

Low Pass Filter

VLFX-470+

50Ω DC to 470 MHz (40 dB Typ. Isolation up to 20 GHz)



Generic photo used for illustration purposes only

CASE STYLE: FF1118

Connectors Model

SMA VLFX-470+

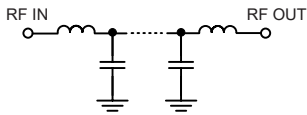
Features

- Very good isolation, 40 dB typ. up to 20 GHz
- Excellent power handling, 10W
- Temperature stable LTCC internal structure
- Re-entry frequency > 20 GHz
- Protected by US patent 6,943,646
- Rugged unibody construction

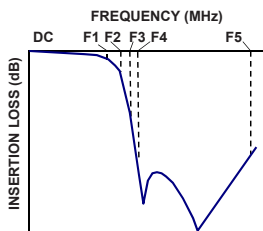
Applications

- Harmonic rejection
- Transmitters/receivers
- Lab use
- Test instrumentation

Functional Schematic



Typical Frequency Response



Electrical Specifications⁽¹⁾ at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-470	—	1.0	dB
	Freq. Cut-Off	F2	675	—	3.0	dB
	VSWR	DC-F1	DC-470	—	1.15	:1
Stop Band	Insertion Loss	F3	820	20	27	dB
		F4-F5	1000-20000	—	40	dB
	VSWR	F3-F5	820-20000	—	10	:1

(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	10W max.

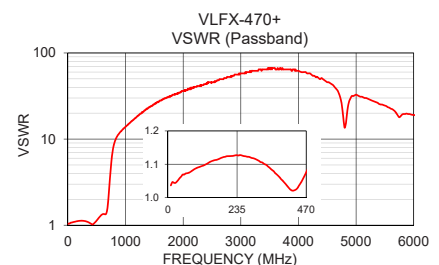
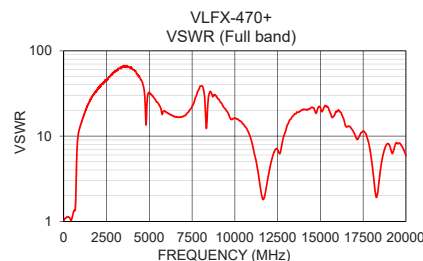
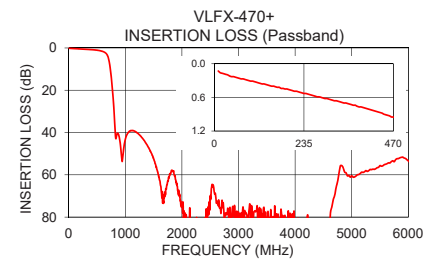
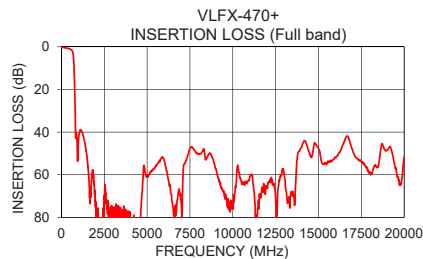
*Passband rating, derate linearly to 3.5W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.13	1.04
250	0.55	1.13
470	0.95	1.08
600	1.64	1.34
675	3.04	1.43
750	13.20	5.13
775	20.23	7.14
800	29.26	8.72
820	38.84	9.58
950	53.02	12.89
1000	43.29	13.92
2000	72.95	36.20
5000	60.47	32.79
7500	47.70	22.29
10000	76.10	16.26
12500	71.56	6.89
15000	47.72	21.73
17500	53.71	11.46
18500	55.57	3.86
20000	51.74	5.93

+RoHS Compliant

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



Notes

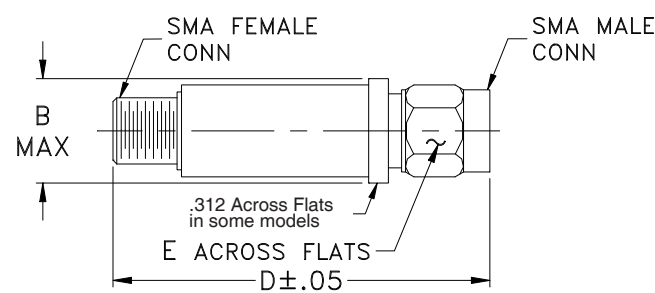
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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Coaxial Connections

INPUT	SMA-Male
OUTPUT	SMA-Female

Outline Drawing



Outline Dimensions (inch
mm)

