Plug-In

Low Pass Filter

PBLP-117+
PBLP-117

50Ω Flat Time Delay DC to 65 MHz

CASE STYLE: A01

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.

Pin Connections

INPUT	1
OUTPUT	8
GROUND	2,3,4,5,6,7
CASE GROUND	2,3,4,5,6,7

Features

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

Applications

- linear modulation techniques
- voice transmission applications
- digital communications

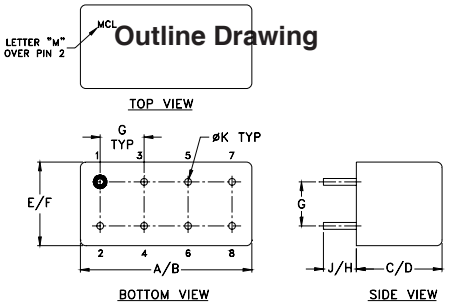
+RoHS Compliant

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

Low Pass Filter Electrical Specifications

PASSBAND (MHz) (loss <1.2 dB) Min.	fco, MHz Nom. (loss 3 dB)	STOPBAND (MHz) (loss > 10 dB)	STOPBAND (MHz) (loss > 20 dB)	VSWR (:1) DC-0.2fco X	VSWR (:1) DC-0.6fco X	GROUP DELAY VARIATION (nsec) DC-fco X	GROUP DELAY VARIATION (nsec) DC-2fco X	GROUP DELAY VARIATION (nsec) DC-2.67fco X
DC-65	117	234-312	312	1.3:1	2.4:1	0.35	1.4	1.9

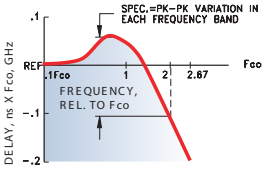
Outline Drawing



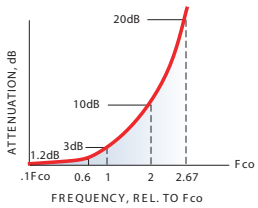
Outline Dimensions (inch / mm)

A	B	C	D	E	F
.770	.800	.385	.400	.370	.400
19.56	20.32	9.78	10.16	9.40	10.16
G	H	J	K		wt
.200	.20	.14	.031		grams
5.08	5.08	3.56	0.79		5.2

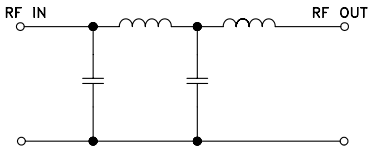
TYPICAL GROUP DELAY



TYPICAL FREQUENCY RESPONSE INSERTION LOSS



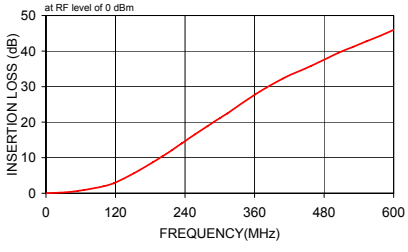
electrical schematic



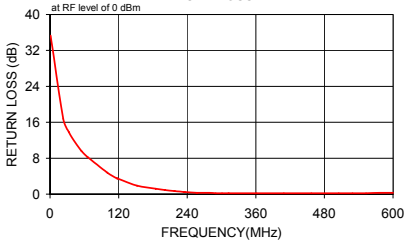
Typical Performance Data

Frequency (MHz)	Insertion Loss (dB) x̄	Insertion Loss (dB) σ	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
1.0	0.02	0.1	35.3	1.0	3.075
23.0	0.15	0.1	16.8	12.0	3.015
33.0	0.26	0.1	13.8	23.0	3.252
44.0	0.42	0.1	11.5	33.0	3.331
55.0	0.65	0.1	9.6	44.0	3.126
65.0	0.90	0.1	8.3	55.0	3.140
66.0	0.92	0.1	8.2	65.0	3.044
100.0	1.96	0.1	4.8	66.0	3.271
117.0	2.80	0.1	3.5	83.0	3.303
118.0	2.86	0.1	3.5	100.0	3.348
152.0	5.63	0.1	1.9	117.0	3.233
185.0	8.79	0.2	1.2	118.0	3.593
201.0	10.40	0.2	0.9	135.0	3.409
218.0	12.20	0.2	0.7	152.0	2.782
234.0	13.99	0.2	0.5	168.0	2.798
235.0	14.10	0.2	0.5	185.0	2.689
257.0	16.54	0.3	0.3	201.0	2.681
279.0	18.92	0.4	0.3	218.0	2.252
290.0	20.08	0.5	0.2	234.0	2.060
301.0	21.23	0.5	0.2	235.0	2.038
312.0	22.36	0.6	0.2	246.0	1.965
313.0	22.46	0.6	0.2	257.0	1.759
361.0	27.82	0.7	0.2	268.0	1.562
409.0	32.27	0.9	0.2	279.0	1.358
457.0	35.79	1.0	0.2	290.0	1.372
505.0	39.52	1.3	0.2	301.0	1.483
529.0	41.10	1.4	0.2	312.0	1.659
553.0	42.74	1.6	0.2	313.0	1.765
577.0	44.30	1.5	0.3	337.0	1.324
600.0	45.95	2.0	0.3	361.0	1.555

