

Low Pass Filter

SBLP-933+

50Ω Flat Time Delay DC to 560 MHz

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

- flat group delay for low pulse distortion
- rugged shielded case
- other SBLP models available with wide selection of cut-off frequencies

Applications

- linear modulation techniques
- voice transmission applications
- digital communications



Generic photo used for illustration purposes only

CASE STYLE: FF99

Connectors	Model
SMA	SBLP-933+

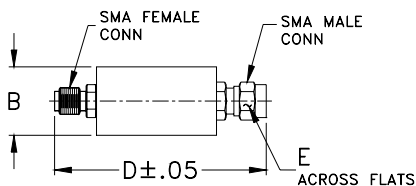
+RoHS Compliant

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

Electrical Specifications

PASSBAND (MHz)	f _{co} , MHz Nom.	STOPBAND (MHz)	VSWR (:1)	GROUP DELAY VARIATION (nsec)
(loss < 1.2 dB) Min.	(loss 3 dB)	(loss > 10 dB) (loss > 20 dB)	DC-0.2f _{co} DC-0.6f _{co}	DC-f _{co} DC-2f _{co} DC-2.67f _{co}
DC-560	933	1866-2490 2490	$\bar{X}$ $\bar{X}$	$\bar{X}$ $\bar{X}$ $\bar{X}$
			1.3:1 2.2:1	0.09 0.2 0.28

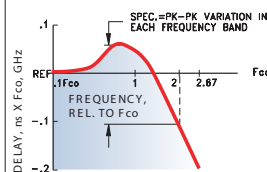
Outline Drawing



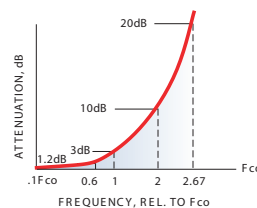
Outline Dimensions (inch/mm)

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

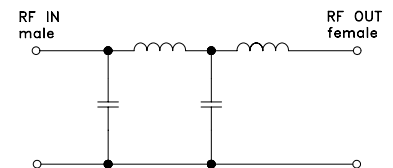
TYPICAL GROUP DELAY



TYPICAL FREQUENCY RESPONSE INSERTION LOSS

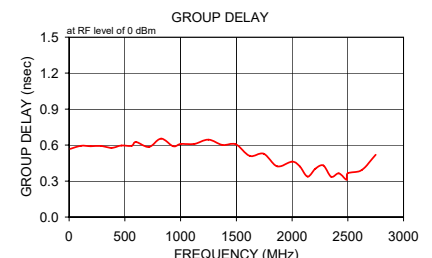
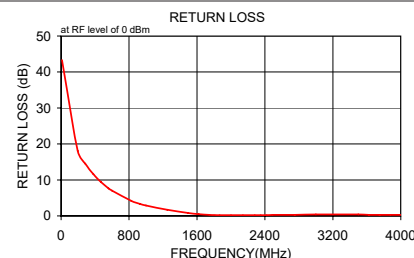


electrical schematic



Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
	$\bar{X}$	σ		
10.0	0.01	0.1	43.3	0.568
195.0	0.11	0.1	181.1	0.594
285.0	0.21	0.1	14.5	0.591
380.0	0.38	0.1	11.6	0.593
470.0	0.59	0.1	9.4	0.577
560.0	0.88	0.1	7.6	0.596
600.0	1.05	0.1	7.0	0.594
825.0	2.24	0.1	4.2	0.626
933.0	3.00	0.1	3.3	0.584
1000.0	3.49	0.1	2.9	0.654
1250.0	5.97	0.1	1.7	0.591
1495.0	9.72	0.1	0.8	0.609
1620.0	12.16	0.2	0.5	0.610
1745.0	14.88	0.2	0.3	0.645
1866.0	17.63	0.3	0.2	0.601
2000.0	20.52	0.3	0.2	0.606
2140.0	23.58	0.3	0.2	0.510
2280.0	26.55	0.2	0.2	0.528
2350.0	28.00	0.2	0.2	0.423
2420.0	29.40	0.2	0.2	0.462
2490.0	30.81	0.3	0.3	0.422
2500.0	30.99	0.3	0.3	0.338
2750.0	35.70	0.5	0.3	0.404
3000.0	35.69	1.0	0.4	0.430
3250.0	44.45	2.1	0.4	0.336
3500.0	50.66	4.7	0.4	0.364
3625.0	52.33	4.9	0.3	0.310
3750.0	52.01	3.4	0.3	0.366
3875.0	50.70	2.2	0.3	0.392
4000.0	49.92	2.5	0.3	0.519



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



Coaxial Low Pass Filter (Flat Time Delay)

