

Coaxial Low Pass Filter

VLFG-530+

50Ω DC to 530 MHz



Generic photo used for illustration purposes only
CASE STYLE: FF704

The Big Deal

- Excellent power handling, 3.5 W
- Temperature stable
- Rugged unibody construction
- Good rejection, 31 dB typical

Product Overview

VLFG-530+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-530 MHz bandwidth, these units offer good matching within the passband and good rejection in stopband. VLFG-530+ offer low insertion loss, and excellent power handling capability. It handles up to 3.5W 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.
3.5 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



Low Pass Filter

VLFG-530+

50Ω DC to 530 MHz



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+RoHS Compliant

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

Features

- Low loss, 1dB typical
- Good rejection 31 dB typical
- Excellent power handling, 3.5 W
- Temperature stable
- Connectorized package
- Rugged unibody construction

Applications

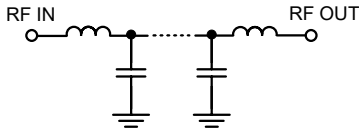
- Harmonic Rejection
- VHF/UHF transmitters / receivers
- RF suppression for DC lines on PCB
- Anti-aliasing for A/D converter

Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 530	—	1.0	1.8	dB
	Freq. Cut-Off	F2*	670	—	3.0	—	dB
	Return Loss	DC-F1	DC - 530	—	18	—	dB
Stop Band	Rejection Loss	F3-F4	980 - 2600	25	31	—	dB
		F4-F5	2600 - 4000	—	27	—	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

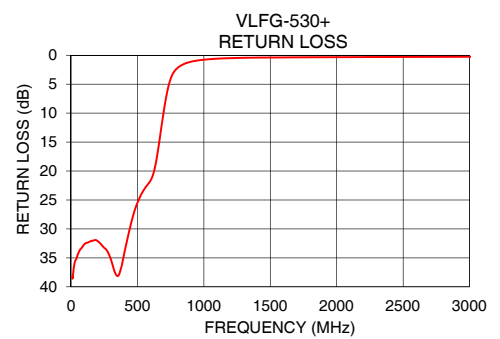
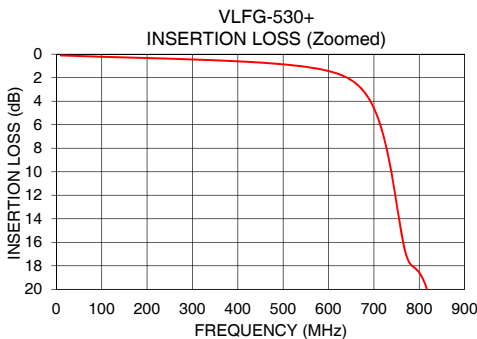
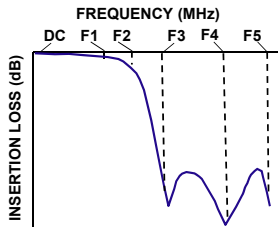
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	3.5 W max. @25°C

*Passband rating, derate linearly to 0.6 W 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	0.11	38.21
50	0.16	34.52
100	0.22	32.67
250	0.38	33.27
500	0.86	25.49
530	0.98	23.98
650	2.20	17.15
670	2.83	14.08
675	3.03	13.28
790	18.18	2.44
820	20.36	1.88
870	30.87	1.33
980	31.96	0.82
1000	32.22	0.76
2000	50.28	0.33
2600	31.51	0.29
3000	28.89	0.26
3500	27.44	0.24
3750	27.03	0.23
4000	26.65	0.23

