Coaxial

Low Pass Filter

VLFG-900+

50Ω DC to 850 MHz



Generic photo used for illustration purposes only

CASE STYLE: FF704

The Big Deal

- Excellent power handling, 4.5 W
- Temperature stable
- Rugged unibody construction
- Good rejection, 45 dB typical

Product Overview

VLFG-900+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-850 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-900+ 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.
4.5 W 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

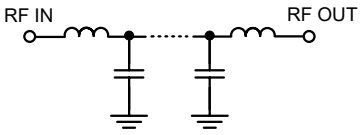
Features

- Low loss, 1.3 dB typical
- Good rejection 45 dB typical
- Excellent power handling, 4.5 W
- Temperature stable
- Connectorized package
- Rugged unibody construction

Applications

- Harmonic Rejection
- VHF/UHF transmitters / receivers
- Military radar applications
- Test and measurement
- Telecommunications & broadband wireless applications
- Medical telemetry

Functional Schematic



Electrical Specifications at 25°C

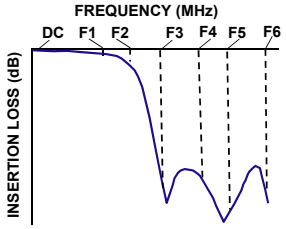
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 850	—	1.3	2.2	dB
	Freq. Cut-Off	F2*	1000	—	3.0	—	dB
	Return Loss	DC-F1	DC - 850	—	18	—	dB
Stop Band	Rejection Loss	F3-F4	1300 - 1600	20	49	—	dB
		F4-F5	1600 - 4500	33	45	—	dB
		F5-F6	4500 - 11000	—	21	—	dB

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*	4.5 W max.@25°C

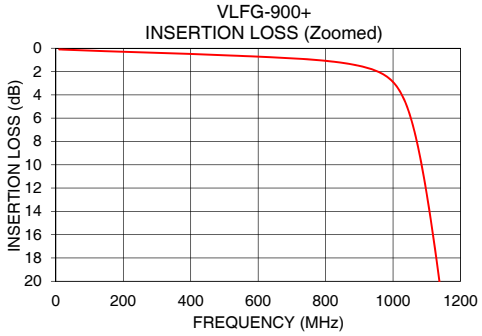
*Passband rating, derate linearly to 1.1 W at 125°C ambient
Permanent damage may occur if any of these limits are exceeded.

Typical Frequency Response

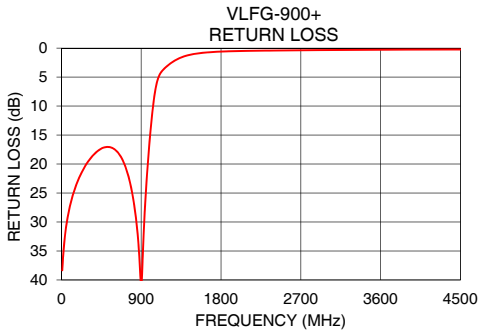


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.10	38.34
100	0.20	27.04
400	0.49	17.87
500	0.60	17.09
600	0.72	17.47
850	1.25	30.53
900	1.51	41.22
1000	2.90	15.12
1010	3.24	13.45
1140	20.57	3.86
1180	30.56	3.26
1300	54.55	1.97
1600	55.04	0.80
4000	46.71	0.26
4500	48.64	0.24
6000	41.44	0.42
7000	35.63	0.42
8500	31.88	0.53
10000	22.72	0.65
11000	22.42	0.69





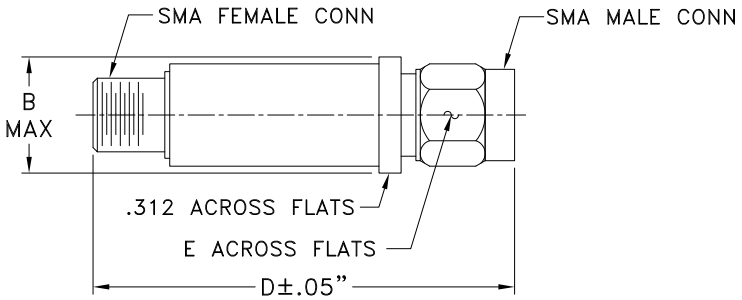


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Coaxial Connections

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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Coaxial Low Pass Filter VLFG-900+

