



High Pass Filter

VHF-3500+

50Ω 3900 to 9500 MHz

THE BIG DEAL

- Rugged unibody construction, small size
- 5 sections
- Temperature stable
- Excellent power handling, 7W
- Low cost

*Generic photo used for illustration purposes only***APPLICATIONS**

- Sub-harmonic rejection
- Transmitters/Receivers
- Lab use

PRODUCT OVERVIEW

VHF-3500+ is a 50Ω high pass filter built in rugged unibody construction. Covering a passband of 3900 to 9500 MHz, this model offers good matching within the passband and good rejection in the stopband. It can handle a high power of 7W with a wide operating temperature range from -55°C to 100°C.

+RoHS Compliant

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

KEY FEATURES

Feature	Advantages
7W power handling	Supports a wide range of system power requirements.
Low insertion loss	Low insertion loss results in better SNR in receiver front end and better power delivery to antenna in transmitters.
Connectorized package	The connectorized package is easy to interface with other devices and well suited for test and measurement applications.

REV. C
ECO-013017
VHF-3500+
URJ
220428



COAXIAL

High Pass Filter

VHF-3500+

ELECTRICAL SPECIFICATIONS AT 25°C

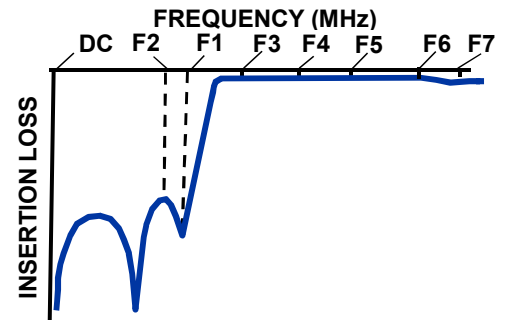
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Freq. cut-off	Insertion Loss	Nom.	3500	—	3	—	dB
Stop Band	Insertion Loss	DC-F1	DC - 2900	—	30	—	dB
		DC-F2	DC - 2800	20	—	—	dB
Passband	Insertion Loss	F5-F6	4000 - 8500	—	—	1.5	dB
		F4-F7	3900 - 9500	—	—	2	dB
	Return Loss	F3-F7	3650 - 9500	—	14	—	dB
No. of Sections	5						

MAXIMUM RATINGS

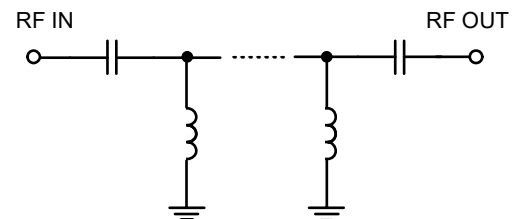
Parameter	Ratings
Operating temperature	-55°C to +100°C
Storage temperature	-55°C to +100°C
RF Power Input*	7W max. at 25°C

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC





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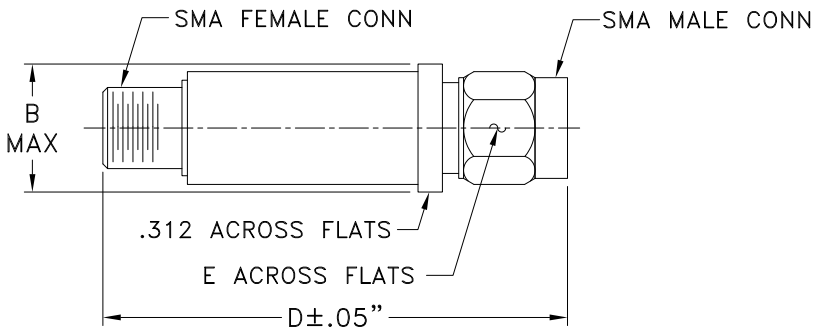
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COAXIAL CONNECTIONS

PORT 1	SMA-Male
PORT 2	SMA-Female

OUTLINE DRAWING



OUTLINE DIMENSIONS (Inches/mm)