B	D	E	wt.
.410	2.67	.312	grams
10.41	67.82	7.92	17.0

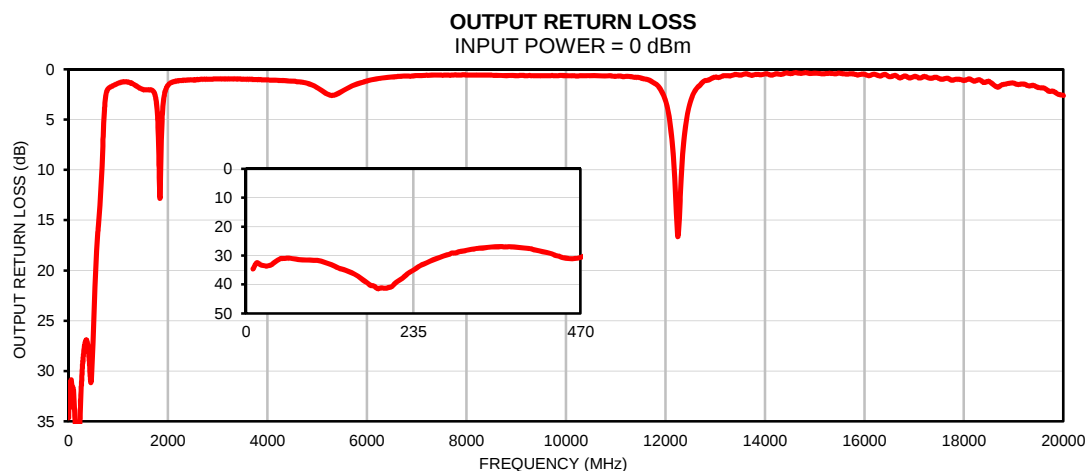
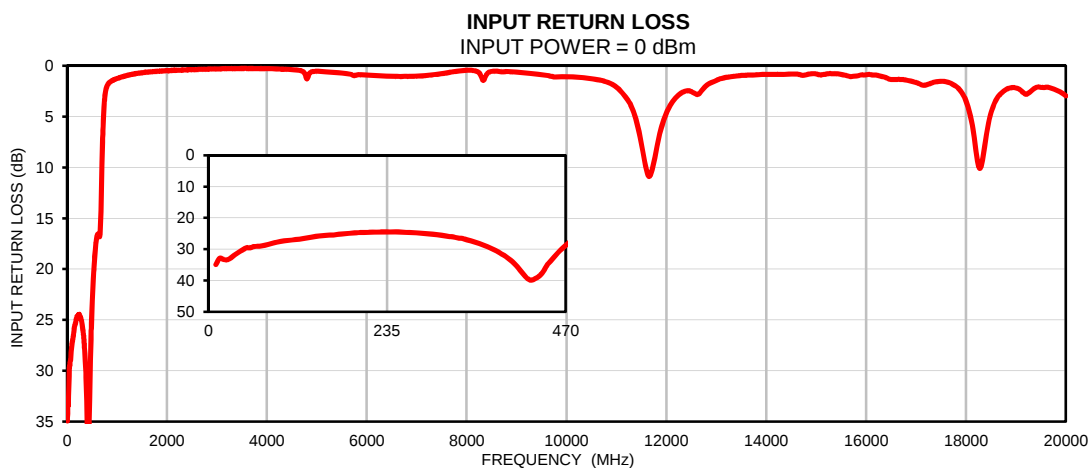
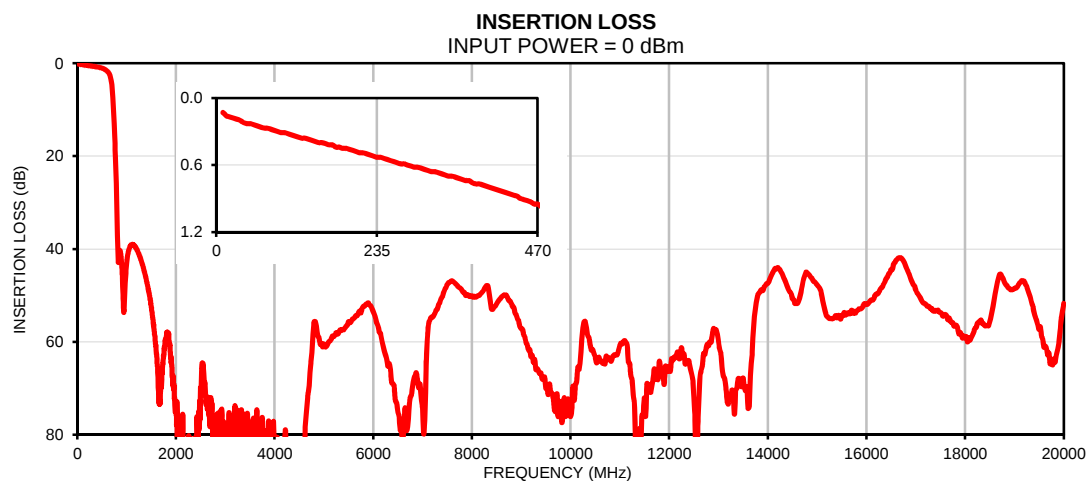
Note: Please refer to case style drawing for details

