

Low Pass Filter

50Ω DC to 650 MHz (40 dB Isolation up to 20 GHz)

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	10W max. at 25°C

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

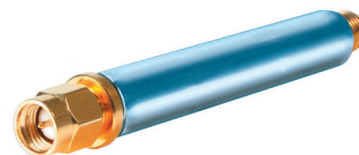
Features

- very good isolation, 40 dB up to 20 GHz
- 21 sections
- excellent power handling, 10W
- temperature stable LTCC internal structure
- re-entry frequency > 20 GHz
- rugged unibody construction
- protected by US patent 6,943,646

Applications

- harmonic rejection
- transmitters/receivers
- lab use
- test instrumentation

VLFX-650+ VLFX-650



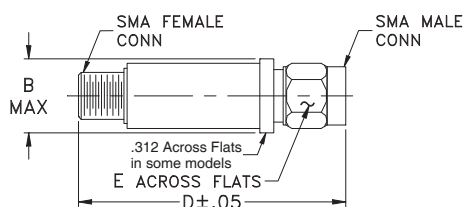
CASE STYLE: FF1118

Connectors	Model
SMA	VLFX-650+
SMA	VLFX-650

+RoHS Compliant

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

Outline Drawing



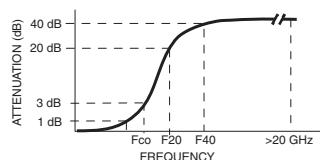
Outline Dimensions (inch mm)

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

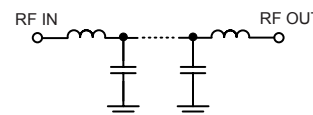
Low Pass Filter Electrical Specifications @ 25°C

MODEL NO.	PASSBAND (MHz) (Loss < 1.2dB) Max.	Fco, MHz Nom (Loss 3 dB) Typ	STOPBAND (MHz) (Loss, dB)		VSWR (:1)		NO. OF SECTIONS
			F20 Min.	F40 Typ.	Stopband Typ.	Passband Typ.	
VLFX-650 (+)	DC-650	1025	1275	1450-20000	10	1.2	21

Typical Frequency Response

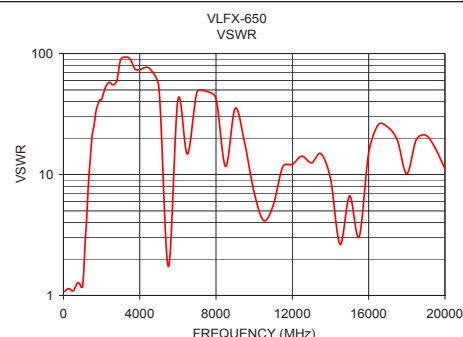
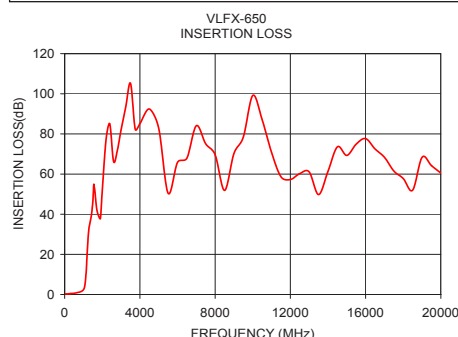


Functional Schematic



Typical Performance Data @ 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
50	0.29	1.08
200	0.39	1.13
400	0.54	1.11
650	0.89	1.20
800	1.22	1.27
900	1.57	1.20
1025	2.92	1.32
1125	9.11	2.42
1275	31.28	6.45
1450	41.47	16.47
1575	53.44	24.07
2000	51.81	41.80
3000	82.03	89.22
5000	82.92	52.93
7500	75.09	48.67
10000	99.20	7.09
12500	60.25	14.19
15000	69.31	6.64
17500	61.54	19.28
20000	60.47	11.14



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-Circuit's 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-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp



