Coaxial

Low Pass Filter

VLFX-2500+

50Ω DC to 2500 MHz (30 dB Isolation up to 20 GHz)

Generic photo used for illustration purposes only

CASE STYLE: FF1118

The Big Deal

- Very good rejection, 30 dB up to 20 GHz
- Excellent power handling, 9W
- Rugged unibody construction

Product Overview

VLFX-2500+ is a 50Ω low pass filter built in rugged unibody construction. Covering DC-2500 MHz bandwidth, these units offer good matching within the passband and high rejection in stopband, 30 dB up to 20 GHz. This will find its applications in harmonic rejection, transmitters / receivers and test instrumentation.

Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application
Fast roll-off	Provides very good adjacent band rejection
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test setups

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Connectors	Model
SMA	VLFX-2500+

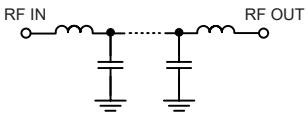
Features

- Very good isolation, 30 dB up to 20 GHz
- Excellent power handling, 9W
- Temperature stable LTCC internal structure
- Re-entry frequency > 20 GHz
- Protected by US patent 6,943,646
- Rugged unibody construction

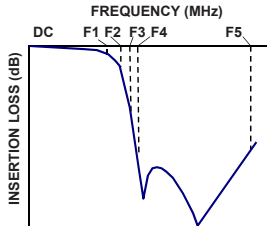
Applications

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

Functional Schematic



Typical Frequency Response



+RoHS Compliant

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

Electrical Specifications at 25°C

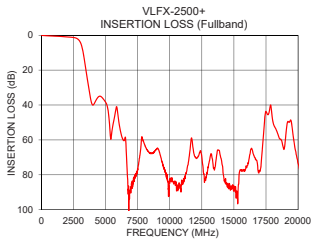
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-2500	—	1.5	2.0	dB
	Freq. Cut-Off	F2	3075	—	3.0	—	dB
	VSWR	DC-F1	DC-2500	—	1.54	—	:1
Stop Band	Insertion Loss	F3	3675	20	30.3	—	dB
		F4-F5	3800-20000	—	30	—	dB
	VSWR	F3-F5	3675-20000	—	10	—	:1

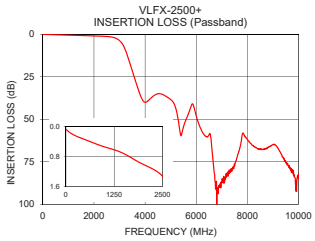
Maximum Ratings	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	9W max.

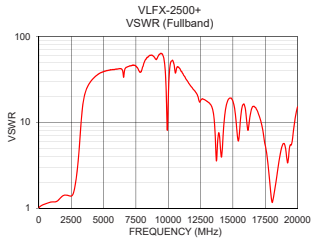
*Passband rating, derate linearly to 3W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

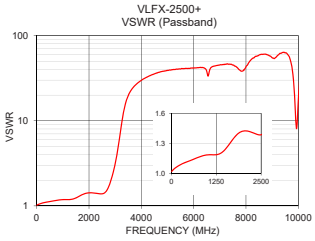
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10	0.08	1.02
100	0.16	1.05
1000	0.54	1.18
2500	1.32	1.39
2950	3.15	2.66
3075	4.91	4.12
3250	10.12	9.35
3475	20.39	18.97
3675	29.87	24.33
3700	31.01	24.85
3800	35.38	26.73
5850	40.94	41.18
6800	102.61	43.98
7850	58.69	38.24
10000	82.20	17.62
11700	58.87	27.00
15275	93.00	9.20
17850	40.02	2.02
19500	50.70	5.43
20000	73.45	15.14









