

Coaxial Low Pass Filter

VLFG-1700+

50Ω DC to 1700 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, 40 dB typical

Product Overview

VLFG-1700+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-1700 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-1700+ 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



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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 40 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

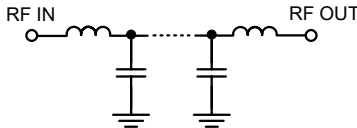
Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC - 1700	—	1.0	1.8	dB
	Freq. Cut-Off	F2*	2030	—	3.0	—	dB
	Return Loss	DC-F1	DC - 1700	—	18	—	dB
Stop Band	Rejection Loss	F3-F4	2500 - 2800	20	30	—	dB
		F4-F5	2800 - 8000	30	40	—	dB
		F5-F6	8000 - 13000	—	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

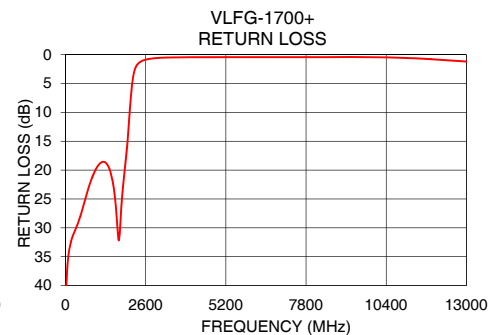
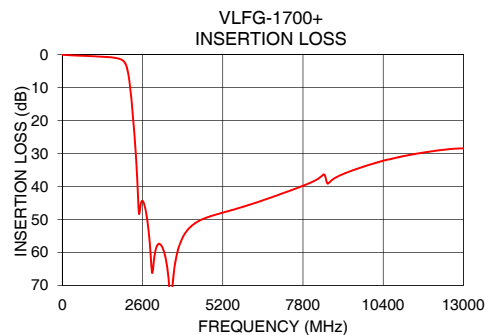
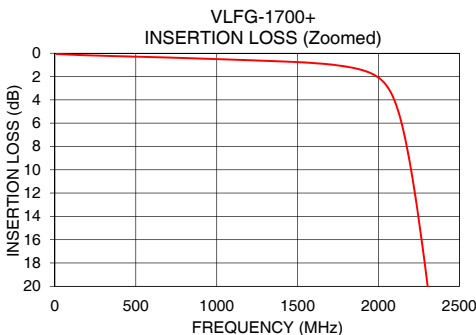
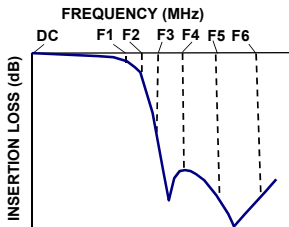
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	5.5W max. @25°C

*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	0.06	43.60
100	0.12	34.57
1000	0.50	19.69
1700	0.96	31.08
1800	1.15	27.40
1900	1.45	21.02
2030	2.46	13.72
2070	3.23	10.76
2250	14.46	2.54
2310	20.83	1.85
2400	32.84	1.34
2500	48.06	1.04
2700	47.12	0.75
2800	53.67	0.67
5000	48.44	0.44
8000	39.02	0.43
10000	33.24	0.43
12000	29.27	0.83
12500	28.68	1.01
13000	28.41	1.18

Typical Frequency Response



Notes

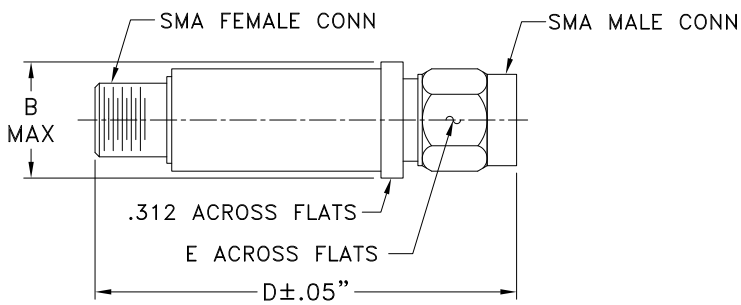
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Coaxial Connections

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

Outline Drawing



Outline Dimensions (inch)