Coaxial Low Pass Filter

VLFX-650+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
50.0	0.22	31.68
100.0	0.28	28.38
200.0	0.38	27.01
300.0	0.43	28.36
400.0	0.51	29.81
460.0	0.56	33.92
500.0	0.59	36.63
550.0	0.62	31.27
600.0	0.69	25.94
650.0	0.83	22.55
700.0	0.81	20.38
800.0	1.05	18.98
900.0	1.21	22.62
1000.0	1.87	29.96
1200.0	19.37	2.24
1275.0	30.00	1.63
1400.0	36.33	1.65
1450.0	38.87	1.76
1500.0	42.70	1.92
2000.0	45.88	2.95
2500.0	75.59	1.01
3000.0	66.21	0.75
3500.0	68.20	0.84
4000.0	73.64	0.92
4500.0	63.98	1.21
5000.0	73.72	1.21
5500.0	72.68	2.12
6000.0	54.94	1.92
6500.0	87.59	1.00
7000.0	75.15	0.73
7500.0	59.38	0.62
8000.0	51.84	0.48
8500.0	42.82	0.48
9000.0	50.73	0.45
9500.0	47.15	0.47
10000.0	60.72	0.49
11000.0	68.64	0.46
12000.0	70.14	0.53
13000.0	60.58	2.60
14000.0	60.79	0.63
15000.0	56.88	0.28
16000.0	63.29	0.41
17000.0	65.88	0.68
18000.0	50.95	1.19
19000.0	53.53	1.82
20000.0	60.41	2.93

REV. X1
VLFX-650+
110511
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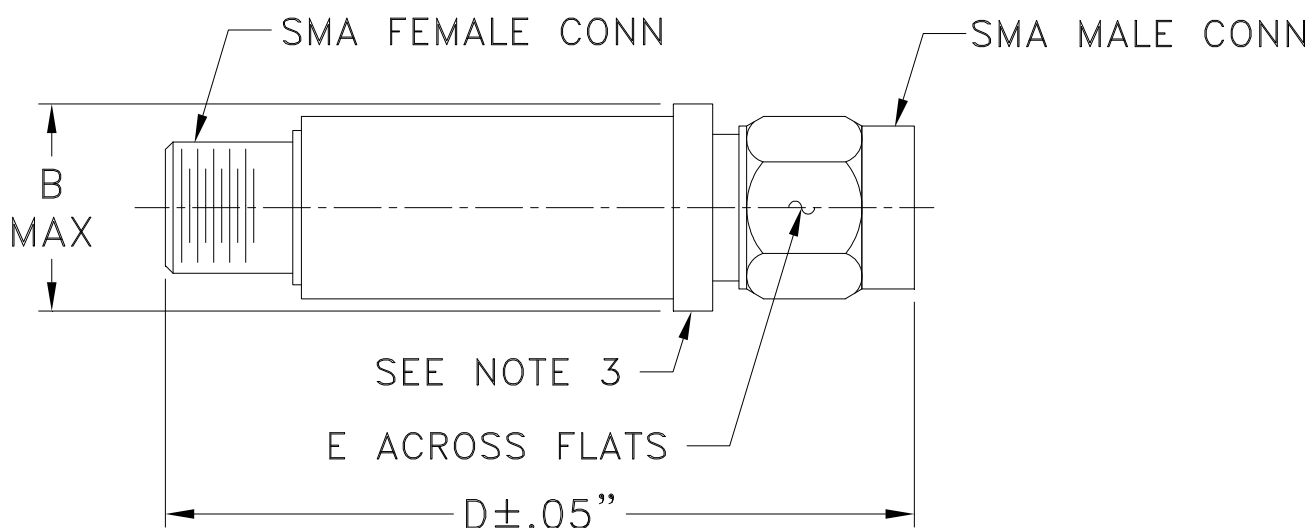
The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



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



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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
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