Coaxial

Bandpass Filter

SBP-60+

50Ω Elliptic Response 55 to 67 MHz

Generic photo used for illustration purposes only

CASE STYLE: FF99

Connectors	Model
SMA	SBP-60+

Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W max.

Permanent damage may occur if any of these limits are exceeded.

Features

- low insertion loss, 1.5 dB max.
- good selectivity, 1.76 typ. 20 dB / 3dB BW ratio
- rugged shielded case

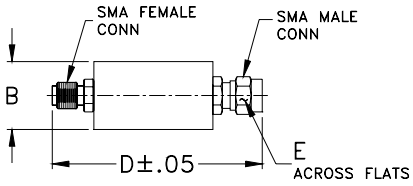
Applications

- high rejection applications
- image rejection
- IF signal processing

+RoHS Compliant

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

Outline Drawing



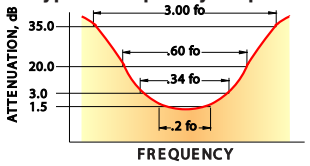
Outline Dimensions (inch / mm)

B	D	E	wt
.67	1.98	.312	grams
17.02	50.29	7.92	42.0

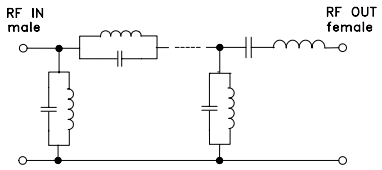
Bandpass Filter Electrical Specifications

CENTER FREQ. (MHz)	PASSBAND (MHz)	3dB BANDWIDTH (MHz)	STOPBANDS		VSWR (:1)	
	I.L. 1.5 dB Max.	Typ.	(I. loss > 20 dB) at MHz	(I. loss > 35 dB) at MHz	Passband Max.	Stopband Typ.
60	55-67	49.8-70.5	44 &79	4.6 & 190-1000	1.7	16

typical frequency response



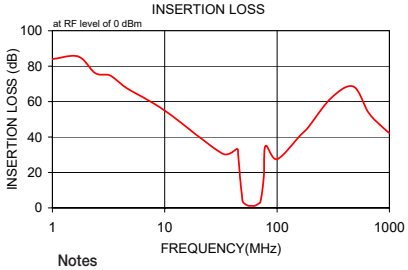
electrical schematic



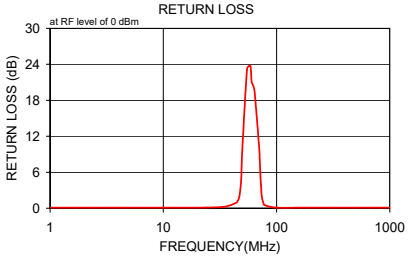
Typical Performance Data

Frequency (MHz)	Insertion Loss (dB) x̄	Insertion Loss (dB) σ	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
1.0	84.04	7.1	0.1	17.9	3.240
1.7	85.43	7.0	0.1	31.1	5.995
2.4	76.11	2.6	0.1	43.9	39.921
3.2	74.96	2.8	0.1	44.7	35.653
3.9	71.07	2.3	0.1	46.2	16.491
4.6	67.50	1.7	0.1	47.9	6.771
10.0	54.99	0.4	0.1	49.5	46.457
32.7	30.64	0.9	0.2	54.0	41.142
44.0	33.27	4.8	0.9	55.0	43.528
45.0	29.89	6.3	1.1	55.9	40.065
47.0	15.98	3.6	2.0	57.9	34.902
48.6	7.60	2.1	4.7	58.9	33.283
49.8	3.27	0.7	9.8	61.0	31.633
55.0	1.36	0.1	23.3	62.0	31.517
58.7	1.16	0.1	23.8	64.2	32.819
60.3	1.14	0.1	21.0	65.3	34.547
63.7	1.20	0.1	19.8	66.5	36.948
70.5	2.89	0.3	9.8	67.6	39.519
71.0	3.45	0.3	8.0	70.0	42.124
73.7	9.21	0.6	2.4	71.2	41.298
76.3	18.97	0.8	0.9	73.7	26.181
79.0	34.96	1.1	0.5	76.3	1.540
100.0	27.50	0.5	0.1	77.6	7.179
160.0	40.78	0.6	0.1	79.0	12.528
190.0	45.59	0.7	0.1	115.5	1.937
300.0	61.77	1.7	0.1	152.2	0.901
475.0	68.58	5.7	0.1	187.3	0.734
650.0	53.94	1.4	0.1	190.5	0.405
825.0	46.86	1.7	0.1	393.6	0.055
1000.0	42.22	1.9	0.1	595.7	0.502