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

Note. Please refer to case style drawing for details



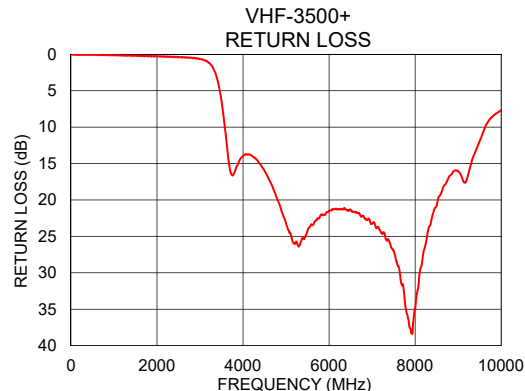
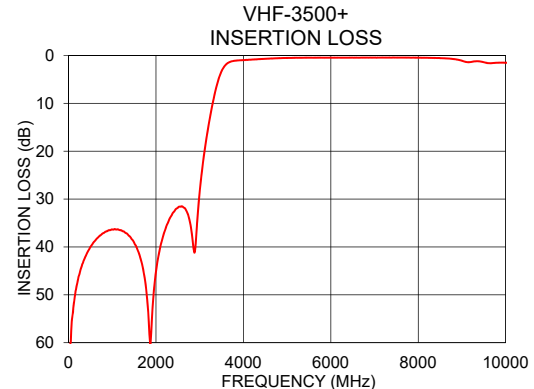
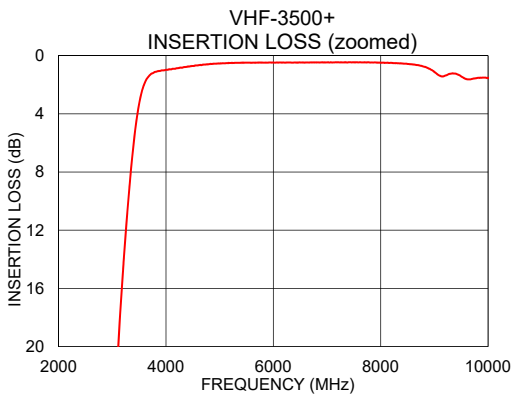
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TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
50	59.86	0.07
400	41.76	0.09
1500	39.10	0.19
2800	35.93	0.46
2900	40.20	0.57
3050	24.27	0.74
3300	9.84	1.83
3500	3.30	6.43
3650	1.55	13.89
3900	1.04	14.81
4000	0.97	13.96
8500	0.57	20.79
9000	1.11	16.06
9200	1.37	17.24
9500	1.43	11.92



NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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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Typical Performance Data

FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURNLOSS (dB)		
	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C	@ -55° C	@ +25° C	@ +100° C
40	61.89	60.17	60.93	0.04	0.05	0.04	0.00	0.01	0.01
50	59.59	59.86	60.07	0.05	0.07	0.04	0.02	0.03	0.02
100	53.52	53.70	53.13	0.03	0.06	0.03	0.01	0.02	0.02
200	47.59	47.53	47.11	0.03	0.08	0.06	0.02	0.04	0.04
500	39.96	40.01	40.05	0.01	0.06	0.07	0.00	0.03	0.04
1000	36.27	36.35	36.51	0.03	0.12	0.14	0.02	0.07	0.09
1500	38.69	39.10	39.50	0.10	0.19	0.22	0.08	0.15	0.18
2000	46.61	45.18	43.95	0.22	0.32	0.36	0.15	0.23	0.27
2500	31.84	31.82	31.71	0.30	0.41	0.46	0.29	0.39	0.45
2800	34.58	35.93	37.37	0.32	0.46	0.53	0.41	0.54	0.64
2850	37.66	39.64	40.37	0.40	0.54	0.62	0.43	0.58	0.69
2900	41.98	40.20	36.51	0.42	0.57	0.66	0.42	0.58	0.70
3000	31.22	28.43	26.10	0.47	0.64	0.75	0.51	0.71	0.88
3100	22.39	20.68	19.10	0.59	0.80	0.96	0.62	0.86	1.10
3200	16.04	14.77	13.57	0.86	1.15	1.40	0.97	1.30	1.65
3300	10.83	9.84	8.95	1.38	1.83	2.26	1.57	2.08	2.66
3400	6.63	5.96	5.42	2.65	3.42	4.17	2.98	3.87	4.83
3500	3.60	3.30	3.09	5.20	6.43	7.56	5.92	7.44	8.97
3650	1.47	1.55	1.62	12.39	13.89	15.25	15.57	19.08	23.00
3700	1.20	1.33	1.43	14.93	15.92	16.89	21.11	25.47	28.22
3900	0.86	1.04	1.18	15.26	14.81	14.89	16.94	16.06	15.81
4000	0.79	0.97	1.11	14.29	13.96	14.11	15.05	14.55	14.53
4500	0.54	0.71	0.85	15.70	15.98	16.05	15.91	16.18	16.12
5000	0.38	0.54	0.68	22.77	23.24	23.40	25.04	25.29	24.42
5500	0.32	0.48	0.62	22.33	24.20	28.12	25.19	28.33	32.54
6000	0.29	0.47	0.62	24.79	21.47	22.10	26.37	22.60	22.45
7000	0.27	0.46	0.64	22.28	23.27	22.80	22.70	23.82	23.21
8000	0.27	0.48	0.68	27.28	34.94	27.09	29.08	32.23	23.73
8800	0.43	0.75	1.11	16.83	16.71	16.05	15.53	15.27	13.73
9300	1.29	1.24	1.41	16.76	15.05	14.30	10.38	12.01	12.63
9500	1.07	1.43	1.71	12.39	11.92	11.49	10.86	11.38	11.26
9800	1.41	1.53	1.64	8.62	8.56	8.87	8.21	8.48	9.25
11000	1.58	2.06	2.40	5.92	5.62	5.58	6.11	5.76	5.78
12050	1.85	2.36	2.85	5.33	5.09	4.86	5.44	5.05	4.72
13000	2.30	2.05	2.12	5.20	7.08	8.35	5.20	6.95	6.99
14300	2.89	3.38	4.18	6.17	6.27	5.67	4.81	5.33	5.09
14600	5.57	6.05	6.73	2.71	3.21	3.56	2.39	3.05	3.86
16000	13.09	11.54	10.39	0.88	1.64	2.36	1.31	1.60	2.07
17000	4.10	6.23	9.20	5.66	3.73	3.07	7.70	4.12	2.60
18000	9.74	11.64	14.47	1.62	1.30	1.46	3.61	2.82	1.90
19000	13.81	15.66	18.53	2.72	2.62	1.95	1.10	1.40	1.87
20000	17.16	18.68	18.82	3.65	2.67	3.22	0.90	1.11	2.15

