

Ultra-Reliable

Low Pass Filter

50Ω

DC to 1700 MHz

VLP-20



CASE STYLE: FF704

Connectors	Model
SMA	VLP-20

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	14W max. at 25°C

* Passband rating, derate linearly to 0.4xPmax at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

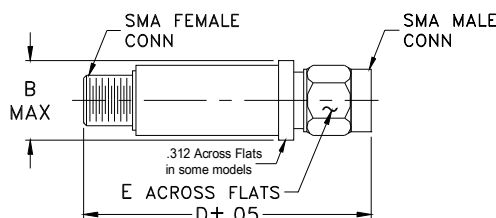
Features

- rugged unibody construction
- low insertion loss passband, less than 1 dB typ.
- excellent power handling, 14W
- low cost

Applications

- harmonic rejection
- transmitters/receivers
- lab use

Outline Drawing



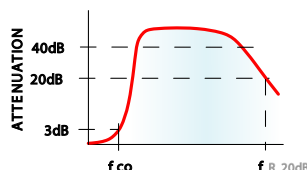
Outline Dimensions (inch/mm)

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

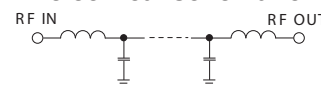
Electrical Specifications (T_{AMB}=25°C)

PASSBAND (MHz) (loss < 1 dB)	f _{co} , MHz Nom. (loss 3 dB)	STOP BAND (MHz)			VSWR (:1) Passband Typ.
		(loss > 20 dB)	(loss > 40 dB)	fr20 dB Typ.	
DC-1700	1980	2700	3300-3750	7200	1.1

typical frequency response

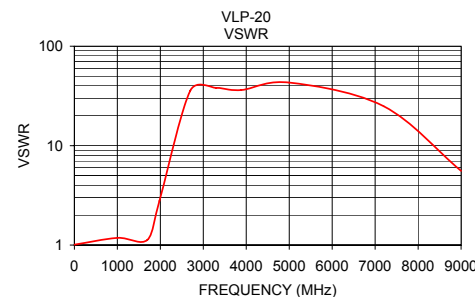
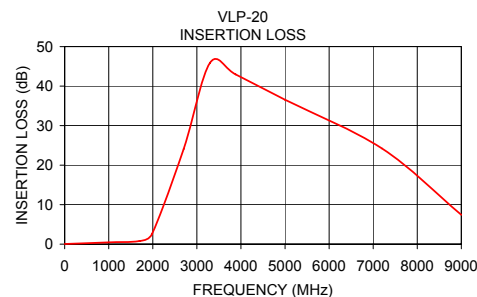


electrical schematic



Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1.00	0.05	1.01
1000.00	0.45	1.18
1700.00	0.80	1.13
1980.00	2.56	2.78
2700.00	24.06	35.85
3300.00	45.92	38.05
3880.00	42.96	36.25
5000.00	36.56	43.07
7200.00	24.22	24.89
9000.00	7.43	5.58



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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REV. E
M166133
VLP-20
ED-10545B/4
WZ/AD/CP/AM
190813

Coaxial Low Pass Filter (Ultra Reliable)

