Surface Mount
Bandpass Filter

BPF-C510+

50Ω   20 to 1000 MHz

Generic photo used for illustration purposes only
CASE STYLE: HU1186

The Big Deal
- Sharp roll-off
- Wide bandwidth
- Good VSWR
- Miniature shielded package

Product Overview

The BPF-C510+ is a wide band filter in a small shielded package (size of 0.87" x 0.80" x 0.25") fabricated using SMT technology. This filter offers sharp roll-off and rejection of 40dB Typ. for use in receiver front end applications..

Key Features

Feature	Advantages
Sharp roll-off	BPF-C510+ attenuates spurious signals and rejects harmonics for wide band of frequency.
Good VSWR	This filter maintains typical VSWR over passband frequency range making this filter easier to integrate into receiver and transmitter RF chains with less concerns for in band frequency ripple.
Small size, 0.87" x 0.80" x 0.25"	The unique surface mount package enables the BPF-C510+ to be used in compact design.

Mini-Circuits®

Bandpass Filter

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Features

• Sharp roll-off
• Wide bandwidth
• Good VSWR
• Miniature shielded package

Applications

• Test equipment
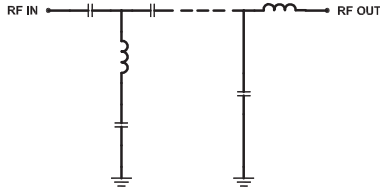• Receiver front end applications
• Harmonic rejection

Functional Schematic

RF IN   RF OUT

Typical Frequency Response

Electrical Specifications at 25°C

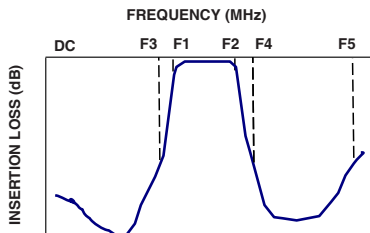| Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	—	510	—	MHz
	Insertion Loss	F1-F2	20-1000	—	1.5	2.7	dB
	VSWR	F1-F2	20-1000	—	1.6	2.01	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-17	20	29	—	dB
	VSWR	DC-F3	DC-17	—	20	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	1150-1800	25	38	—	dB
	VSWR	F4-F5	1150-1800	—	20	—	:1

Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1 W

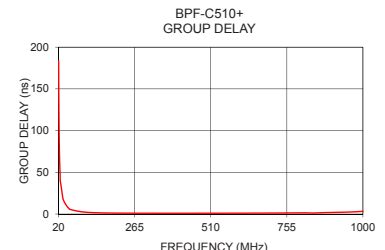Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1.0	64.03	364.20	20	183.43
10.0	84.00	214.59	21	115.45
17.0	49.57	41.79	22	83.73
17.5	33.17	30.88	23	65.68
18.0	20.49	19.11	24	53.99
18.5	9.11	7.01	25	39.97
18.9	3.08	2.10	30	28.00
20.0	0.95	1.18	40	13.22
100.0	0.22	1.14	50	7.85
250.0	0.27	1.11	75	3.92
510.0	0.37	1.13	100	2.42
750.0	0.58	1.14	200	1.14
1000.0	1.31	1.41	300	0.96
1048.0	3.12	1.94	400	0.93
1080.0	11.63	6.09	500	0.96
1102.0	20.22	9.09	600	1.03
1124.0	30.61	11.09	800	1.39
1150.0	56.84	12.66	900	1.88
1650.0	50.80	4.08	950	2.31
1800.0	44.46	4.62	1000	3.27

BPF-C510+
INSERTION LOSS (Full band)

BPF-C510+
INSERTION LOSS (Pass band)