Typical Frequency Response



Notes

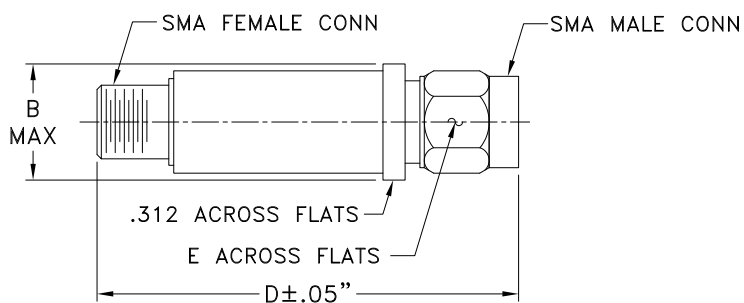
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Coaxial Connections

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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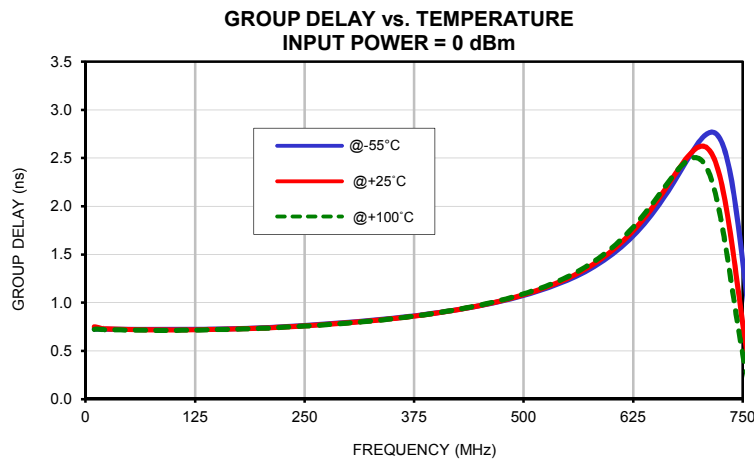
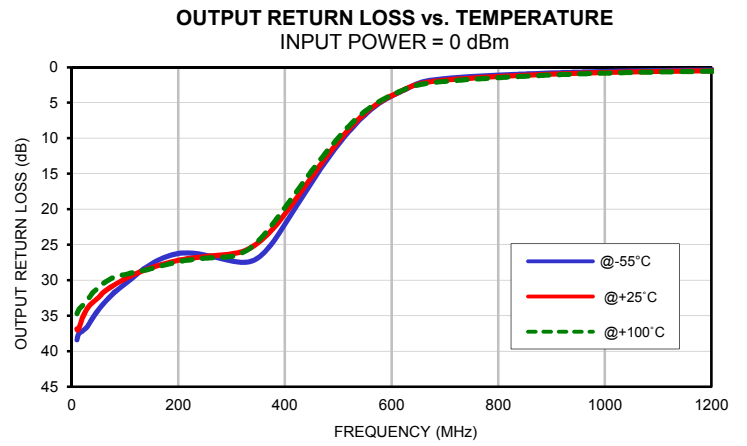
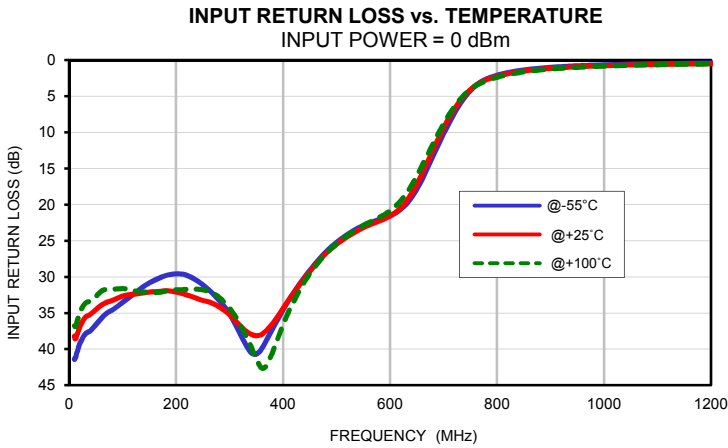
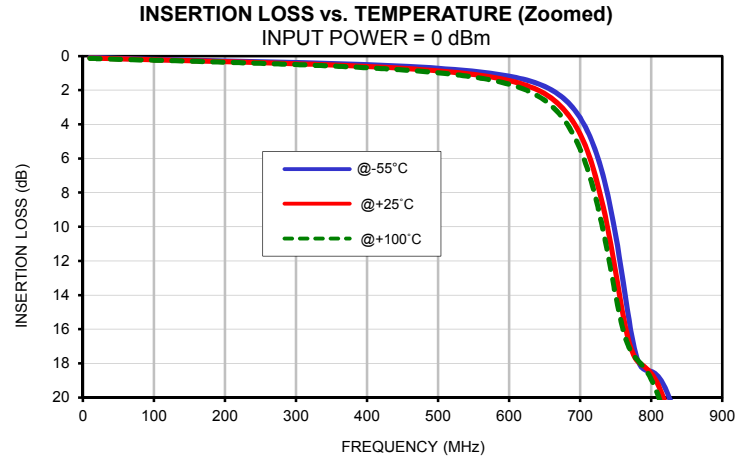
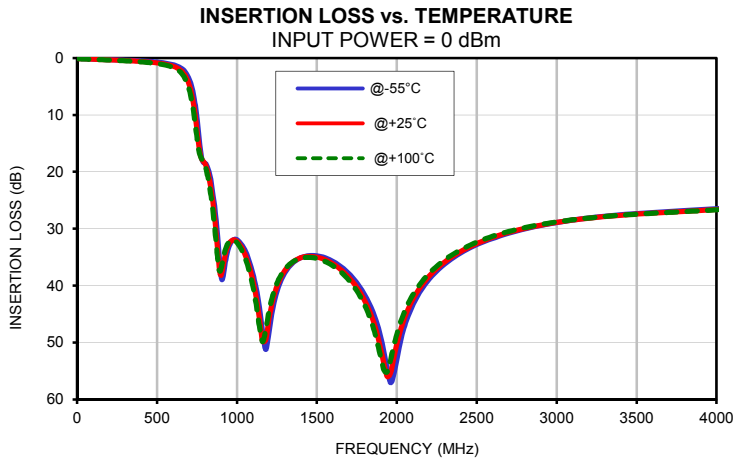
Typical Performance Data