Typical Performance Data

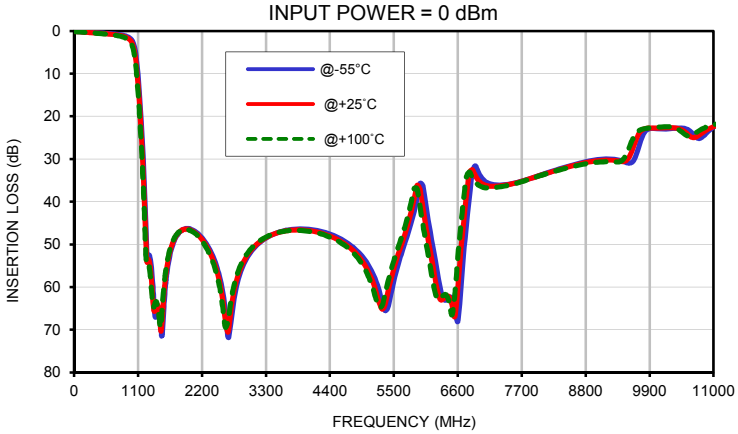
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C	@-55°C	@+25°C	@+100°C
10	0.08	0.10	0.12	40.23	38.21	36.63	40.95	38.34	36.91
40	0.11	0.13	0.16	35.40	33.15	31.36	34.72	32.44	30.72
100	0.18	0.20	0.22	28.87	28.68	27.90	27.48	27.04	26.17
160	0.24	0.26	0.28	24.25	26.32	27.81	22.75	23.93	24.66
220	0.29	0.32	0.34	22.04	24.65	28.09	20.37	21.74	23.33
280	0.33	0.37	0.40	21.53	23.14	26.49	19.49	20.06	21.46
340	0.36	0.43	0.47	21.33	21.72	23.66	19.08	18.82	19.51
400	0.41	0.49	0.54	20.50	20.44	21.24	18.37	17.87	17.98
460	0.46	0.56	0.62	19.21	19.36	19.63	17.53	17.26	17.11
520	0.52	0.62	0.70	18.21	18.58	18.76	17.09	17.06	16.91
580	0.58	0.70	0.78	17.77	18.21	18.39	17.15	17.26	17.14
640	0.65	0.77	0.87	17.88	18.34	18.38	17.83	18.05	17.84
700	0.72	0.86	0.98	18.64	19.14	18.92	19.23	19.61	19.15
760	0.80	0.98	1.12	20.28	20.82	20.36	21.70	22.33	21.60
850	1.03	1.25	1.44	24.96	25.45	24.92	28.96	30.53	29.70
880	1.14	1.39	1.61	27.00	27.18	26.64	34.00	36.26	35.31
900	1.24	1.51	1.75	28.17	27.81	27.16	41.21	41.22	36.97
1000	2.32	2.90	3.49	15.98	14.60	13.41	16.11	15.12	13.88
1010	2.58	3.24	3.92	14.16	12.85	11.75	14.38	13.45	12.37
1130	15.89	18.39	20.51	2.22	2.26	2.33	3.75	4.04	4.37
1140	17.96	20.57	22.79	2.00	2.07	2.16	3.54	3.86	4.20
1180	27.43	30.56	33.27	1.44	1.58	1.70	2.93	3.26	3.57
1300	52.73	54.55	56.03	0.82	0.99	1.10	1.74	1.97	2.14
1360	60.93	64.05	64.52	0.68	0.84	0.95	1.36	1.56	1.69
1400	67.07	64.95	63.53	0.60	0.76	0.87	1.17	1.35	1.47
1600	56.36	55.04	54.18	0.38	0.54	0.65	0.67	0.80	0.87
2500	57.49	58.68	59.75	0.21	0.35	0.43	0.30	0.40	0.44
2850	56.97	56.08	55.39	0.19	0.34	0.43	0.25	0.35	0.39
2900	55.18	54.53	53.89	0.19	0.34	0.43	0.24	0.35	0.39
2950	53.76	53.23	52.72	0.19	0.34	0.44	0.23	0.34	0.38
3000	52.59	52.13	51.74	0.19	0.34	0.44	0.23	0.33	0.38
3100	50.81	50.49	50.23	0.19	0.34	0.44	0.21	0.32	0.37
3200	49.51	49.31	49.11	0.18	0.35	0.44	0.20	0.31	0.36
3300	48.50	48.45	48.30	0.18	0.35	0.44	0.19	0.30	0.36
3500	47.23	47.28	47.25	0.19	0.35	0.44	0.17	0.29	0.35
3700	46.60	46.73	46.76	0.21	0.36	0.44	0.14	0.27	0.34
4000	46.42	46.71	46.87	0.25	0.38	0.44	0.11	0.26	0.35
4500	48.14	48.64	48.93	0.27	0.41	0.47	0.08	0.24	0.36
5500	58.55	55.79	53.77	0.14	0.43	0.67	0.09	0.28	0.42
5650	51.37	49.30	47.64	0.12	0.43	0.70	0.11	0.30	0.45
5800	44.87	42.37	40.01	0.12	0.43	0.73	0.15	0.36	0.56
5950	35.74	37.12	41.04	0.17	0.47	0.74	0.43	0.57	0.57
6000	36.33	41.44	45.37	0.17	0.44	0.73	0.41	0.42	0.50
6250	56.55	60.95	62.77	0.14	0.43	0.72	0.17	0.34	0.47
6400	63.06	62.15	61.84	0.16	0.43	0.72	0.18	0.35	0.48
6550	64.49	66.93	61.54	0.17	0.45	0.72	0.20	0.37	0.49
6600	68.09	60.39	53.04	0.17	0.45	0.72	0.21	0.38	0.50
6850	33.11	32.52	34.29	0.43	0.62	0.75	0.39	0.51	0.55
7000	34.22	35.63	36.46	0.22	0.46	0.67	0.28	0.42	0.51
7150	35.80	36.37	36.78	0.18	0.44	0.65	0.27	0.42	0.51
7300	36.11	36.33	36.58	0.15	0.43	0.64	0.28	0.44	0.52
7450	35.97	36.06	36.22	0.13	0.42	0.63	0.29	0.45	0.52
7600	35.58	35.59	35.72	0.11	0.40	0.62	0.30	0.46	0.52
7750	34.98	35.00	35.10	0.08	0.38	0.62	0.31	0.47	0.52
7900	34.32	34.35	34.41	0.06	0.37	0.62	0.31	0.48	0.52
8000	33.90	33.92	33.96	0.04	0.35	0.61	0.32	0.49	0.53
8200	33.01	33.06	33.14	0.03	0.35	0.62	0.33	0.50	0.53
9000	30.15	30.40	30.75	0.20	0.48	0.73	0.31	0.56	0.61
9800	24.01	22.98	22.91	2.45	2.05	1.81	0.34	0.66	0.79
11000	22.49	22.42	21.96	1.88	1.61	1.53	0.33	0.69	0.98