BPF-C510+
VSWR

BPF-C510+
GROUP DELAY
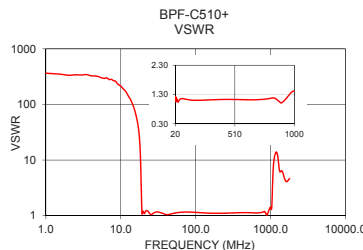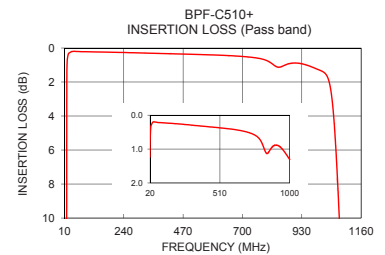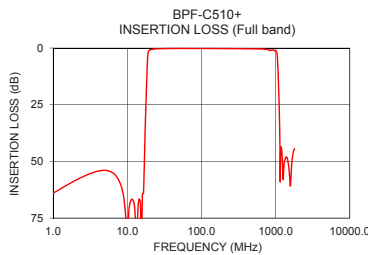
Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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
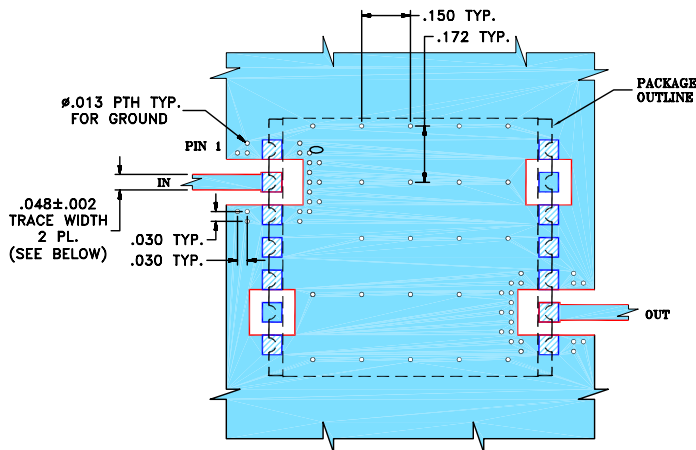
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REV.B
M174392
BPF-C510+
EDU2114/1
URJ
190817
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Pad Connections

INPUT	2
OUTPUT	9
GROUND	1,3,4,5,7,8,10,11,12,14
NOT CONNECTED	6,13

Demo Board MCL P/N: TB-500+
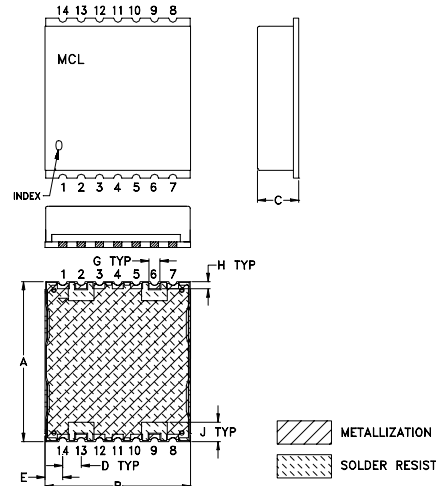*Suggested PCB Layout (PL-294)*

NOTES:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B,
   DIELECTRIC THICKNESS: .030" ± .002";
   COPPER: 1/2 OZ ON EACH SIDE.
   FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

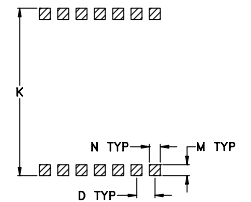DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Outline Drawing

PCB Land Pattern

Suggested Layout,
Tolerance to be within ±.002

METALLIZATION

SOLDER RESIST

Outline Dimensions (inch mm)

A	B	C	D	E	F	G	H
.870	.800	.25	.100	.097	--	.060	.040
22.10	20.32	6.35	2.54	2.46	--	1.52	1.02

J	K	L	M	N	P		wt
.105	.910	--	.060	.060	--		grams
2.67	23.11	--	1.52	1.52	--		2.85

Note: Please refer to case style drawing for details