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	0.08	0.11	0.13	41.42	38.21	36.80	38.41	36.88	34.72
20	0.10	0.12	0.15	39.23	36.88	34.86	37.16	35.34	33.63
50	0.14	0.16	0.18	36.59	34.52	32.73	34.16	32.49	31.08
100	0.19	0.22	0.24	33.53	32.67	31.62	30.57	29.81	29.21
150	0.24	0.27	0.30	30.83	32.10	32.12	27.68	28.22	28.36
200	0.29	0.32	0.36	29.59	32.10	31.80	26.22	27.20	27.39
225	0.31	0.35	0.39	29.91	32.61	31.69	26.18	26.89	27.10
250	0.33	0.38	0.42	31.11	33.27	31.80	26.47	26.68	26.90
275	0.35	0.41	0.46	32.80	33.92	32.51	26.86	26.49	26.81
300	0.38	0.45	0.50	35.15	35.24	34.33	27.30	26.28	26.64
325	0.40	0.48	0.54	38.67	37.18	37.34	27.48	25.82	25.96
350	0.43	0.52	0.58	40.70	38.15	41.31	26.82	24.72	24.47
375	0.47	0.56	0.63	37.96	36.96	41.39	24.89	22.96	22.28
400	0.50	0.61	0.68	34.54	34.36	36.62	22.16	20.67	19.78
450	0.59	0.72	0.81	29.11	29.24	29.53	16.19	15.46	14.63
500	0.72	0.86	0.98	25.22	25.49	25.42	10.91	10.48	9.93
530	0.81	0.98	1.11	23.67	23.98	23.75	8.23	7.92	7.54
550	0.89	1.08	1.23	22.88	23.19	22.87	6.72	6.48	6.22
600	1.18	1.43	1.65	21.53	21.59	20.86	4.06	4.00	3.94
650	1.78	2.20	2.59	17.86	17.15	16.04	2.25	2.37	2.49
670	2.26	2.83	3.35	14.95	14.08	13.11	1.87	2.08	2.24
700	3.62	4.58	5.46	10.21	9.43	8.83	1.59	1.82	1.99
725	5.97	7.54	8.84	6.75	6.23	5.96	1.44	1.66	1.84
750	10.51	12.68	14.05	4.22	4.06	4.06	1.31	1.53	1.70
775	16.89	17.49	17.52	2.78	2.87	2.99	1.21	1.42	1.58
800	18.48	18.58	18.94	2.08	2.23	2.37	1.11	1.31	1.47
825	19.97	21.02	22.00	1.66	1.81	1.94	1.03	1.21	1.36
830	20.56	21.77	22.84	1.59	1.74	1.87	1.01	1.20	1.34
850	23.83	25.59	27.05	1.36	1.51	1.63	0.95	1.13	1.26
860	25.99	28.03	29.66	1.27	1.41	1.53	0.92	1.09	1.23
875	30.00	32.44	34.15	1.15	1.29	1.40	0.87	1.04	1.17
880	31.57	34.08	35.58	1.11	1.26	1.36	0.86	1.03	1.16
900	38.19	38.21	37.09	0.99	1.13	1.23	0.81	0.97	1.09
925	36.32	34.83	33.95	0.88	1.01	1.09	0.75	0.90	1.01
980	31.91	31.96	32.03	0.69	0.82	0.88	0.63	0.78	0.87
1000	31.94	32.22	32.46	0.65	0.76	0.83	0.60	0.74	0.83
1100	37.93	39.16	40.18	0.49	0.59	0.63	0.47	0.59	0.66
1200	48.26	46.00	44.61	0.41	0.49	0.52	0.39	0.50	0.56
1300	37.73	37.32	37.12	0.36	0.44	0.46	0.34	0.44	0.49
1400	35.09	35.09	35.19	0.33	0.41	0.42	0.31	0.41	0.45
1500	34.76	34.99	35.23	0.31	0.39	0.40	0.30	0.38	0.42
1600	35.74	36.17	36.53	0.29	0.37	0.38	0.28	0.37	0.40
1700	37.89	38.54	39.05	0.28	0.36	0.37	0.28	0.36	0.39
1800	41.65	42.69	43.49	0.26	0.35	0.36	0.27	0.35	0.38
1900	49.12	51.19	52.69	0.26	0.34	0.35	0.27	0.34	0.37
2000	52.89	50.28	48.52	0.25	0.33	0.34	0.27	0.34	0.37
2200	38.96	38.41	37.92	0.23	0.32	0.33	0.26	0.34	0.36
2400	34.24	33.99	33.71	0.21	0.30	0.32	0.26	0.33	0.36
2600	31.70	31.51	31.33	0.19	0.29	0.31	0.26	0.33	0.36
2800	30.04	29.94	29.82	0.17	0.28	0.31	0.25	0.33	0.37
3000	28.92	28.89	28.81	0.15	0.26	0.30	0.24	0.33	0.37
3100	28.47	28.49	28.43	0.14	0.26	0.30	0.24	0.33	0.38
3200	28.09	28.16	28.12	0.13	0.25	0.31	0.24	0.33	0.38
3300	27.80	27.88	27.87	0.12	0.25	0.31	0.23	0.33	0.39
3400	27.55	27.64	27.64	0.12	0.24	0.31	0.23	0.33	0.39
3500	27.32	27.44	27.45	0.11	0.24	0.31	0.23	0.33	0.40
3600	27.13	27.26	27.28	0.10	0.24	0.31	0.22	0.33	0.41
3700	26.97	27.10	27.13	0.09	0.24	0.31	0.22	0.33	0.42
3800	26.81	26.95	26.99	0.08	0.23	0.32	0.21	0.34	0.43
4000	26.50	26.65	26.67	0.07	0.23	0.33	0.22	0.37	0.50