Typical Performance Data

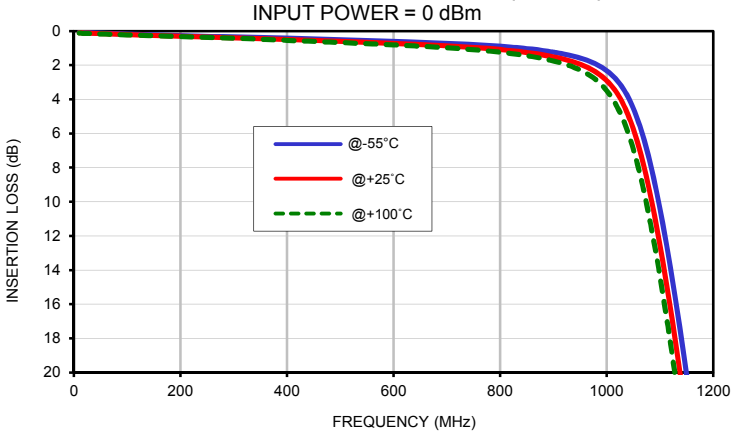
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-55°C	@+25˚C	@+100˚C
10	0.71	0.73	0.76
20	0.70	0.70	0.70
40	0.70	0.69	0.69
60	0.70	0.69	0.69
80	0.69	0.69	0.69
100	0.69	0.69	0.68
120	0.69	0.69	0.68
140	0.69	0.68	0.68
160	0.69	0.68	0.68
180	0.69	0.68	0.68
200	0.69	0.69	0.68
220	0.69	0.69	0.69
240	0.70	0.69	0.69
260	0.70	0.70	0.69
280	0.71	0.70	0.70
300	0.71	0.71	0.70
320	0.72	0.71	0.71
340	0.72	0.72	0.71
360	0.73	0.72	0.72
380	0.74	0.73	0.73
400	0.75	0.74	0.74
420	0.75	0.75	0.74
440	0.76	0.76	0.75
460	0.77	0.77	0.76
480	0.78	0.78	0.78
500	0.80	0.79	0.79
520	0.81	0.80	0.80
540	0.82	0.82	0.82
560	0.84	0.83	0.83
580	0.85	0.85	0.85
600	0.87	0.87	0.87
620	0.89	0.89	0.89
640	0.91	0.92	0.92
660	0.94	0.94	0.94
680	0.96	0.97	0.97
700	0.99	1.00	1.00
800	1.18	1.20	1.21
820	1.22	1.24	1.26
840	1.26	1.29	1.31
850	1.31	1.33	1.36
900	1.51	1.56	1.59

Typical Performance Curves

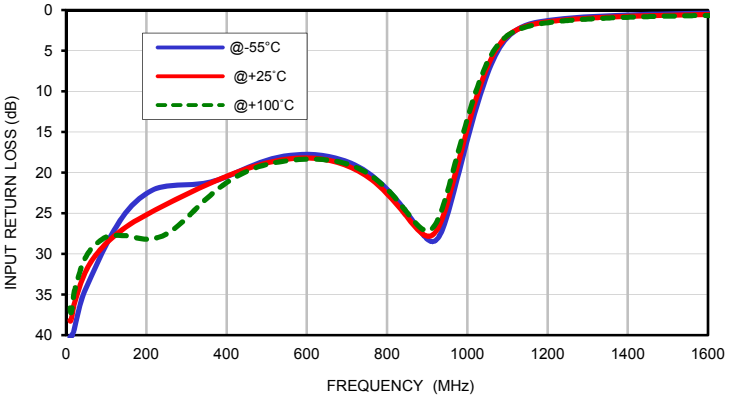
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