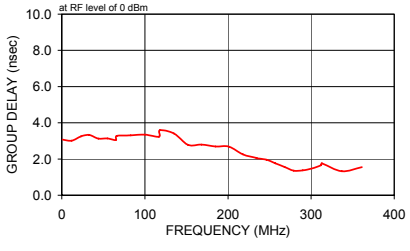
INSERTION LOSS



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

Plug-In Low Pass Filter (Flat Time Delay) PBLP-117

Typical Performance Data

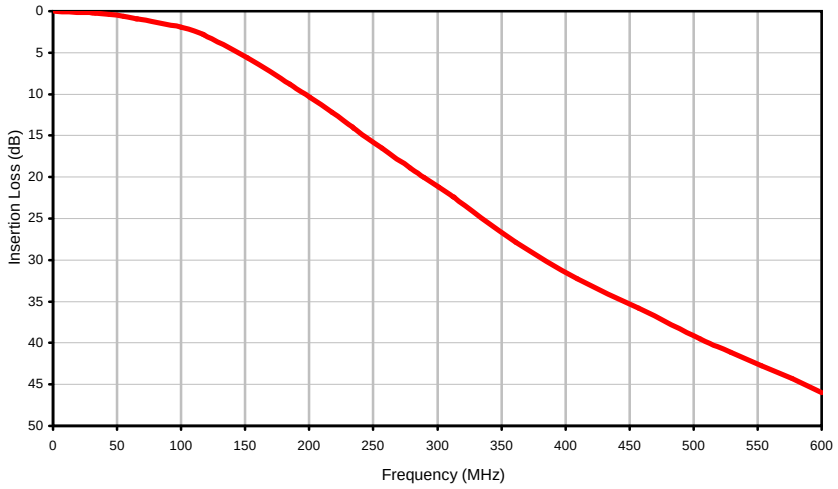
FREQUENCY (MHz)	INSERTION LOSS (dB)	RETURN LOSS (dB)
1	0.02	35.30
23	0.15	16.80
33	0.26	13.80
44	0.42	11.50
55	0.65	9.60
65	0.90	8.30
66	0.92	8.20
100	1.96	4.80
117	2.80	3.50
118	2.86	3.50
152	5.63	1.90
185	8.79	1.20
201	10.40	0.90
218	12.20	0.70
234	13.99	0.50
235	14.10	0.50
257	16.54	0.30
279	18.92	0.30
290	20.08	0.20
301	21.23	0.20
312	22.36	0.20
313	22.46	0.20
361	27.82	0.20
409	32.27	0.20
457	35.79	0.20
505	39.52	0.20
529	41.10	0.20
553	42.74	0.20
577	44.30	0.30
600	45.95	0.30

FREQUENCY (MHz)	GROUP DELAY (nsec)
1	3.075
12	3.015
23	3.252
33	3.331
44	3.126
55	3.140
65	3.044
66	3.271
83	3.303
100	3.348
117	3.233
118	3.593
135	3.409
152	2.782
168	2.798
185	2.689
201	2.681
218	2.252
234	2.060
235	2.038
246	1.965
257	1.759
268	1.562
279	1.358
290	1.372
301	1.483
312	1.659
313	1.765
337	1.324
361	1.555

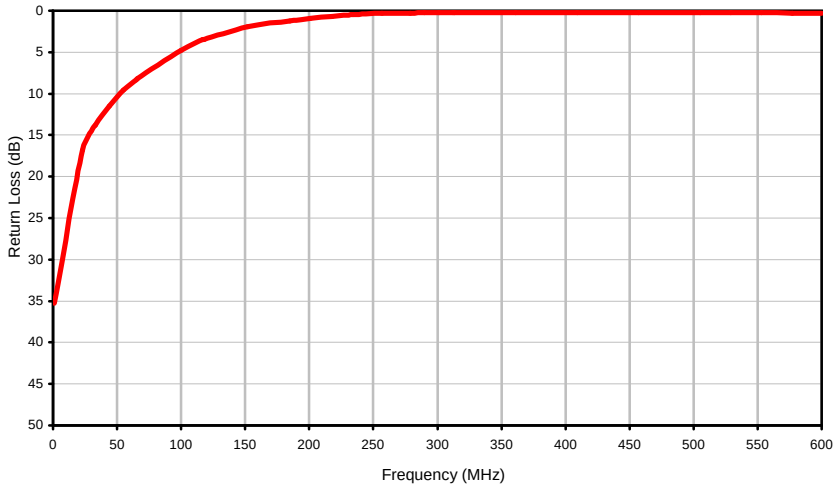
Plug-In Low Pass Filter (Flat Time Delay) PBLP-117