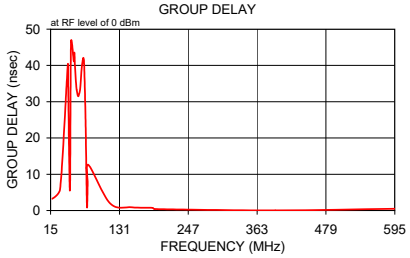
INSERTION LOSS



RETURN LOSS



GROUP DELAY



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 Band Pass Filter (Elliptic Response) SBP-60+

Typical Performance Data

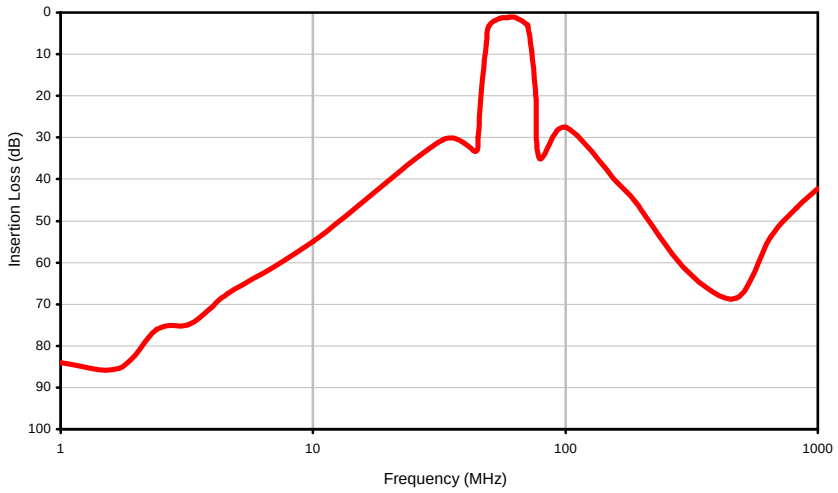
FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
1.00	84.04	0.10
1.70	85.43	0.10
2.40	76.11	0.10
3.20	74.96	0.10
3.90	71.07	0.10
4.60	67.50	0.10
10.00	54.99	0.10
32.70	30.64	0.20
44.00	33.27	0.90
45.00	29.89	1.10
47.00	15.98	2.00
48.60	7.60	4.70
49.80	3.27	9.80
55.00	1.36	23.30
58.70	1.16	23.80
60.30	1.14	21.00
63.70	1.20	19.80
70.50	2.89	9.80
71.00	3.45	8.00
73.70	9.21	2.40
76.30	18.97	0.90
79.00	34.96	0.50
100.00	27.50	0.10
160.00	40.78	0.10
190.00	45.59	0.10
300.00	61.77	0.10
475.00	68.58	0.10
650.00	53.94	0.10
825.00	46.86	0.10
1000.00	42.22	0.10

FREQUENCY (MHz)	GROUP DELAY (nsec)
17.90	3.240
31.10	5.995
43.90	39.921
44.70	35.653
46.20	16.491
47.90	6.771
49.50	46.457
54.00	41.142
55.00	43.528
55.90	40.065
57.90	34.902
58.90	33.283
61.00	31.633
62.00	31.517
64.20	32.819
65.30	34.547
66.50	36.948
67.60	39.519
70.00	42.124
71.20	41.298
73.70	26.181
76.30	1.540
77.60	7.179
79.00	12.528
115.50	1.937
152.20	0.901
187.30	0.734
190.50	0.405
393.60	0.055
595.70	0.502

