

Coaxial Low Pass Filter

50Ω

*DC to 490 MHz

VLF-490+



Generic photo used for illustration purposes only

CASE STYLE: FF704

Connectors	Model
SMA	VLF-490+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	8.5W max. at 25°C
DC Current Input to Output	0.5A 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

- rugged uni-body construction, small size
- 7 sections
- excellent power handling, 8.5W
- temperature stable
- low cost
- protected by U.S. Patent 6,943,646

Applications

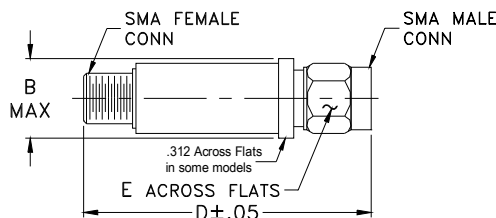
- harmonic rejection
- transmitters/receivers
- lab use

Electrical Specifications at 25°C

PASSBAND (MHz) (loss < 1.2 dB)	fco, MHz Nom.	STOP BAND (MHz) (loss, dB)			VSWR (:1)		NO. OF SECTIONS
		f 20 Min.	40 Typ.	fr 20 Typ.	Stopband Typ.	Passband Typ.	
Max.	Typ.	Min.	Typ.	Typ.	Typ.	Typ.	
*DC-490	650	800	880-2500	6000	20	1.2	7

* Not for use with DC voltage at input and output ports

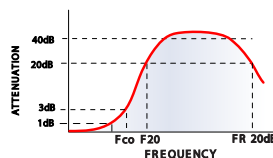
Outline Drawing



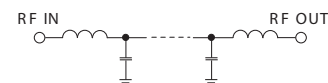
Outline Dimensions (inch/mm)

B	D	E	wt
.410	1.43	.312	grams
10.41	36.32	7.92	10.0

typical frequency response

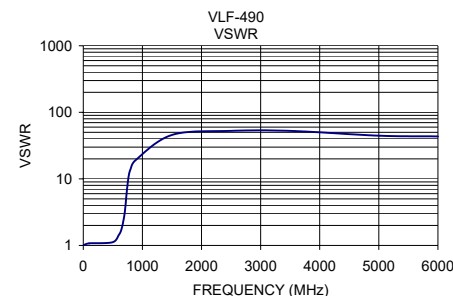
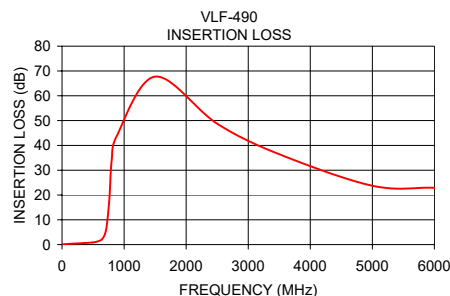


electrical schematic



Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1	0.05	1.01
100	0.25	1.07
490	0.84	1.11
600	1.51	1.43
650	2.34	1.80
700	4.86	3.03
730	9.44	5.66
765	19.23	10.56
800	33.99	14.03
880	43.69	18.90
1500	67.73	45.72
2500	48.73	52.65
3500	36.46	52.65
5000	23.74	44.55
6000	22.90	43.44



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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Coaxial Low Pass Filter