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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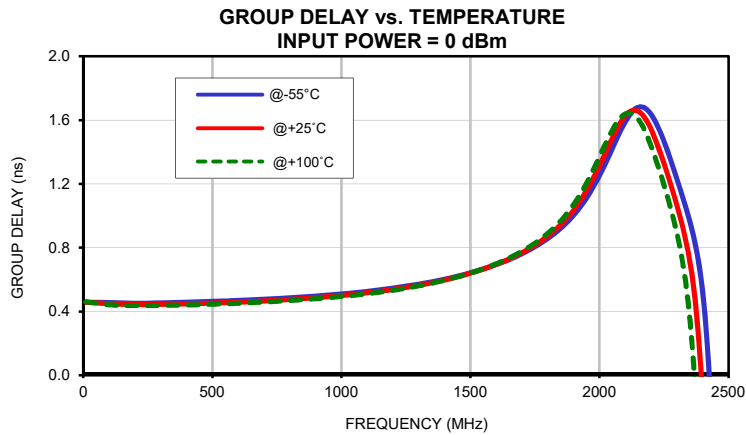
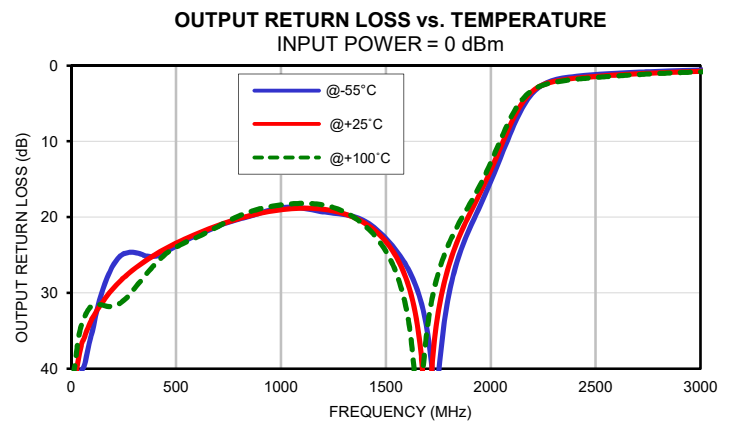
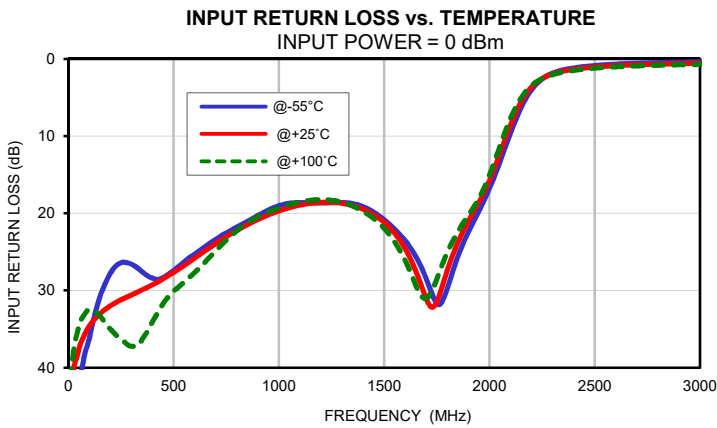
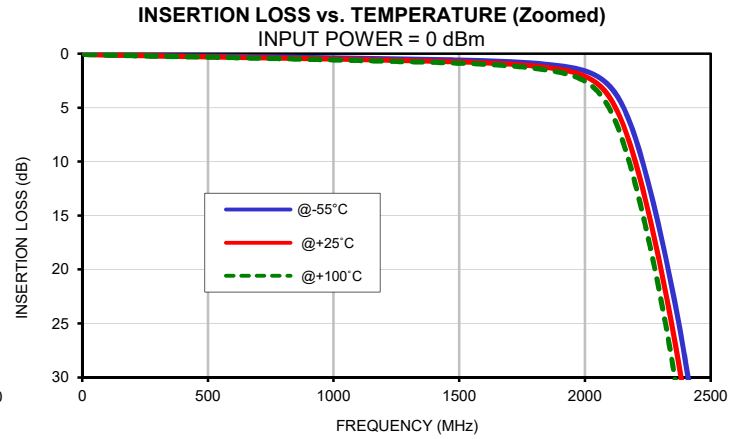
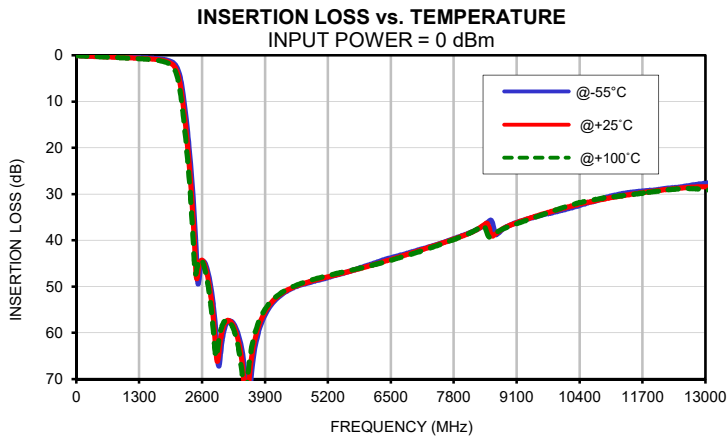
Typical Performance Data