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VHF-3500+
080730
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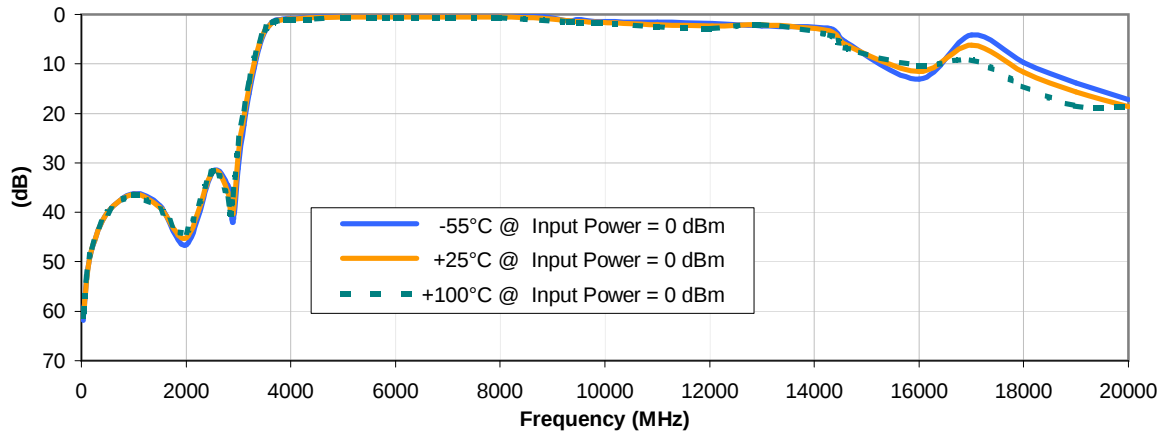


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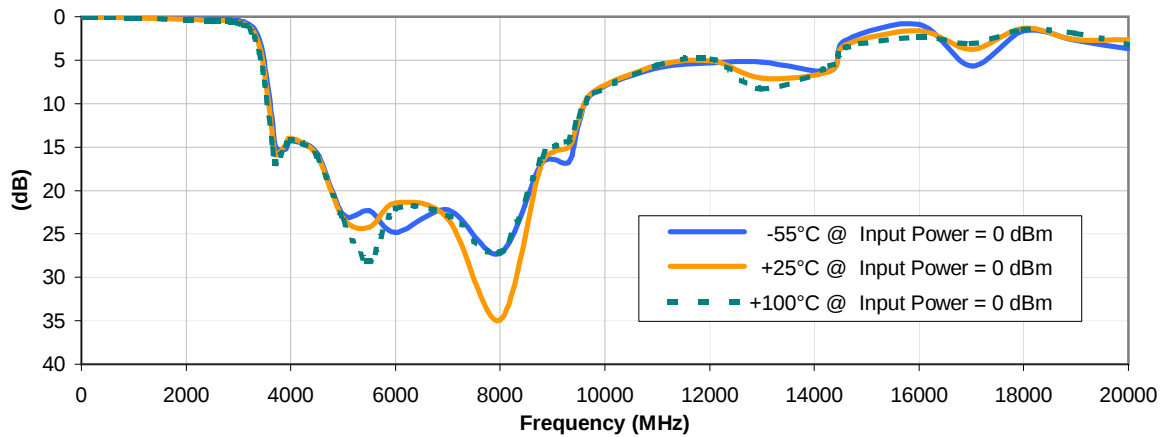
Typical Performance Curves