VLF-490+

Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C
50	0.12	0.16	0.19	34.21	32.56	31.70	33.65	31.98	30.98
60	0.13	0.17	0.19	34.14	32.27	31.63	32.61	31.05	30.19
70	0.14	0.19	0.20	33.38	31.83	31.33	32.15	30.52	29.86
80	0.16	0.20	0.21	32.84	31.41	30.91	31.33	29.96	29.40
90	0.18	0.21	0.24	32.62	31.44	31.05	31.05	29.75	29.24
100	0.17	0.21	0.23	32.46	31.48	31.21	30.56	29.43	28.99
150	0.22	0.26	0.30	31.52	32.05	33.08	27.72	27.50	27.60
200	0.27	0.33	0.37	31.35	33.87	37.38	26.31	26.58	26.94
250	0.31	0.38	0.44	31.64	35.95	45.43	25.23	25.49	25.85
300	0.36	0.44	0.51	32.02	35.69	40.61	25.22	25.24	25.33
350	0.41	0.51	0.59	30.89	32.73	33.92	25.01	24.87	24.66
400	0.49	0.60	0.68	29.77	31.13	31.85	25.18	25.16	24.90
450	0.56	0.71	0.80	27.88	29.20	29.99	25.37	25.65	25.45
490	0.65	0.80	0.93	26.06	26.78	26.98	24.63	24.77	24.42
600	1.23	1.52	1.79	15.16	14.58	14.02	16.05	15.67	15.34
650	2.00	2.46	2.91	10.65	10.17	9.71	13.31	13.62	14.08
700	4.57	5.75	6.96	5.47	5.00	4.57	9.77	9.82	9.60
730	9.88	11.84	13.76	2.54	2.48	2.40	4.96	4.98	4.93
765	20.89	23.48	26.02	1.31	1.46	1.54	2.58	2.80	2.96
800	37.79	40.45	41.63	0.99	1.15	1.26	1.82	2.06	2.25
880	46.51	48.15	49.41	0.74	0.89	1.00	1.27	1.48	1.66
900	52.86	52.33	50.79	0.69	0.85	0.94	1.18	1.40	1.58
950	43.25	42.55	42.00	0.61	0.75	0.84	1.05	1.23	1.41
1000	39.24	39.23	39.18	0.56	0.69	0.79	0.93	1.10	1.28
1500	70.40	68.69	66.92	0.29	0.41	0.49	0.38	0.48	0.58
2000	53.66	53.91	54.01	0.19	0.31	0.40	0.19	0.28	0.35
2500	49.60	49.48	49.22	0.19	0.31	0.38	0.16	0.23	0.30
3000	42.23	42.01	41.73	0.18	0.31	0.36	0.15	0.24	0.30
3500	36.85	36.75	36.54	0.21	0.33	0.40	0.10	0.18	0.30
4000	33.46	33.45	33.38	0.16	0.31	0.41	0.12	0.23	0.35
4500	36.56	38.21	37.81	0.21	0.41	0.61	0.18	0.33	0.51
5000	23.61	23.84	24.03	0.23	0.40	0.56	0.21	0.35	0.52
5500	21.65	21.63	22.51	0.29	0.53	0.77	0.32	0.54	0.83
6000	22.22	22.33	22.48	0.22	0.42	0.61	0.24	0.41	0.61
6500	20.66	20.78	20.94	0.23	0.45	0.64	0.23	0.40	0.60
7000	19.46	19.53	19.62	0.27	0.50	0.71	0.25	0.41	0.61
7500	18.48	18.55	18.69	0.61	0.98	1.37	0.27	0.41	0.60
8000	19.21	19.05	19.00	1.14	1.00	1.01	0.25	0.39	0.53
8500	17.47	17.65	17.81	0.31	0.52	0.66	0.24	0.38	0.48
9000	16.54	16.73	16.89	0.25	0.49	0.64	0.34	0.52	0.64
9500	15.93	16.06	16.14	0.28	0.60	0.82	0.34	0.56	0.74
10000	15.46	15.55	15.53	0.41	0.78	1.10	0.51	0.80	1.08
10500	15.24	15.52	15.66	0.66	1.07	1.48	0.72	1.12	1.58
11000	15.78	16.59	17.35	1.04	1.50	1.96	1.16	1.75	2.45
11500	19.84	21.89	24.08	1.70	2.35	2.91	2.67	3.75	4.91
12000	26.33	24.76	24.00	2.31	3.37	4.28	5.91	6.73	7.25
12500	23.37	25.08	27.92	2.74	3.41	3.96	3.47	4.27	4.75
13000	33.93	30.59	28.47	2.52	2.83	3.11	1.74	1.99	2.28
13500	22.03	21.08	20.22	2.10	2.81	3.49	1.32	1.57	1.83
14000	16.05	15.49	15.06	2.13	3.28	4.55	0.96	1.23	1.48
14500	11.47	11.44	11.52	4.17	5.37	6.13	1.10	1.36	1.60
15000	9.26	9.72	9.78	7.46	8.12	8.18	1.40	1.76	2.15
15500	9.06	9.76	10.23	8.96	12.87	11.63	1.96	2.80	3.48
16000	9.74	8.86	8.75	6.23	9.26	13.40	2.40	3.21	3.79