FREQ. (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C
10	0.05	0.06	0.07	44.16	43.60	41.53	43.78	42.43	40.92
60	0.08	0.10	0.11	40.72	36.72	33.85	39.75	36.07	33.35
100	0.11	0.12	0.14	36.19	34.57	32.49	35.17	33.34	31.66
140	0.13	0.15	0.16	31.70	33.30	33.04	30.51	31.53	31.54
180	0.14	0.17	0.18	28.78	32.36	34.39	27.46	30.05	31.79
200	0.15	0.17	0.19	27.77	31.99	35.03	26.35	29.40	31.76
240	0.17	0.19	0.21	26.54	31.34	36.06	25.00	28.27	31.21
300	0.18	0.22	0.24	26.58	30.58	37.25	24.65	26.81	29.45
400	0.20	0.26	0.28	28.41	29.27	34.04	25.16	24.96	26.20
500	0.23	0.29	0.33	27.44	27.68	30.11	23.80	23.43	23.97
800	0.32	0.41	0.47	21.79	22.22	22.26	20.25	20.18	19.83
1000	0.39	0.50	0.58	19.02	19.69	19.30	18.74	19.03	18.39
1500	0.59	0.76	0.88	20.83	21.17	21.97	22.81	23.23	24.49
1700	0.74	0.96	1.13	28.48	31.08	31.04	35.50	52.98	34.10
2000	1.60	2.10	2.56	16.80	15.76	15.09	15.29	13.82	12.80
2030	1.86	2.46	3.05	14.77	13.72	12.87	13.28	11.90	10.88
2050	2.10	2.80	3.50	13.33	12.26	11.33	11.90	10.58	9.59
2100	3.06	4.12	5.22	9.61	8.58	7.72	8.51	7.43	6.63
2200	7.78	9.97	12.06	3.98	3.64	3.44	3.62	3.36	3.23
2240	10.91	13.50	15.88	2.81	2.71	2.68	2.67	2.65	2.67
2300	16.63	19.69	22.50	1.84	1.93	2.03	1.93	2.10	2.22
2320	18.76	21.99	24.97	1.65	1.77	1.88	1.79	1.99	2.12
2400	28.55	32.84	37.00	1.16	1.34	1.49	1.44	1.69	1.83
2500	47.20	48.06	45.78	0.85	1.04	1.20	1.19	1.44	1.57
2700	46.03	47.12	48.32	0.55	0.75	0.90	0.88	1.09	1.20
2800	51.36	53.67	55.98	0.47	0.67	0.82	0.77	0.96	1.05
2900	62.06	65.42	65.03	0.41	0.61	0.76	0.68	0.85	0.94
3000	62.84	60.44	59.00	0.36	0.57	0.72	0.60	0.77	0.84
3250	58.02	58.53	59.22	0.30	0.50	0.66	0.46	0.61	0.66
3500	70.11	74.32	73.83	0.27	0.47	0.63	0.38	0.52	0.55
3600	71.22	67.26	64.83	0.26	0.46	0.62	0.36	0.49	0.52
4000	54.37	53.86	53.49	0.27	0.45	0.57	0.28	0.42	0.45
4250	51.74	51.48	51.27	0.28	0.45	0.54	0.25	0.39	0.43
4500	50.20	50.10	49.94	0.28	0.44	0.53	0.23	0.38	0.43
4750	49.33	49.18	48.94	0.26	0.44	0.54	0.21	0.37	0.44
5000	48.66	48.44	48.19	0.23	0.44	0.56	0.19	0.37	0.45
5250	47.94	47.77	47.50	0.20	0.43	0.61	0.18	0.37	0.46
5500	47.16	47.07	46.91	0.17	0.43	0.67	0.17	0.37	0.48
5750	46.42	46.45	46.31	0.15	0.43	0.71	0.15	0.38	0.50
6000	45.52	45.72	45.73	0.14	0.43	0.74	0.16	0.39	0.52
6250	44.60	44.94	45.06	0.14	0.43	0.76	0.16	0.40	0.54
6500	43.79	44.17	44.34	0.14	0.43	0.75	0.17	0.41	0.55
6750	43.09	43.34	43.54	0.15	0.43	0.73	0.17	0.42	0.56
7000	42.32	42.53	42.76	0.17	0.43	0.71	0.18	0.42	0.56
7500	40.76	40.81	40.96	0.17	0.43	0.66	0.20	0.44	0.57
8000	38.95	39.02	39.06	0.15	0.43	0.66	0.22	0.45	0.56
8500	36.15	36.45	38.83	0.10	0.43	0.71	0.30	0.68	0.71
9000	36.55	36.59	36.78	0.06	0.42	0.75	0.22	0.46	0.52
9500	34.93	34.80	34.94	0.07	0.41	0.76	0.21	0.46	0.53
10000	33.60	33.24	33.12	0.16	0.43	0.73	0.19	0.48	0.56
10500	32.19	31.93	31.65	0.26	0.48	0.66	0.22	0.51	0.62
10750	31.43	31.43	31.16	0.31	0.51	0.64	0.23	0.52	0.65
11000	30.62	30.93	30.75	0.34	0.56	0.66	0.27	0.54	0.68
11250	30.03	30.47	30.40	0.33	0.62	0.74	0.30	0.57	0.72
11500	29.61	30.02	30.05	0.28	0.68	0.88	0.32	0.61	0.76
11750	29.33	29.65	29.73	0.24	0.75	1.10	0.35	0.64	0.79
12000	29.08	29.27	29.38	0.24	0.83	1.37	0.36	0.66	0.82
12250	28.72	28.96	29.05	0.28	0.92	1.66	0.39	0.69	0.84
12500	28.46	28.68	28.80	0.35	1.01	1.89	0.39	0.71	0.86
13000	27.73	28.41	29.05	0.62	1.18	1.86	0.35	0.72	0.88

Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-55°C	@+25°C	@+100°C
10	0.46	0.46	0.46
30	0.46	0.46	0.46
70	0.46	0.45	0.45
110	0.46	0.45	0.44
150	0.45	0.44	0.44
190	0.45	0.44	0.44
230	0.45	0.44	0.44
270	0.45	0.44	0.44
310	0.45	0.44	0.44
350	0.46	0.45	0.44
390	0.46	0.45	0.44
430	0.46	0.45	0.44
470	0.46	0.45	0.44
510	0.46	0.45	0.45
550	0.47	0.46	0.45
590	0.47	0.46	0.45
630	0.47	0.46	0.45
670	0.47	0.46	0.46
710	0.48	0.47	0.46
750	0.48	0.47	0.46
790	0.48	0.47	0.47
830	0.49	0.48	0.47
870	0.49	0.48	0.48
910	0.50	0.49	0.48
950	0.50	0.49	0.49
990	0.51	0.50	0.49
1000	0.51	0.50	0.49
1010	0.51	0.50	0.50
1020	0.51	0.50	0.50
1030	0.51	0.50	0.50
1070	0.52	0.51	0.51
1110	0.53	0.52	0.51
1150	0.54	0.53	0.52
1190	0.54	0.54	0.53
1200	0.55	0.54	0.53
1250	0.56	0.55	0.55
1300	0.57	0.56	0.56
1400	0.60	0.60	0.60
1500	0.64	0.64	0.64
1600	0.69	0.70	0.70
1700	0.76	0.77	0.78

Typical Performance Curves

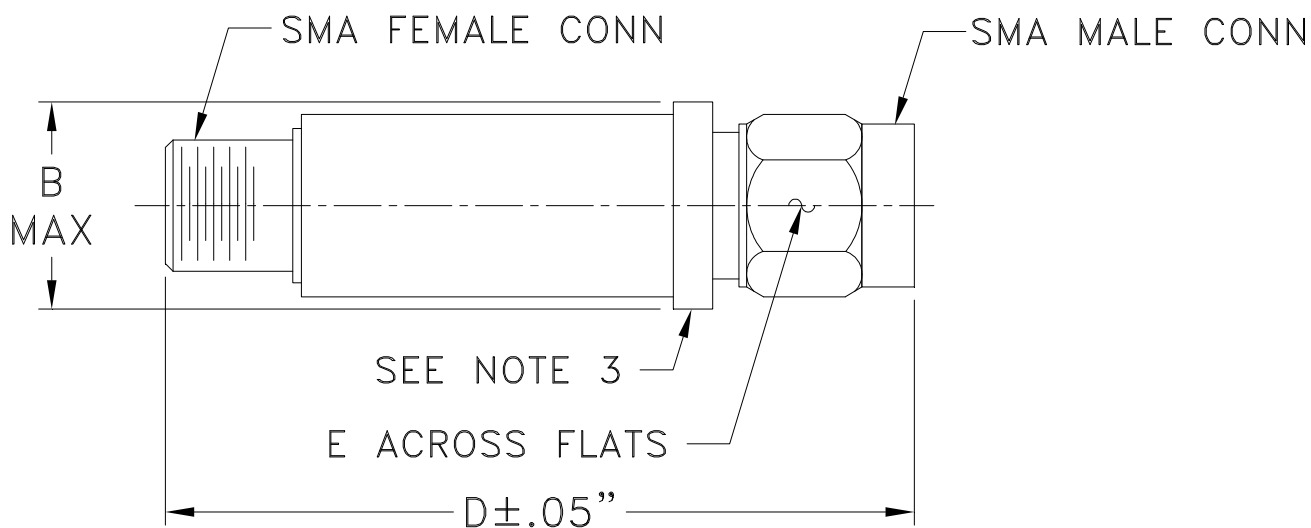


Case Style

FF

FF704

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