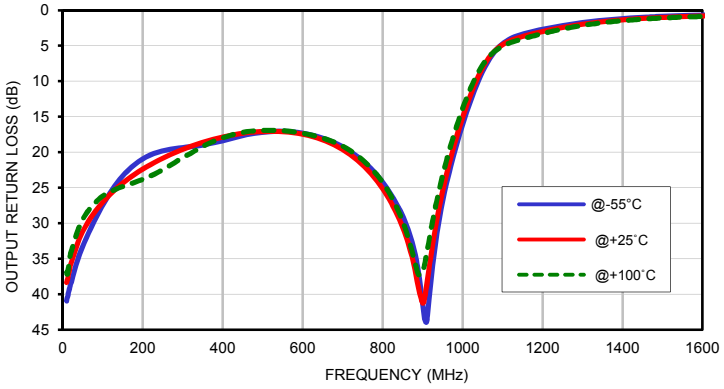
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



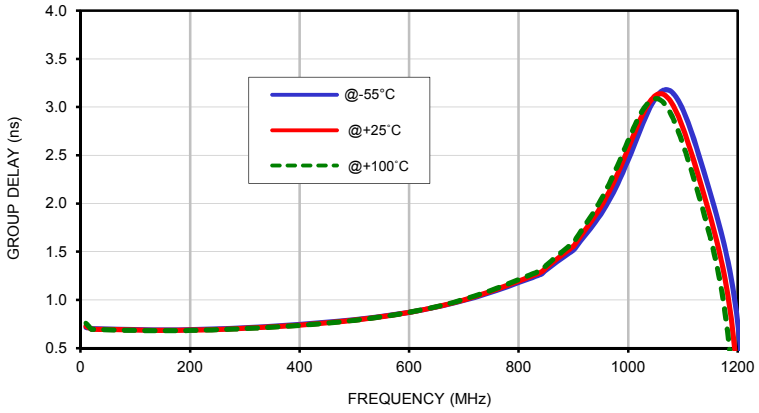
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



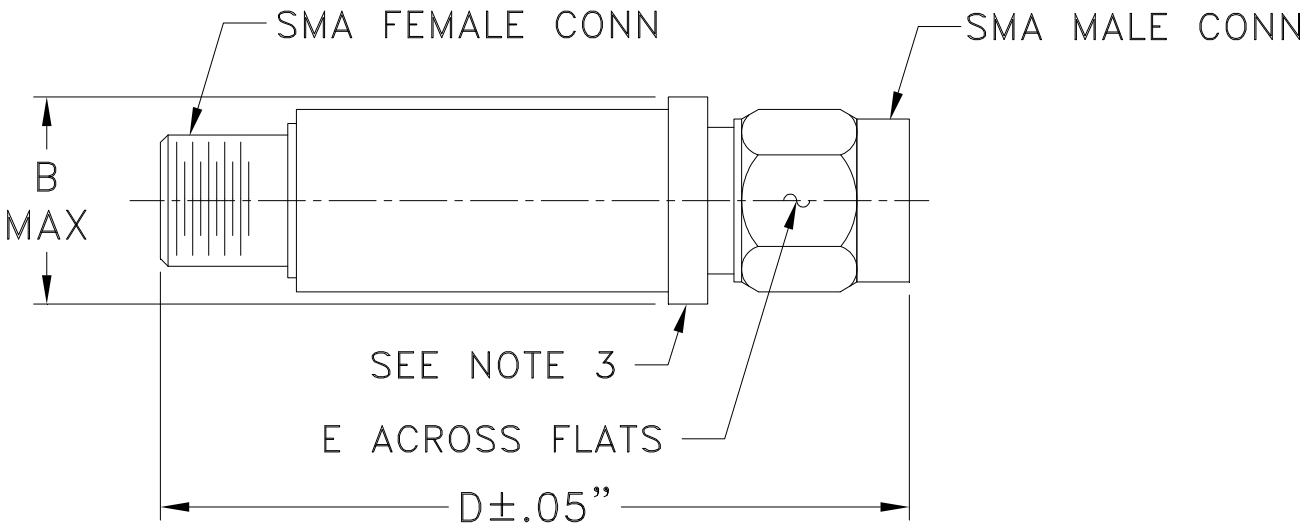
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



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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Mini-Circuits

Environmental Specifications ENV113

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

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