95
2200	55.01	0.69
2300	62.76	0.61
3700	50.86	0.42
4000	51.91	0.41
5800	50.77	0.42
6000	49.61	0.42
6600	46.19	0.44
8500	37.50	0.43
10000	32.60	0.46

Typical Frequency Response



Notes

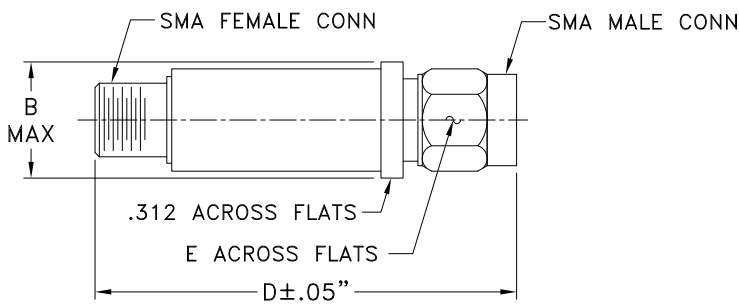
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Coaxial Connections

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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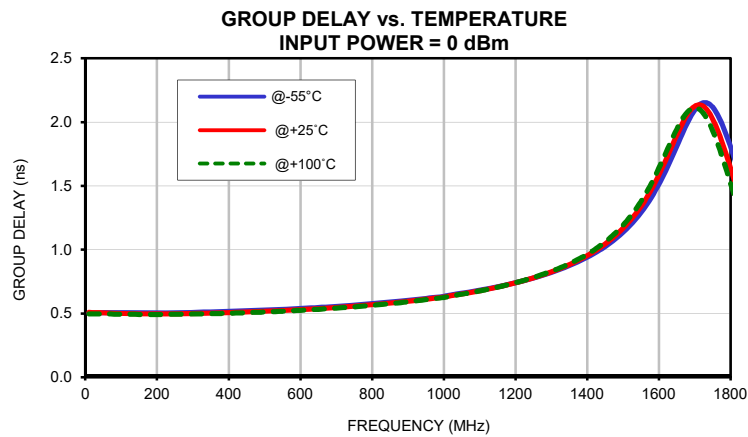
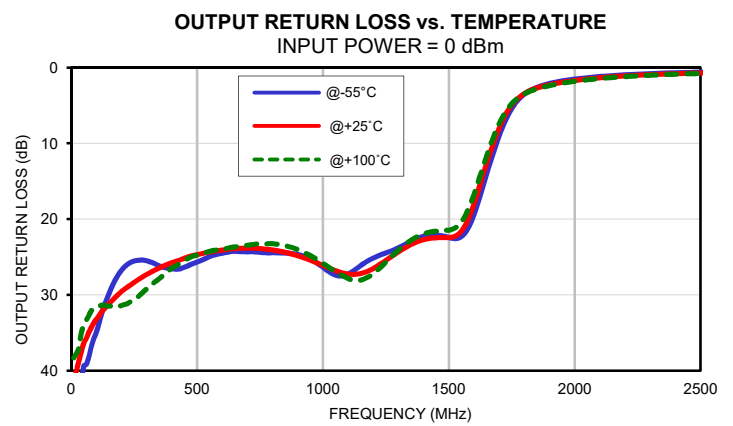
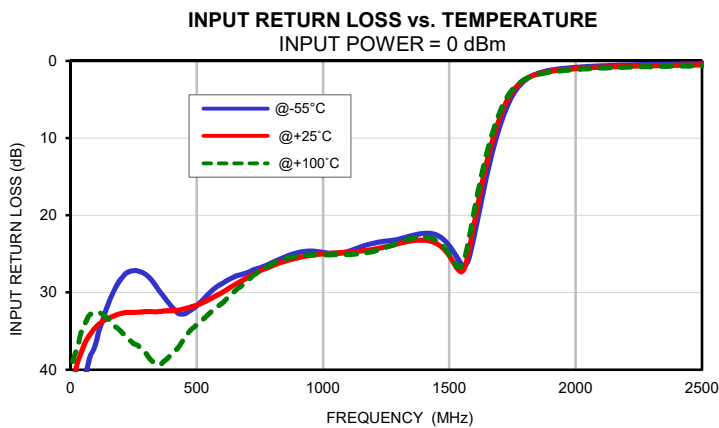
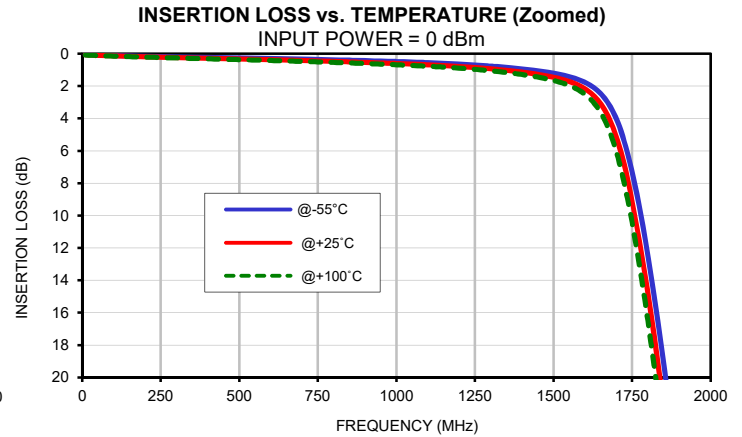
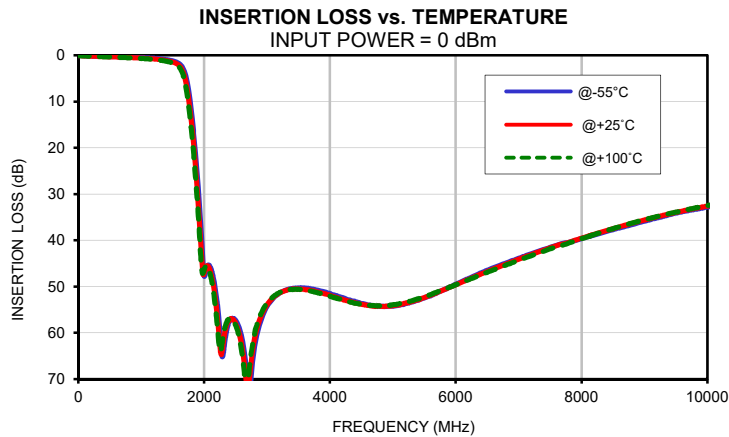
Typical Performance Data