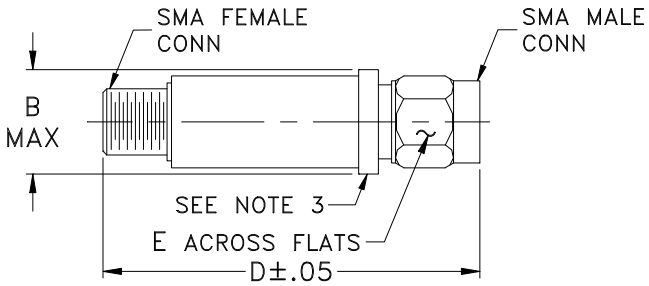
Notes

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

Coaxial Connections

INPUT	SMA-Female
OUTPUT	SMA-Male

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

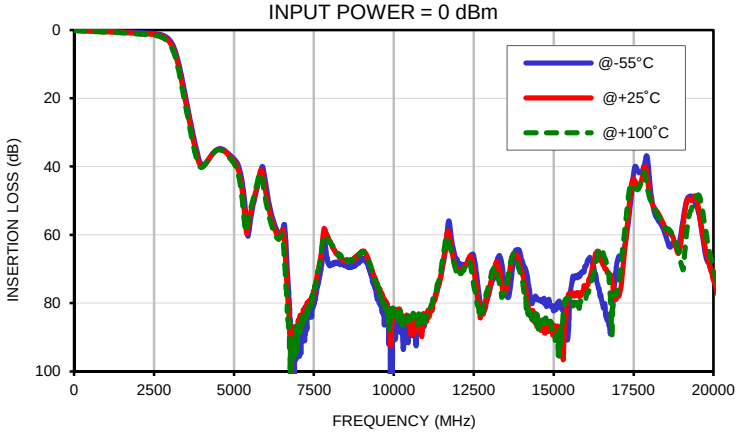
Coaxial Low Pass Filter VLFX-2500+

Typical Performance Data

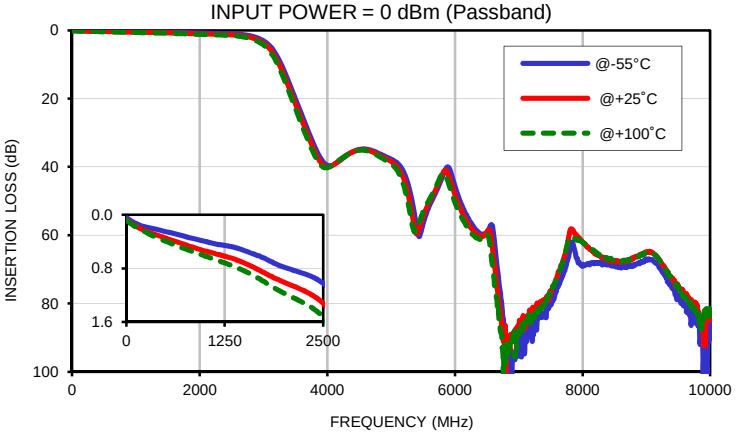
FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
10	0.05	0.08	0.09	41.83	41.50	37.67	42.71	41.01	38.99
20	0.06	0.09	0.10	42.47	38.44	37.44	43.57	38.62	37.20
40	0.08	0.11	0.12	39.45	36.60	34.67	40.50	36.46	34.06
60	0.09	0.13	0.14	36.37	34.40	32.50	39.04	34.63	32.23
80	0.11	0.14	0.15	34.94	33.29	32.19	37.60	33.64	31.70
100	0.12	0.16	0.17	32.49	32.13	31.08	34.60	32.72	30.79
200	0.17	0.22	0.23	26.37	28.83	29.99	26.93	30.98	35.16
500	0.25	0.35	0.39	24.58	24.75	24.86	27.89	28.50	29.85
1000	0.40	0.54	0.62	21.37	21.51	22.33	20.03	20.09	20.68
2000	0.78	1.01	1.17	14.80	15.17	15.06	14.88	15.20	15.03
2500	1.02	1.32	1.52	15.71	15.84	16.05	15.24	15.04	15.04
2950	2.58	3.15	3.66	7.03	6.87	6.59	7.89	8.13	8.19
3000	3.09	3.72	4.30	5.92	5.79	5.56	7.10	7.43	7.56
3075	4.15	4.91	5.62	4.38	4.31	4.17	5.95	6.32	6.51
3250	8.96	10.12	11.12	1.74	1.87	1.93	3.17	3.41	3.56
3475	18.98	20.39	21.65	0.68	0.92	1.06	1.62	1.89	2.09
3675	28.43	29.87	31.26	0.47	0.71	0.87	1.54	1.98	2.30
3700	29.57	31.01	32.38	0.45	0.70	0.85	1.58	2.05	2.40
3800	33.98	35.38	36.63	0.40	0.65	0.81	1.87	2.44	2.89
3850	35.94	37.26	38.33	0.39	0.63	0.79	2.08	2.69	3.20
4000	39.52	40.04	40.22	0.35	0.58	0.74	2.62	3.25	3.82
4500	34.89	35.01	35.10	0.26	0.49	0.64	2.64	3.27	3.79
5000	37.75	38.43	39.13	0.23	0.45	0.58	2.65	3.53	4.35
5500	56.64	54.48	53.21	0.19	0.43	0.59	1.76	2.07	2.32
6000	45.53	48.09	50.32	0.11	0.42	0.65	2.61	2.33	2.21
6800	92.86	102.61	96.15	0.01	0.40	0.75	0.37	0.61	0.70
7800	64.32	58.86	60.59	0.07	0.45	0.71	0.30	0.58	0.61
9950	100.93	83.96	82.50	1.49	1.97	1.21	0.22	0.56	0.78
10000	86.50	82.20	81.62	1.46	0.99	0.84	0.22	0.56	0.79
11000	83.38	84.76	84.73	0.02	0.44	1.00	0.11	0.53	0.76
11725	55.94	59.60	62.24	0.30	0.65	0.93	0.08	0.49	0.67
12000	67.96	69.73	70.94	0.33	0.73	0.94	0.06	0.38	0.57
12250	69.02	69.13	68.84	0.30	0.83	1.05	0.11	0.33	0.51
12500	66.20	69.93	74.89	0.43	0.97	1.19	0.13	0.29	0.46
12750	82.83	82.29	82.70	0.23	0.94	1.38	0.16	0.26	0.43
13000	76.40	75.87	73.56	0.24	0.99	1.60	0.20	0.22	0.38
13250	66.80	68.10	72.70	0.32	1.07	1.80	0.19	0.21	0.35
13500	76.34	76.59	74.79	0.58	1.38	2.31	0.24	0.16	0.29
13750	67.19	65.75	65.39	3.80	4.78	4.02	0.26	0.14	0.26
14000	67.38	70.53	72.85	1.55	2.89	4.45	0.26	0.13	0.21
14250	76.51	83.70	82.06	3.70	2.41	2.20	0.27	0.10	0.19
14500	79.03	85.93	85.00	0.93	1.09	1.40	0.30	0.10	0.18
14750	79.69	86.65	84.38	0.68	0.91	1.11	0.29	0.10	0.17
15000	82.29	86.49	88.91	0.70	0.98	1.19	0.33	0.08	0.14
15250	81.73	92.85	86.89	0.89	1.71	2.20	0.37	0.06	0.14
15500	79.40	77.18	79.06	2.61	2.40	1.42	0.39	0.05	0.14
15750	72.56	77.56	78.92	0.51	1.10	1.05	0.36	0.07	0.15
16000	69.31	75.86	78.86	0.13	1.33	1.88	0.40	0.05	0.17
16250	69.25	68.18	71.06	0.85	1.80	1.79	0.39	0.09	0.21
16500	79.33	67.92	64.31	0.11	1.16	2.24	0.36	0.13	0.30
16750	87.22	71.70	75.45	0.06	1.17	3.01	0.24	0.40	0.93
17000	67.50	77.97	76.20	0.29	1.42	3.68	0.65	1.30	0.75
17250	61.84	62.01	56.18	0.84	1.92	3.56	0.04	0.30	0.35
17500	41.95	43.67	45.67	2.75	3.24	3.74	0.21	0.20	0.35
17850	38.99	40.02	42.18	6.30	9.42	9.26	0.00	0.80	0.87
18000	43.93	47.82	49.08	8.05	19.75	10.22	0.05	0.29	0.43
18250	55.39	53.39	54.01	15.98	11.85	9.17	0.23	0.17	0.37
18500	60.17	58.22	58.11	5.19	5.96	7.36	0.21	0.18	0.38
19000	58.42	60.63	69.01	2.50	3.17	4.17	0.12	0.23	0.43
20000	71.65	73.45	70.71	0.64	1.15	1.57	0.06	0.40	0.55