REV. X2

VLF-490+

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED • RoHS compliant

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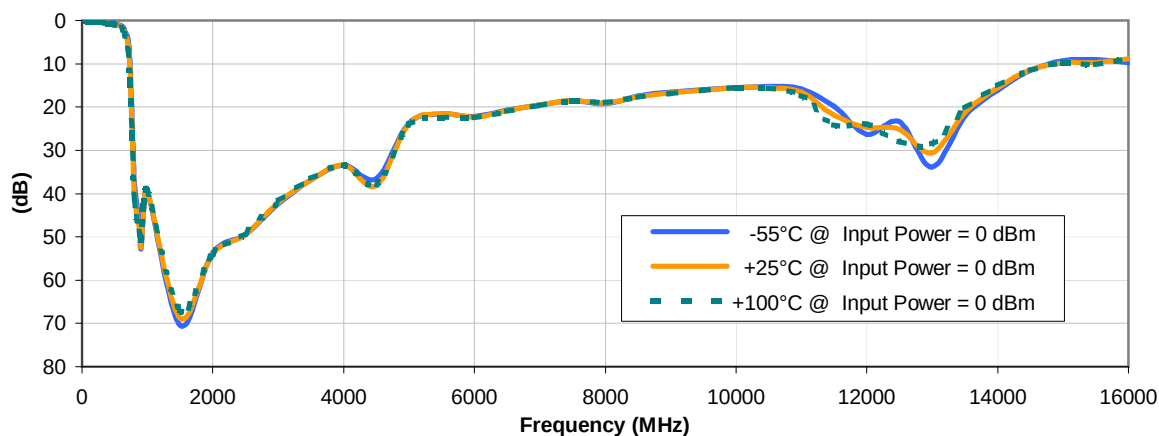