VHF-3500+

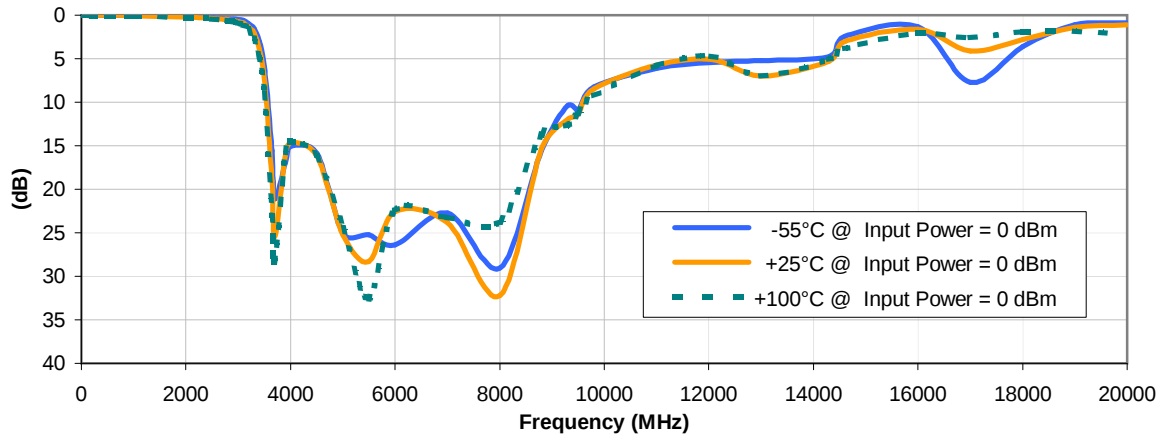
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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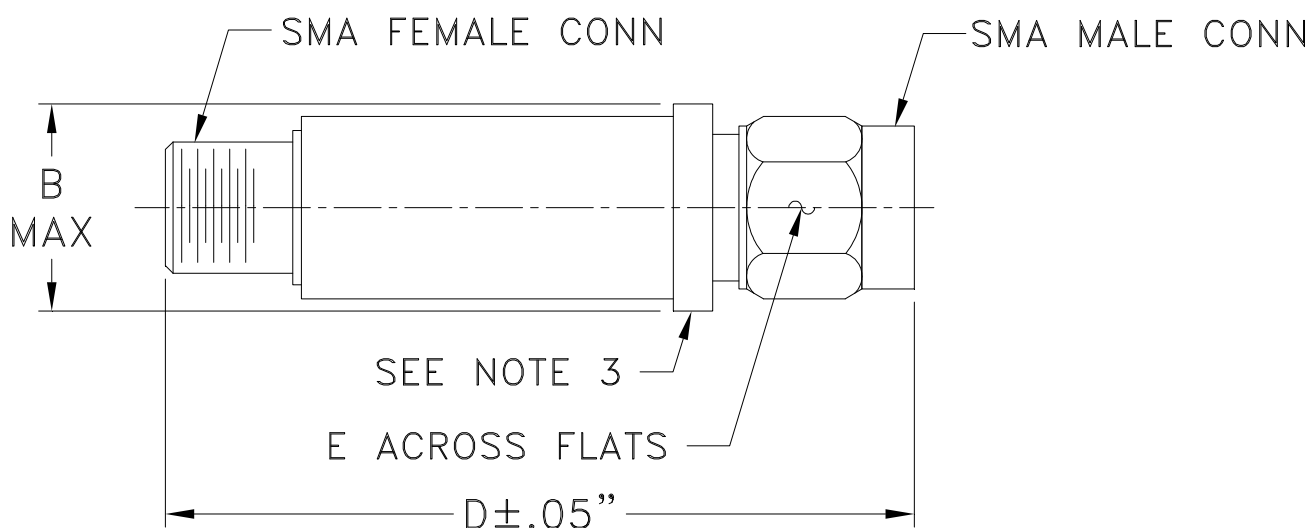
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Outline Dimensions



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