Typical Performance Curves

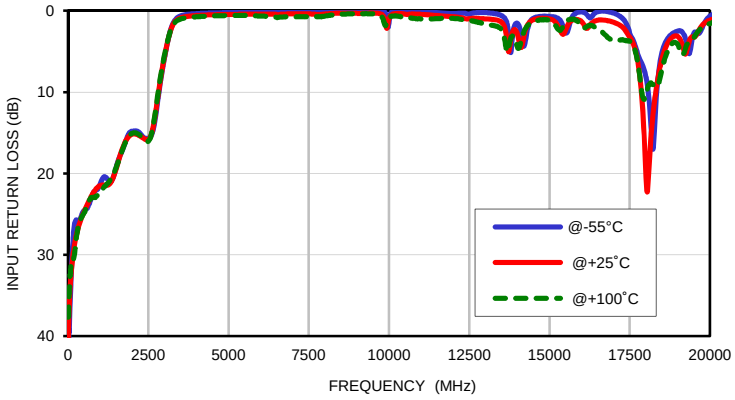
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



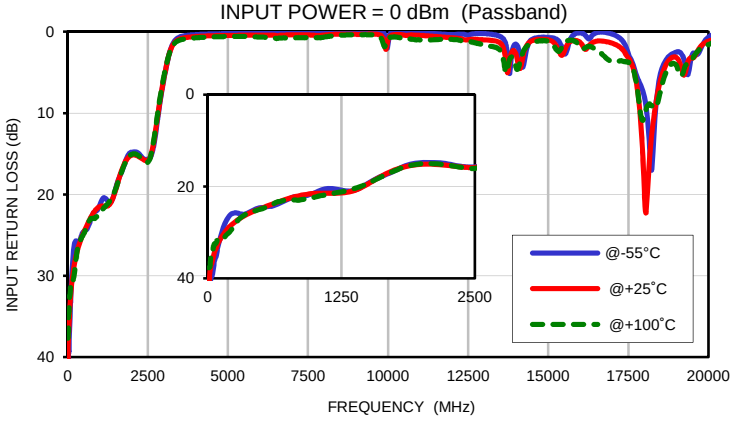
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm (Passband)