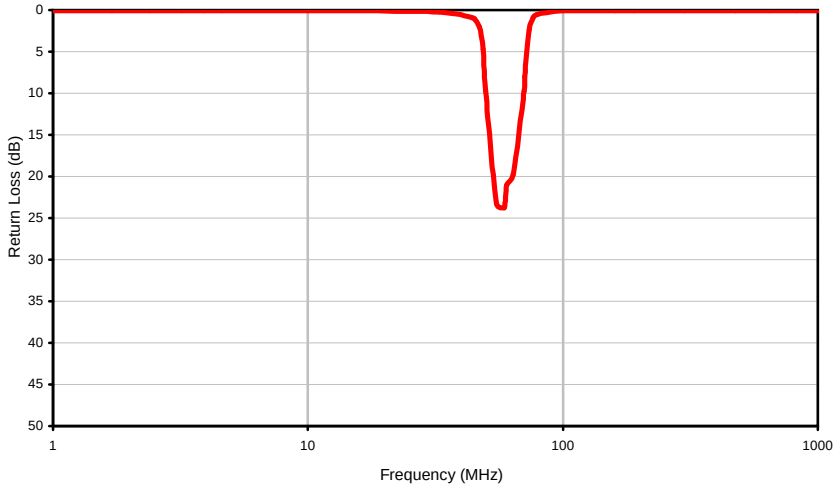
Coaxial Band Pass Filter (Elliptic Response) SBP-60+

Typical Performance Curves

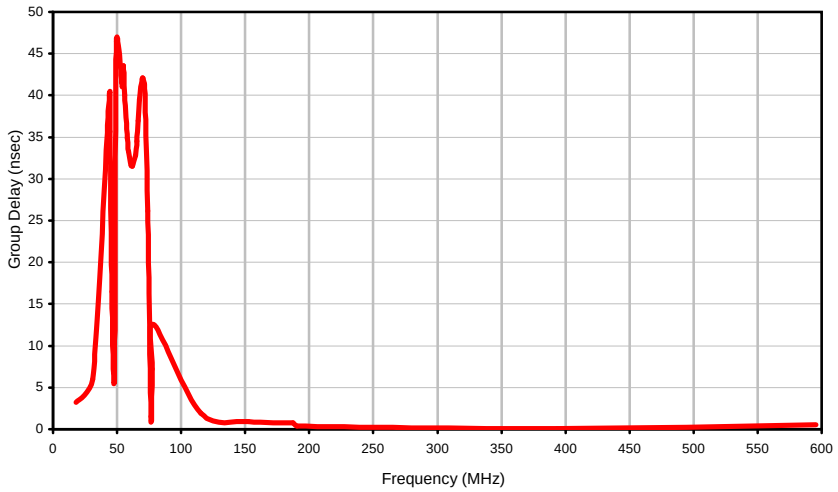
Insertion Loss



Return Loss

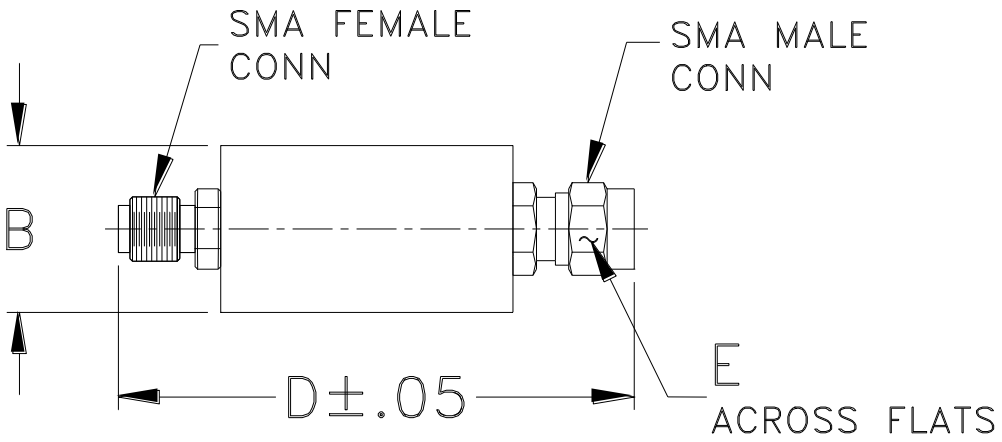


Group Delay



FF56
FF99

Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF56	--	.46 (11.68)	--	1.70 (43.18)	.312 (7.92)	18.0
FF99	--	.70 (17.78)	--	1.98 (50.29)		42.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .03; 3Pl. ± .015

Notes:
1. Case material: Brass.
2. Case finish: Nickel plate.

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