Typical Performance Curves

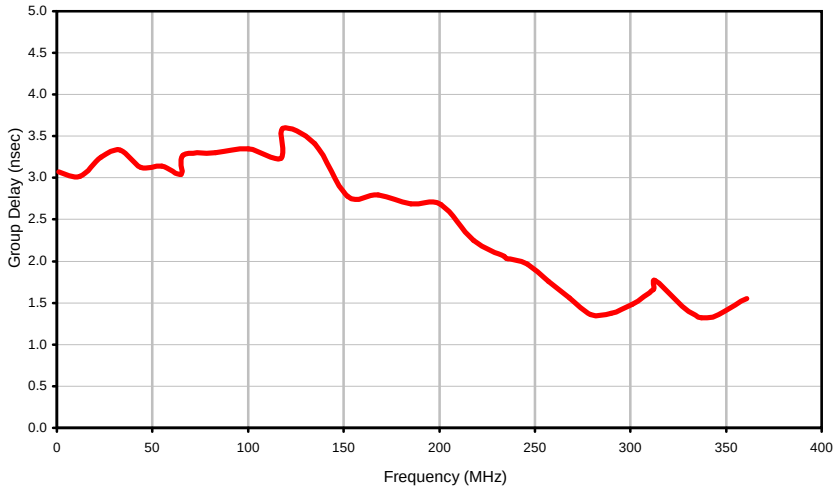
Insertion Loss



Return Loss



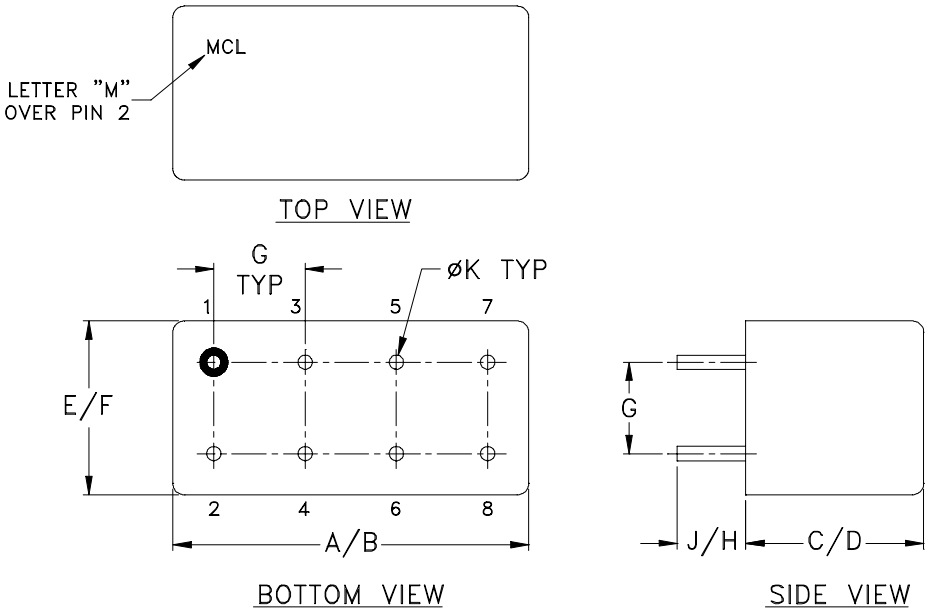
Group Delay



Case Style A

A01
A04
A05
A06

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01	.770 (19.56)	.800 (20.32)	.385 (9.78)	.400 (10.16)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	5.2
A04			.200 (5.08)	.210 (5.33)							3.7
A05			.240 (6.10)	.250 (6.35)							3.7
A06			.285 (7.24)	.310 (7.87)							5.2

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

Notes:

1. Header material: C.R.S.
   Pin material: #52 alloy.
   Cover material: Cupro-Nickel.
2. Pin finish: Electro Tin-Silver.
3. Insulated spacer available. Request P/N B14-045-01.
4. Tolerance on pin diameter +/-.005 inch.
5. Glass meniscus 0.015 inch max.
6. Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.

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Environmental Specifications ENV01

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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A

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
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D