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	0.05	0.07	0.08	42.03	42.40	38.96	42.06	41.58	38.27
50	0.09	0.10	0.12	40.99	37.19	34.58	39.37	36.34	34.00
100	0.11	0.14	0.15	36.71	34.51	32.71	34.89	33.18	31.74
250	0.19	0.22	0.24	27.18	32.60	36.63	25.52	28.37	30.57
400	0.23	0.29	0.32	31.78	32.34	38.00	26.53	25.73	26.47
550	0.28	0.35	0.40	30.08	30.90	32.72	24.93	24.32	24.24
700	0.34	0.42	0.48	27.42	28.11	28.53	24.31	23.83	23.44
1000	0.49	0.61	0.68	24.81	25.01	25.12	26.34	26.12	25.83
1100	0.56	0.69	0.78	24.69	24.79	25.09	27.22	27.24	27.82
1150	0.60	0.74	0.83	24.08	24.63	24.95	26.12	27.17	28.03
1160	0.61	0.75	0.85	23.96	24.59	24.90	25.89	27.08	27.93
1170	0.62	0.76	0.86	23.86	24.57	24.86	25.67	26.97	27.79
1200	0.65	0.79	0.90	23.62	24.41	24.67	25.14	26.50	27.20
1300	0.77	0.94	1.06	23.09	23.66	23.52	23.78	24.30	24.07
1400	0.94	1.14	1.29	22.32	23.22	22.79	22.24	22.70	21.94
1500	1.21	1.46	1.66	23.95	25.26	25.09	22.42	22.43	21.45
1600	1.77	2.17	2.51	22.50	20.81	19.22	19.37	17.98	16.72
1650	2.47	3.10	3.64	14.60	12.94	11.78	14.11	12.67	11.69
1700	4.04	5.15	6.08	8.45	7.30	6.62	9.00	7.96	7.40
1800	12.44	14.78	16.48	2.49	2.38	2.37	3.51	3.44	3.48
1850	19.06	21.81	23.82	1.61	1.68	1.76	2.61	2.70	2.81
1900	26.97	30.28	32.76	1.20	1.34	1.44	2.11	2.26	2.39
2000	47.68	47.18	46.40	0.82	0.99	1.11	1.53	1.71	1.82
2015	47.50	46.38	45.86	0.79	0.95	1.08	1.47	1.65	1.76
2100	45.81	46.66	47.45	0.64	0.80	0.93	1.19	1.35	1.45
2300	64.92	62.76	60.98	0.44	0.61	0.73	0.81	0.94	1.02
3400	50.43	50.54	50.63	0.22	0.42	0.54	0.32	0.42	0.46
3500	50.30	50.56	50.61	0.22	0.42	0.54	0.31	0.41	0.45
3600	50.32	50.65	50.75	0.22	0.42	0.53	0.30	0.40	0.45
3700	50.49	50.86	51.00	0.23	0.42	0.53	0.29	0.39	0.44
3800	50.78	51.16	51.31	0.23	0.42	0.52	0.28	0.38	0.44
3900	51.11	51.50	51.69	0.24	0.41	0.51	0.27	0.38	0.44
4000	51.51	51.91	52.09	0.24	0.41	0.50	0.26	0.37	0.44
4100	51.96	52.36	52.48	0.25	0.41	0.49	0.25	0.37	0.44
4200	52.38	52.75	52.85	0.25	0.41	0.49	0.24	0.36	0.44
4300	52.92	53.20	53.28	0.25	0.42	0.49	0.24	0.36	0.44
4400	53.20	53.51	53.63	0.26	0.41	0.48	0.23	0.36	0.45
4500	53.64	53.83	53.88	0.26	0.41	0.48	0.22	0.36	0.45
4600	53.97	54.07	54.07	0.25	0.42	0.49	0.22	0.36	0.46
4700	54.15	54.25	54.14	0.24	0.42	0.50	0.22	0.36	0.47
4800	54.27	54.27	54.12	0.23	0.42	0.51	0.21	0.36	0.47
4900	54.32	54.25	54.17	0.22	0.41	0.52	0.21	0.36	0.47
5000	54.24	54.18	53.95	0.21	0.41	0.54	0.21	0.36	0.48
5100	54.04	53.94	53.72	0.20	0.42	0.56	0.20	0.36	0.49
5200	53.70	53.58	53.42	0.19	0.42	0.58	0.21	0.36	0.50
6000	49.57	49.61	49.59	0.13	0.42	0.71	0.21	0.39	0.55
6600	45.95	46.19	46.38	0.16	0.44	0.72	0.24	0.43	0.59
6850	44.68	44.89	45.10	0.18	0.44	0.69	0.25	0.44	0.61
7000	43.92	44.10	44.33	0.19	0.44	0.67	0.25	0.45	0.61
7150	43.15	43.35	43.58	0.20	0.45	0.66	0.26	0.46	0.62
7300	42.45	42.60	42.86	0.20	0.45	0.64	0.26	0.46	0.62
7450	41.79	41.90	42.11	0.19	0.44	0.62	0.26	0.47	0.62
7600	41.13	41.17	41.40	0.19	0.44	0.62	0.27	0.49	0.66
7750	40.52	40.68	40.83	0.18	0.44	0.61	0.32	0.52	0.65
7900	40.04	39.98	40.12	0.17	0.44	0.62	0.29	0.49	0.63
8000	39.64	39.56	39.68	0.16	0.44	0.62	0.28	0.49	0.62
8200	38.85	38.70	38.79	0.12	0.44	0.64	0.27	0.49	0.61
9000	35.87	35.62	35.55	0.07	0.42	0.71	0.27	0.50	0.62
9300	34.80	34.60	34.52	0.09	0.41	0.71	0.28	0.51	0.63
10000	32.82	32.60	32.49	0.20	0.46	0.65	0.28	0.53	0.66