Typical Performance Data

FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-55°C	@+25°C	@+100°C
10	0.73	0.75	0.72
20	0.73	0.73	0.72
30	0.73	0.73	0.72
40	0.72	0.72	0.72
50	0.72	0.72	0.72
70	0.72	0.72	0.71
100	0.72	0.72	0.71
150	0.73	0.72	0.72
170	0.73	0.73	0.73
200	0.74	0.74	0.73
225	0.75	0.75	0.74
250	0.76	0.76	0.76
275	0.78	0.77	0.77
300	0.80	0.79	0.79
300	0.80	0.79	0.79
305	0.80	0.80	0.79
310	0.80	0.80	0.80
315	0.81	0.80	0.80
320	0.81	0.81	0.81
325	0.82	0.81	0.81
330	0.82	0.82	0.81
335	0.82	0.82	0.82
440	0.95	0.95	0.96
445	0.96	0.96	0.96
450	0.97	0.97	0.97
455	0.98	0.98	0.98
460	0.99	0.99	0.99
465	1.00	1.00	1.00
470	1.01	1.01	1.02
475	1.02	1.02	1.03
480	1.03	1.03	1.04
485	1.04	1.04	1.05
490	1.05	1.06	1.06
495	1.06	1.07	1.08
500	1.08	1.08	1.09
505	1.09	1.10	1.11
510	1.10	1.11	1.12
515	1.12	1.13	1.14
520	1.13	1.14	1.15
525	1.15	1.16	1.17
530	1.16	1.17	1.19

Typical Performance Curves

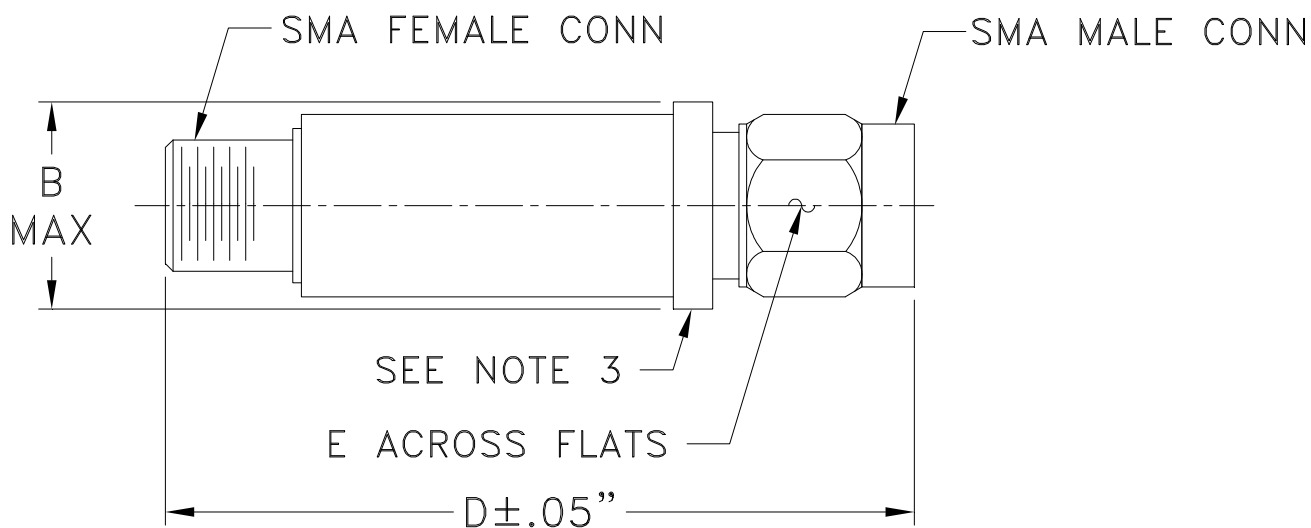


Case Style

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