VLP-20

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
1	0.04	0.05	0.09	47.91	46.06	44.75	47.85	46.06	44.85
50	0.08	0.11	0.13	36.92	35.05	33.76	36.99	35.06	33.86
100	0.10	0.13	0.16	36.68	35.11	33.94	36.58	34.87	33.81
500	0.20	0.27	0.33	47.22	40.86	35.52	35.25	33.33	31.15
1000	0.36	0.47	0.56	22.37	22.29	22.55	22.45	22.44	22.66
1200	0.42	0.54	0.64	21.63	22.22	23.24	21.91	22.59	23.71
1500	0.51	0.66	0.80	24.58	25.16	25.05	24.82	25.01	24.33
1700	0.65	0.83	1.02	21.24	21.34	20.70	20.15	19.65	18.65
1770	0.76	0.97	1.17	18.11	17.88	17.20	16.97	16.41	15.53
1980	2.17	2.60	3.05	6.96	6.59	6.22	6.53	6.15	5.77
1995	2.40	2.86	3.33	6.38	6.04	5.70	5.97	5.62	5.27
2080	4.12	4.72	5.34	3.76	3.59	3.44	3.49	3.33	3.16
2245	9.00	9.77	10.51	1.40	1.45	1.51	1.27	1.33	1.37
2395	14.02	14.76	15.51	0.70	0.83	0.94	0.64	0.76	0.86
2555	19.09	19.82	20.56	0.45	0.61	0.74	0.41	0.55	0.67
2700	23.54	24.28	25.08	0.35	0.51	0.65	0.32	0.46	0.59
2880	29.11	29.90	30.77	0.28	0.45	0.58	0.26	0.41	0.53
3030	34.10	34.99	36.00	0.27	0.43	0.57	0.22	0.37	0.51
3150	38.85	39.94	41.22	0.24	0.40	0.54	0.21	0.36	0.50
3240	43.35	44.84	46.62	0.23	0.39	0.52	0.19	0.35	0.49
3300	47.39	49.38	51.96	0.23	0.38	0.51	0.19	0.34	0.48
3350	52.19	55.13	58.55	0.25	0.39	0.52	0.18	0.34	0.47
3405	60.55	61.36	57.86	0.22	0.37	0.50	0.18	0.33	0.46
3520	51.50	49.93	48.66	0.23	0.37	0.48	0.18	0.34	0.46
3880	41.24	41.09	40.95	0.22	0.35	0.45	0.15	0.31	0.43
4500	37.30	37.33	37.37	0.21	0.35	0.43	0.13	0.29	0.39
5000	35.63	35.59	35.52	0.18	0.35	0.44	0.12	0.27	0.37
5500	33.84	33.81	33.70	0.16	0.34	0.46	0.11	0.26	0.35
6000	31.77	31.80	31.69	0.15	0.34	0.50	0.08	0.24	0.35
6500	29.38	29.45	29.39	0.15	0.34	0.55	0.11	0.30	0.45
7000	26.54	26.58	26.53	0.16	0.36	0.60	0.12	0.35	0.56
7200	25.09	24.96	24.72	0.19	0.42	0.70	0.18	0.45	0.71
7630	16.60	15.63	17.14	0.89	1.78	3.03	2.35	5.61	7.07
7750	15.34	21.82	33.69	3.02	4.58	2.94	6.64	3.21	2.07
7800	20.26	32.04	50.46	4.83	2.94	1.82	3.02	1.81	1.47
7860	33.20	58.16	45.36	2.40	1.39	1.21	1.35	1.11	1.13
8000	42.82	40.38	39.23	0.47	0.63	0.83	0.48	0.67	0.89
8500	21.60	15.80	12.84	0.71	1.68	2.36	1.19	2.87	4.07
9110	6.70	7.18	8.94	2.75	3.10	2.52	8.38	13.60	7.47
9500	15.17	16.69	17.95	0.50	0.69	0.85	0.87	1.00	1.24
10000	15.93	14.12	12.94	0.89	2.03	3.69	0.70	1.50	2.64

REV. X1

VLP-20

071002

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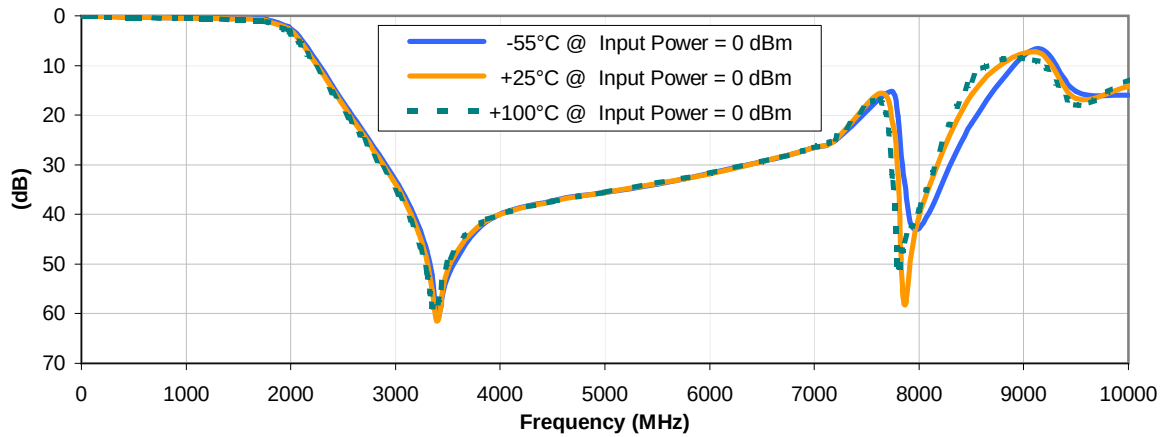


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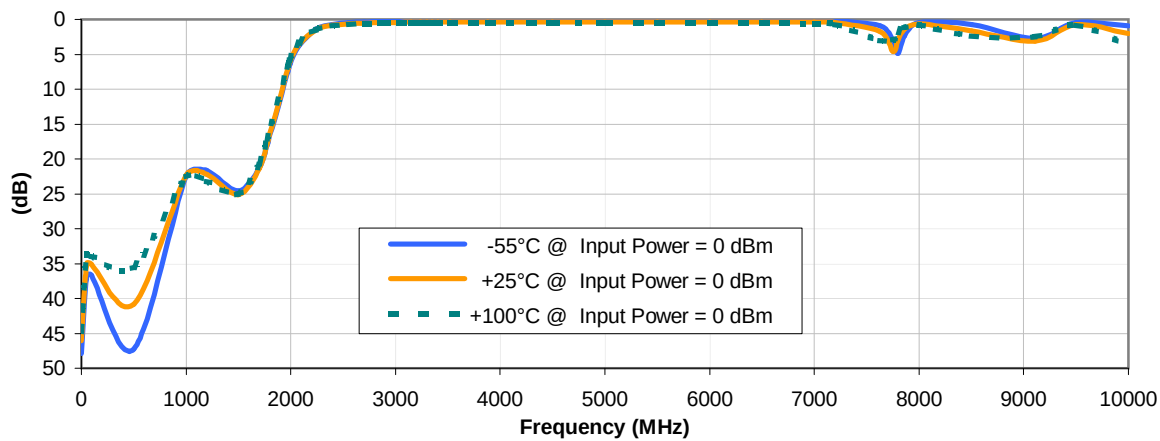