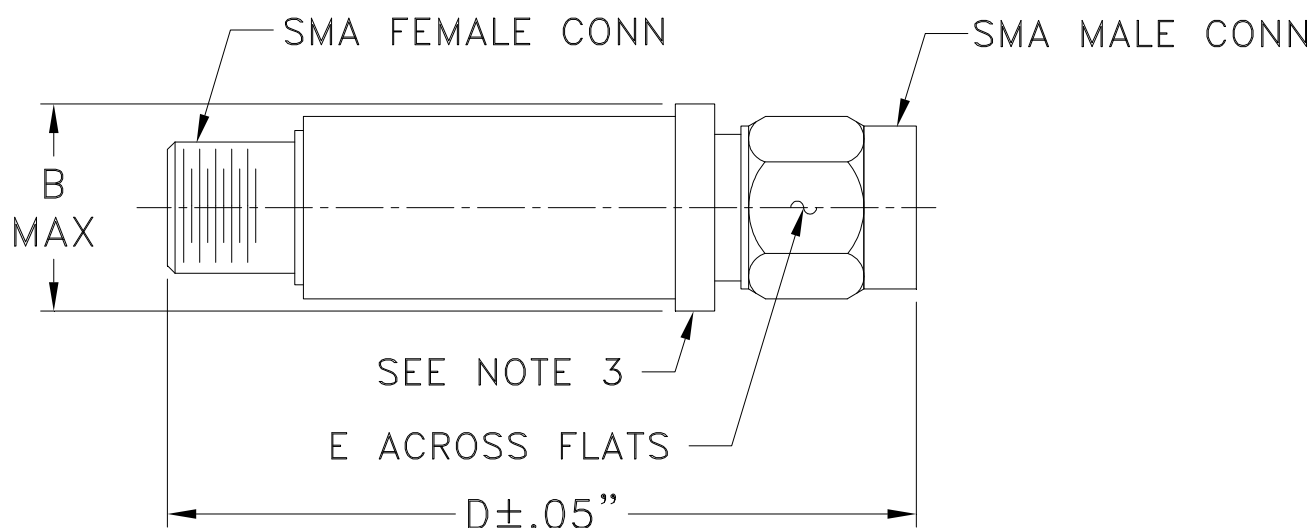
Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-55°C	@+25°C	@+100°C
10	0.50	0.51	0.50
30	0.50	0.51	0.50
70	0.51	0.50	0.50
110	0.51	0.50	0.49
150	0.51	0.50	0.49
190	0.50	0.50	0.49
230	0.50	0.50	0.49
270	0.51	0.50	0.49
310	0.51	0.50	0.50
350	0.51	0.50	0.50
390	0.52	0.51	0.50
430	0.52	0.51	0.50
470	0.52	0.51	0.51
510	0.53	0.52	0.51
550	0.53	0.52	0.52
590	0.54	0.53	0.52
630	0.54	0.53	0.53
670	0.55	0.54	0.54
710	0.56	0.55	0.54
750	0.56	0.56	0.55
790	0.57	0.57	0.56
830	0.58	0.58	0.57
870	0.59	0.59	0.58
910	0.61	0.60	0.59
950	0.62	0.61	0.61
990	0.63	0.62	0.62
1000	0.63	0.63	0.62
1010	0.64	0.63	0.63
1020	0.64	0.64	0.64
1030	0.65	0.64	0.64
1070	0.67	0.66	0.66
1110	0.69	0.68	0.68
1150	0.71	0.71	0.71
1190	0.73	0.73	0.73
1230	0.76	0.76	0.76
1270	0.79	0.80	0.80
1310	0.83	0.84	0.84
1350	0.88	0.88	0.89
1380	0.91	0.92	0.93
1390	0.93	0.94	0.95
1400	0.94	0.95	0.96

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