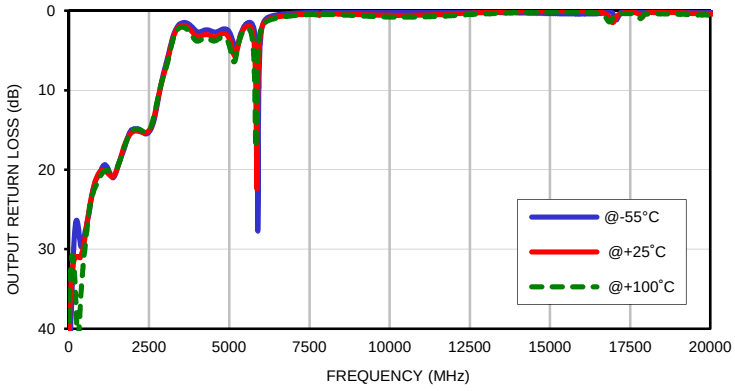
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



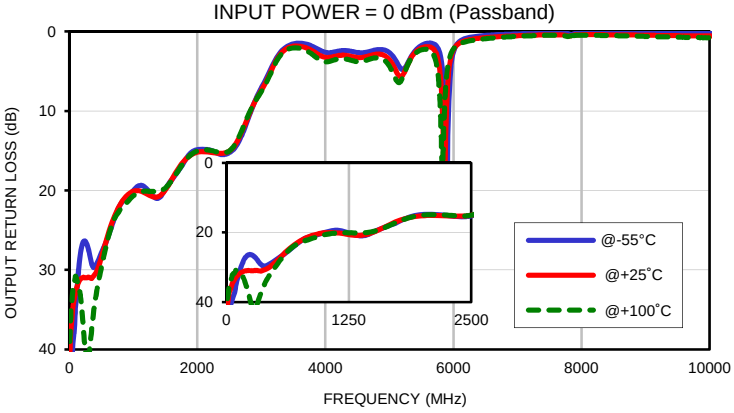
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm (Passband)



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



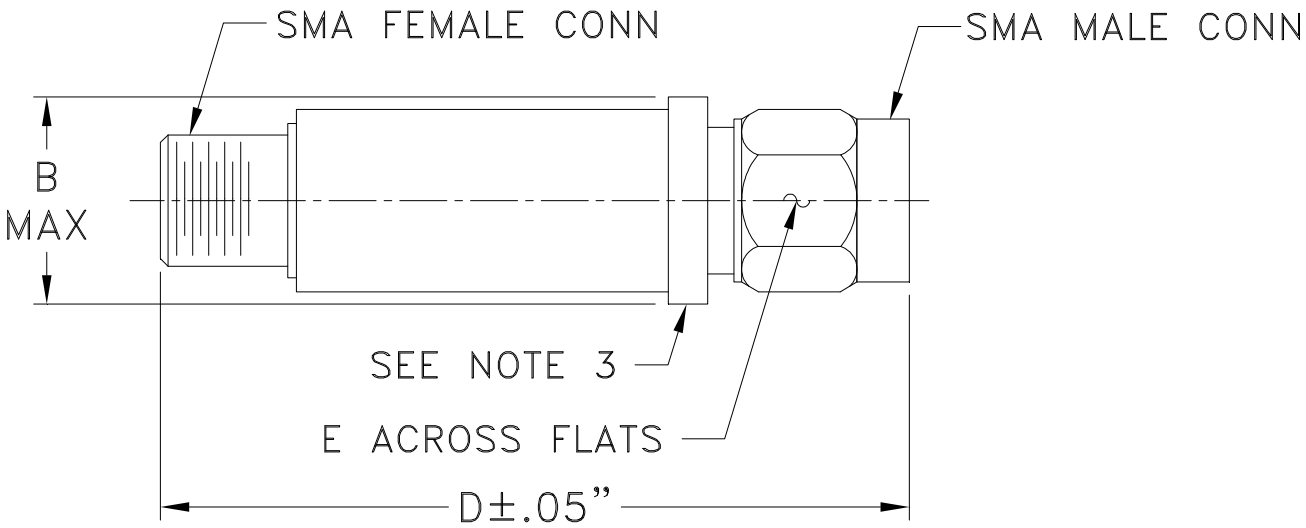
OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm (Passband)



Case Style FF

FF1118

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.

Mini-Circuits

Environmental Specifications ENV28

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