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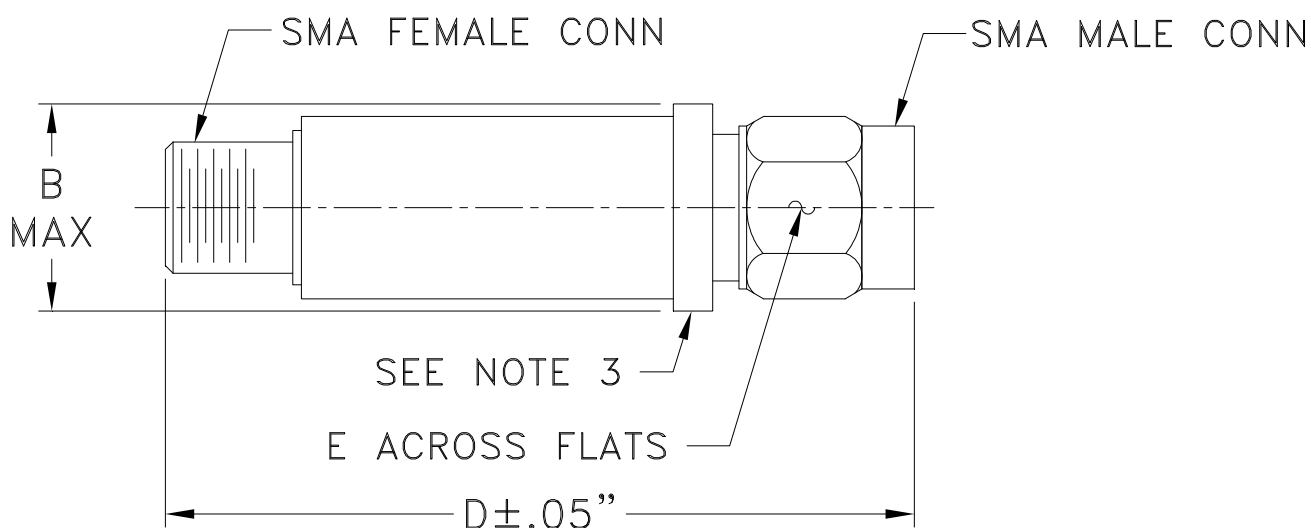
Typical Performance Data

FREQ.	INSERTION LOSS	INPUT RETURN LOSS	OUTPUT RETURN LOSS
(MHz)	(dB)	(dB)	(dB)
10	0.13	34.94	34.64
100	0.31	27.35	31.72
200	0.47	24.67	41.11
300	0.63	25.33	28.63
470	0.95	28.79	30.66
500	1.05	23.95	26.76
600	1.64	16.77	15.86
620	1.85	16.56	14.58
640	2.12	16.75	13.31
675	3.04	15.03	10.18
700	4.62	9.93	6.97
750	13.20	3.43	2.76
775	20.23	2.45	2.17
800	29.26	2.00	1.95
820	38.84	1.82	1.85
850	41.12	1.64	1.76
875	40.63	1.54	1.70
900	43.11	1.46	1.63
950	53.02	1.35	1.51
1000	43.29	1.25	1.39
1250	41.11	0.89	1.34
1500	52.43	0.68	2.01
1750	62.93	0.56	2.66
2000	72.95	0.48	1.60
2250	84.07	0.42	1.12
2500	69.91	0.38	1.04
2750	81.35	0.34	0.98
3000	77.63	0.30	0.96
3250	79.12	0.28	0.95
3500	100.68	0.26	0.97
3750	76.32	0.27	1.01
4000	84.79	0.28	1.04
4500	84.85	0.38	1.16
5000	60.47	0.53	1.80
5500	55.64	0.71	2.20
6000	53.41	0.91	1.17
6500	75.06	1.03	0.76
7000	74.32	1.02	0.62
7500	47.70	0.78	0.58
8000	50.10	0.45	0.57
8500	51.85	0.55	0.57
9000	57.14	0.63	0.63
10000	76.10	1.07	0.65
11000	60.79	2.09	0.70
11500	72.05	7.67	0.85
12000	65.86	4.68	3.04
12500	71.56	2.54	3.28
13000	59.86	1.44	0.78
13500	67.78	0.95	0.58
14000	47.40	0.85	0.46
14500	50.72	0.80	0.42
15000	47.72	0.80	0.38
15500	54.35	0.85	0.39
16000	51.93	0.88	0.49
16500	44.43	1.35	0.73
17000	48.81	1.64	0.71
18500	55.57	4.60	1.19
19000	48.48	2.18	1.37
19500	57.34	2.12	1.81
20000	51.74	2.96	2.60

Typical Performance Curves



Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF1118	--	.410 (10.41)	--	2.67 (67.82)	.312 (7.92)	17.0

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
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
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	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I