

Surface Mount Bandpass Filter

BPF-B113+

50Ω 108 to 118 MHz

The Big Deal

- Narrow band filter (BW of 8.8%)
- Excellent VSWR (1.25:1 typical)
- High rejection (65 dB typical)
- Fast roll-off



CASE STYLE: HZ1198

Product Overview

The BPF-B113+ is a narrow bandpass filter in a shielded package (size of 0.472" x 0.826" x .22") fabricated using SMT technology. Covering 113 MHz \pm 5 MHz band width, these units offer good matching within the passband and high rejection. This unit uses a miniature high Q capacitors and wire welded inductors for high reliability. In addition it has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Narrow bandwidth filter (fractional bandwidth of 8.8%)	Fast roll-off; this will attenuate frequencies closer to the passband with good rejection values of over 20 dB.
Excellent VSWR, 1.25:1 typical in passband	The BPF-B113+ has very good return loss for a narrow bandwidth which provides good matching when used with other devices.
More than 45dB rejection up to 2000MHz	This enables the filter to attenuate spurious signals and reject harmonics for a broad frequency band.
Flat group delay characteristics	The model has a group delay flatness of 15 nsec which helps in reducing the signal distortion.
Shielded case	Reduced interference with and from the surrounding components.

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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CASE STYLE: HZ1198

Features

- Excellent VSWR, 1.25:1 typical in passband
- Flat group delay over passband
- High rejection, 65 dB typical
- Sharp insertion loss roll off
- Shielded case
- Aqueous washable

Applications

- Harmonic rejection
- Transmitters / receivers
- Radio communications
- ILS / localiser

Electrical Specifications at 25°C

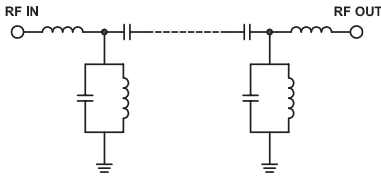
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	—	—	113	—	MHz	
	Insertion Loss	F1-F2	108-118	—	3.4	5.0	dB
	VSWR	F1-F2	108-118	—	1.25	1.5	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-98	20	27	—	dB
	VSWR	DC-F3	DC-98	—	24	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	132-2000	20	28	—	dB
	VSWR	F4-F5	132-2000	—	18	—	:1

Maximum Ratings

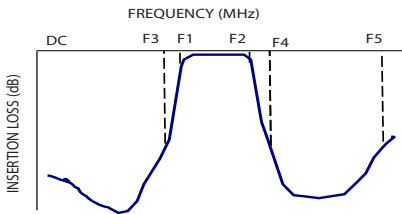
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.25W max.

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

Functional Schematic



Typical Frequency Response

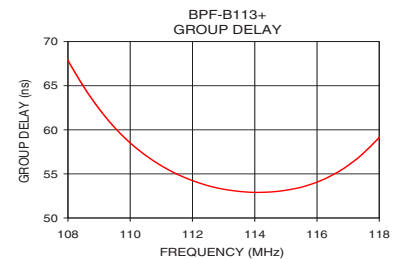
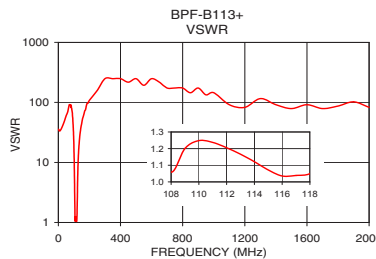
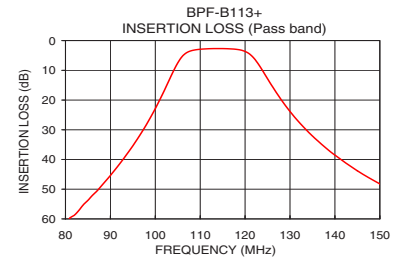
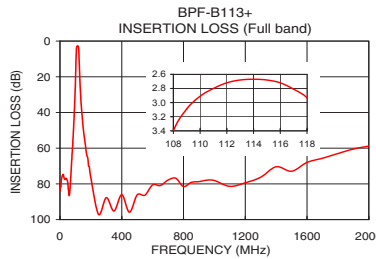


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1	83.93	35.46	108.00	67.86
85	53.75	78.97	108.45	65.19
98	28.30	28.03	108.80	63.34
102	16.82	10.82	109.50	60.26
105	7.49	3.01	110.20	57.91
108	3.40	1.06	110.90	56.14
110	2.91	1.25	111.25	55.43
113	2.68	1.17	111.60	54.81
117	2.81	1.04	112.30	53.87
118	2.93	1.05	113.00	53.26
122	5.98	2.47	113.70	52.95
125	12.82	6.42	114.05	52.90
132	27.42	18.11	114.80	53.05
155	52.09	52.65	115.20	53.26
500	86.11	248.17	115.55	53.54
1000	78.10	144.77	116.30	54.52
1300	76.25	115.81	116.70	55.27
1500	72.90	78.97	117.05	56.09
1800	63.01	86.86	117.45	57.21
2000	58.82	82.73	118.00	59.12

+RoHS Compliant

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



Notes

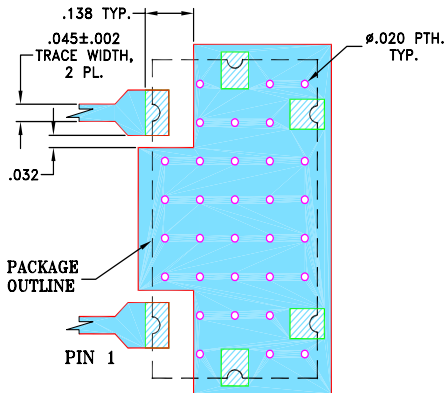
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Pad Connections

INPUT	1
OUTPUT	2
GROUND	3,4,5,6

Demo Board MCL P/N: TB-400+ Suggested PCB Layout (PL-247)

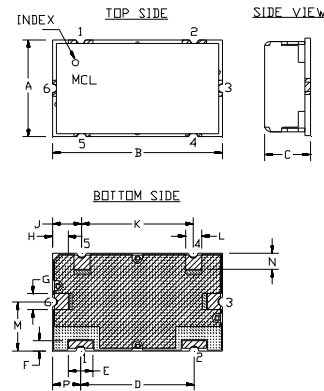


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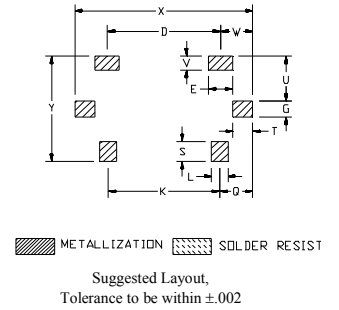
- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025" ± .002". COPPER: 1/2 OZ. EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Outline Drawing



PCB Land Pattern



Outline Dimensions (inch)

A	B	C	D	E	F	G	H	J	K	L	M
.472	.826	.220	.551	.118	.047	.078	.076	.142	.543	.078	.236
11.99	20.98	5.59	14.00	3.00	1.19	1.98	1.93	3.61	13.79	1.98	5.99
N	P	Q	S	T	U	V	W	X	Y	wt	
.079	.138	.162	.098	.096	.217	.067	.157	.866	.512	grams	
2.01	3.51	4.11	2.49	2.44	5.51	1.70	3.99	22.00	13.00	6.0	

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