SBLP-933+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)	FREQUENCY (MHz)	GROUP DELAY (nsec)
10.0	0.01	43.30	10.0	0.568
195.0	0.11	18.10	105.0	0.594
285.0	0.21	14.50	195.0	0.591
380.0	0.38	11.60	285.0	0.593
470.0	0.59	9.40	380.0	0.577
560.0	0.88	7.60	470.0	0.596
600.0	1.05	7.00	560.0	0.594
825.0	2.24	4.20	600.0	0.626
933.0	3.00	3.30	715.0	0.584
1000.0	3.49	2.90	825.0	0.654
1250.0	5.97	1.70	933.0	0.591
1495.0	9.72	0.80	1000.0	0.609
1620.0	12.16	0.50	1125.0	0.610
1745.0	14.88	0.30	1250.0	0.645
1866.0	17.63	0.20	1375.0	0.601
2000.0	20.52	0.20	1495.0	0.606
2140.0	23.58	0.20	1620.0	0.510
2280.0	26.55	0.20	1745.0	0.528
2350.0	28.00	0.20	1866.0	0.423
2420.0	29.40	0.20	2000.0	0.462
2490.0	30.81	0.30	2070.0	0.422
2500.0	30.99	0.30	2140.0	0.338
2750.0	35.70	0.30	2210.0	0.404
3000.0	35.69	0.40	2280.0	0.430
3250.0	44.45	0.40	2350.0	0.336
3500.0	50.66	0.40	2420.0	0.364
3625.0	52.33	0.30	2490.0	0.310
3750.0	52.01	0.30	2500.0	0.366
3875.0	50.70	0.30	2625.0	0.392
4000.0	49.92	0.30	2750.0	0.519

REV. X1
SBLP-933+
060725
Page 1 of 1



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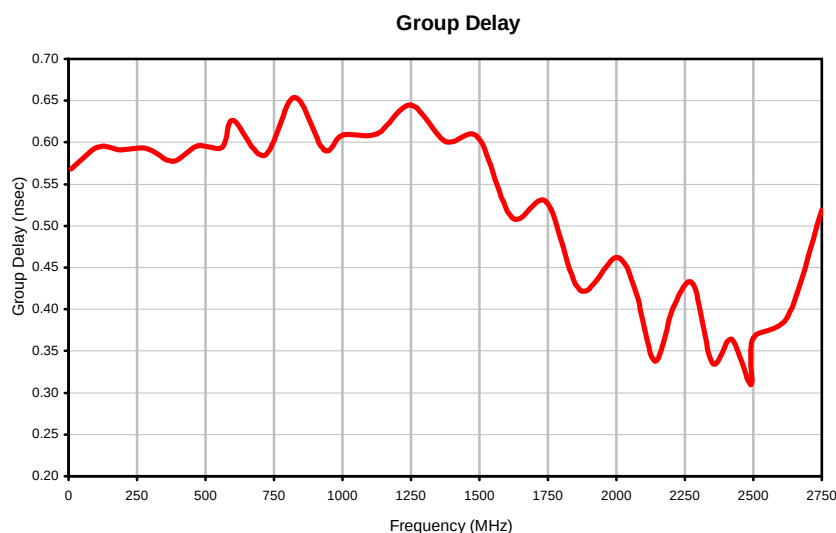
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Coaxial Low Pass Filter (Flat Time Delay)

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Typical Performance Curves



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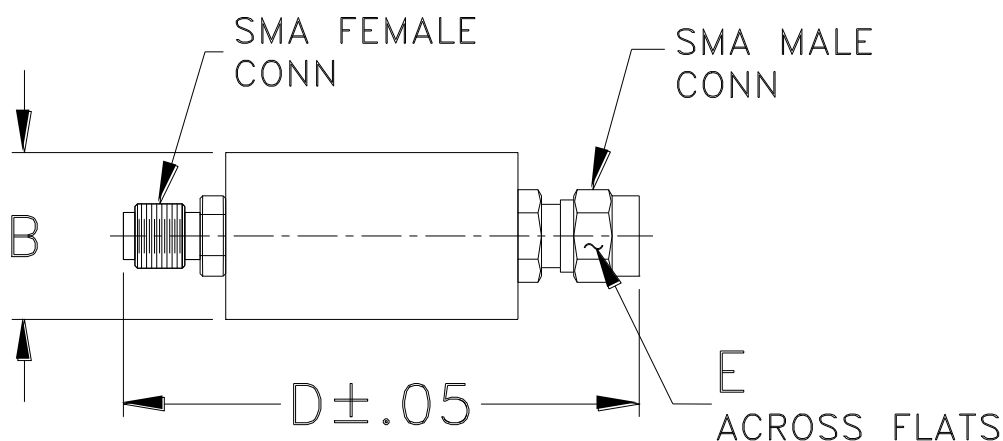
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REV. X1
SBLP-933+
060725
Page 1 of 1

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.



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