Coaxial Low Pass Filter

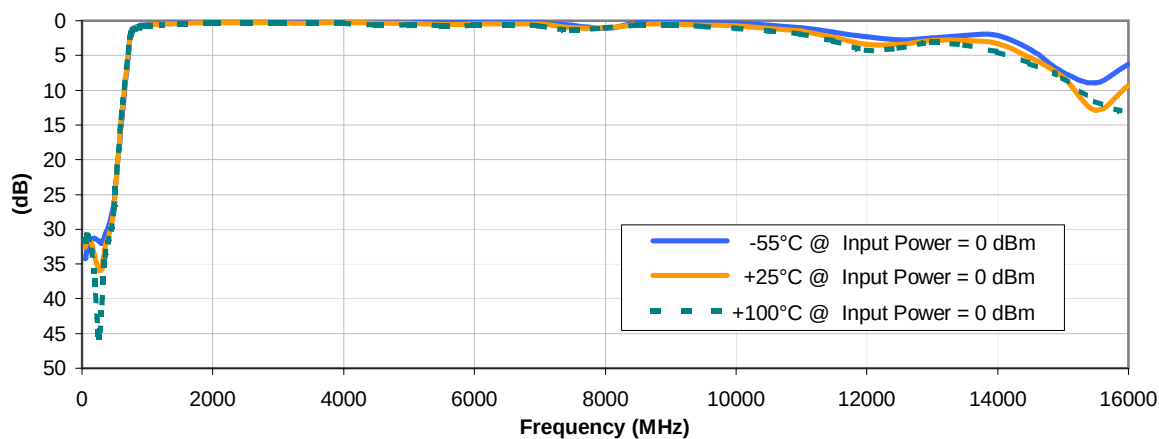
Typical Performance Curves

VLF-490+

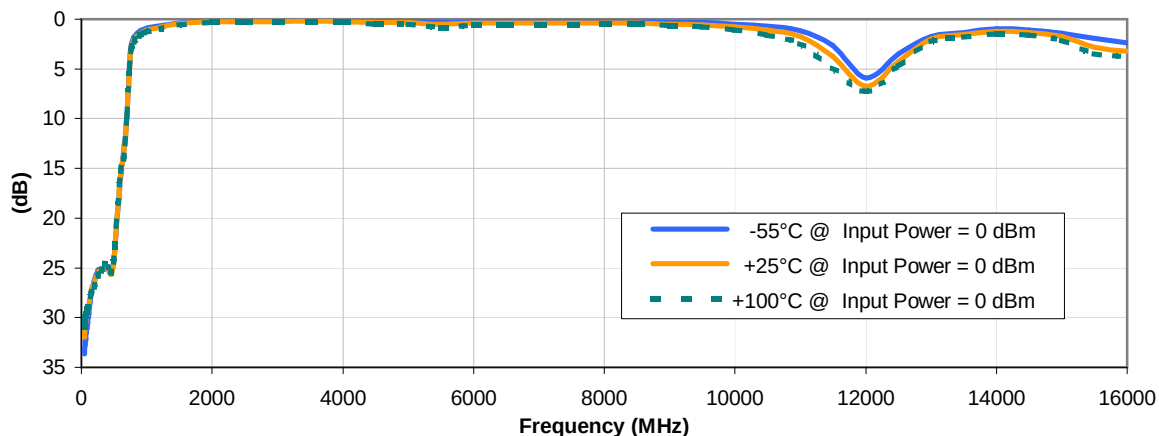
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE

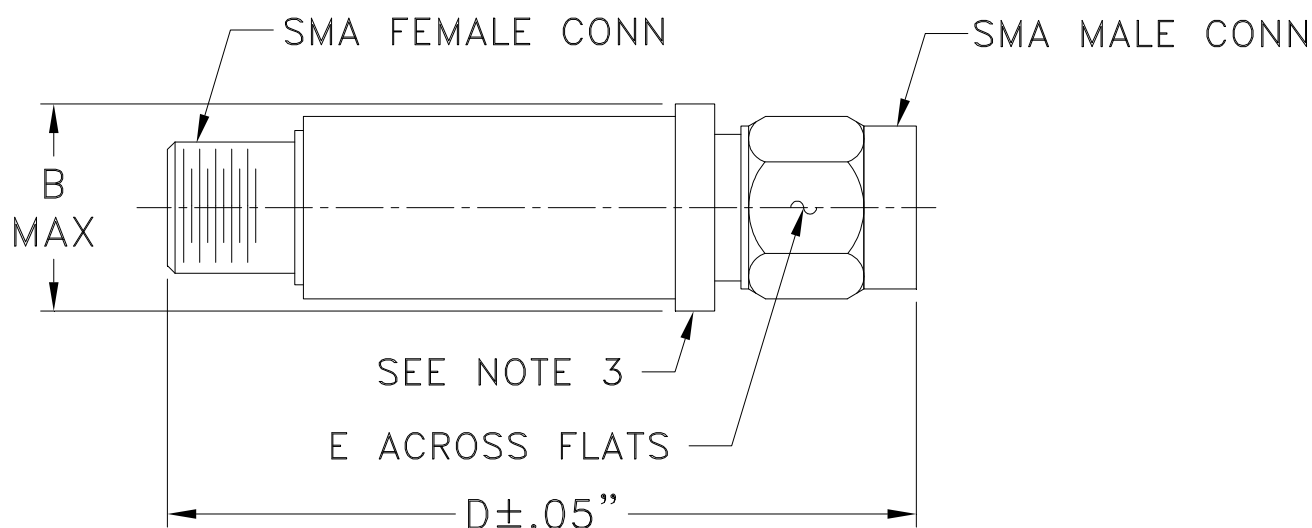


OUTPUT RETURN LOSS vs. TEMPERATURE



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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
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