Typical Performance Curves

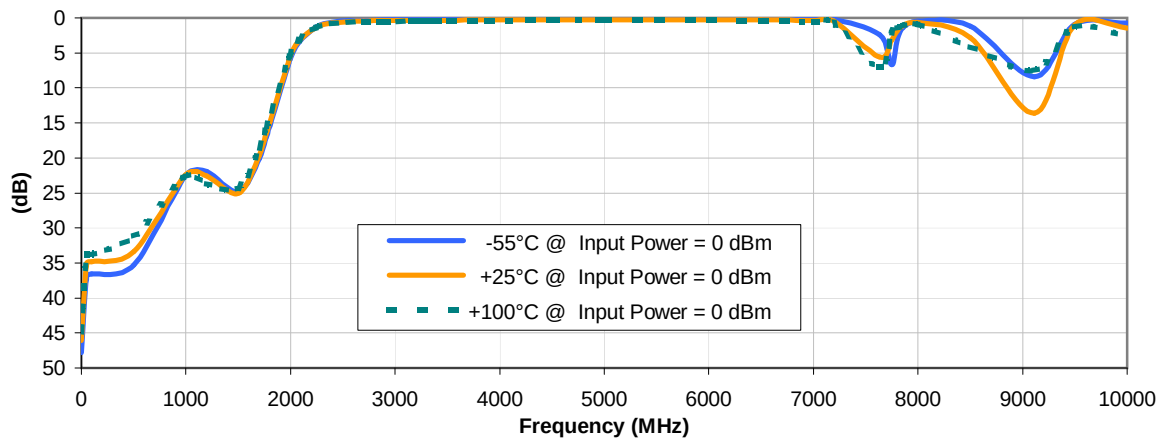
INSERTION LOSS vs. TEMPERATURE



INPUT RETURN LOSS vs. TEMPERATURE



OUTPUT RETURN LOSS vs. TEMPERATURE



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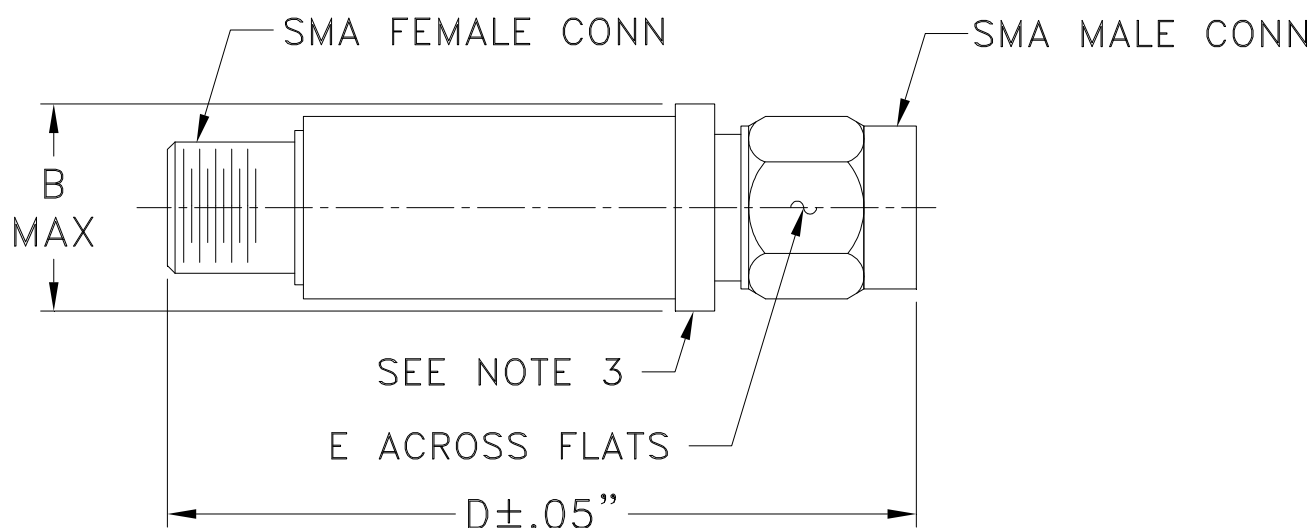
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Outline Dimensions



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