

# Surface Mount Bandpass Filter

## BPF-B199+

50Ω 194 to 204 MHz

### The Big Deal

- Narrow band filter (BW of 5%)
- Excellent VSWR (1.2:1 typical)
- Wide stopband rejection till 2GHz (70 dB typical)
- Fast roll-off



CASE STYLE: HZ1198

### Product Overview

The BPF-B199+ is a narrow-band bandpass filter in a shielded package (size of 0.472" x 0.826" x .22") fabricated using SMT technology. Covering 199 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 5%)	Provides sharp rejection which rejects adjacent channel.
Excellent VSWR, 1.2:1 typical in passband	The model has very good return loss for a narrow bandwidth which provides good matching when used with other devices.
More than 50dB rejection up to 2000MHz	This enables the filter to attenuate spurious signals and reject harmonics for broad band of frequency.
Shielded case	Reduced interference with the surrounding components.

#### Notes

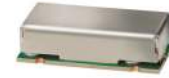
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Bandpass Filter

## BPF-B199+

50Ω 194 to 204 MHz



CASE STYLE: HZ1198

### Features

- Excellent VSWR, 1.2:1 typical in passband
- High rejection, 70 dB typical
- Sharp insertion loss roll-off
- Shielded case
- Aqueous washable

### Applications

- Harmonic rejection
- Transmitters / receivers
- Radio communications

### Electrical Specifications at 25°C

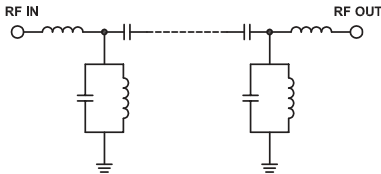
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	199	—	MHz
	Insertion Loss	F1-F2	194-204	—	4.2	5 dB
	VSWR	F1-F2	194-204	—	1.2	1.5 :1
Stop Band, Lower	Insertion Loss	DC-F3	DC-179	20	31	dB
	VSWR	DC-F3	DC-179	—	24	— :1
Stop Band, Upper	Insertion Loss	F4-F5	221-2000	20	30	dB
	VSWR	F4-F5	221-2000	—	16	— :1

### Maximum Ratings

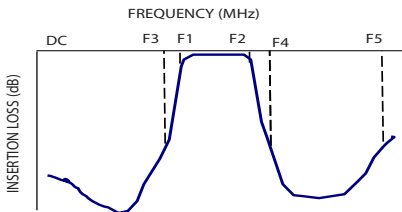
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.25W max.

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

### Functional Schematic



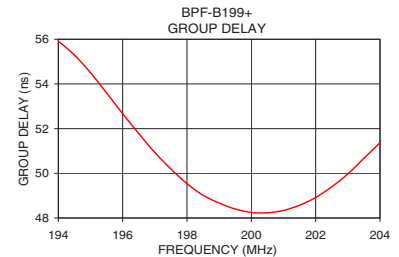
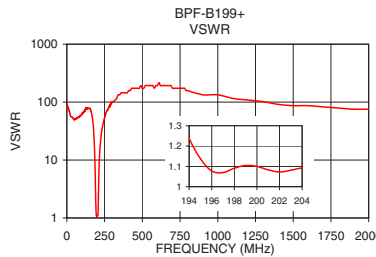
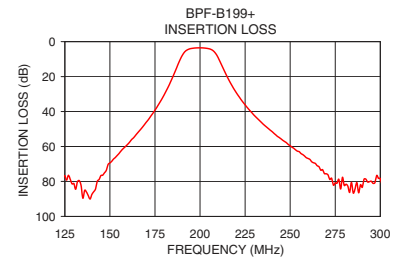
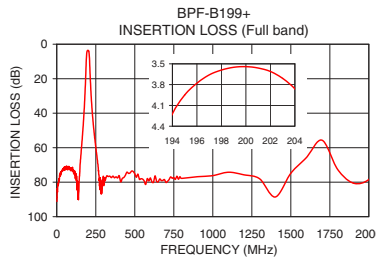
### Typical Frequency Response



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1.0	91.17	91.43	194.0	55.90
50.0	73.13	51.10	194.5	55.29
100.0	72.40	62.05	195.0	54.50
164.0	53.90	64.35	195.5	53.60
179.0	32.48	27.16	196.0	52.67
186.0	17.49	9.38	196.5	51.78
189.0	10.16	4.09	197.0	50.93
194.0	4.22	1.24	197.5	50.19
199.0	3.55	1.10	198.0	49.54
204.0	3.86	1.09	198.5	49.02
208.0	5.90	1.71	199.0	48.67
212.0	13.43	5.36	199.5	48.40
221.0	30.59	17.93	200.0	48.25
239.0	50.71	41.37	200.5	48.23
500.0	75.12	173.72	201.0	48.34
1000.0	76.18	133.63	201.5	48.57
1300.0	78.02	102.19	202.0	48.92
1500.0	74.83	86.86	202.5	49.40
1700.0	55.64	82.73	203.5	50.67
2000.0	78.44	75.53	204.0	51.37

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



### Notes

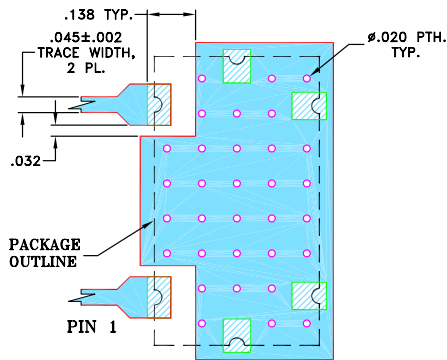
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## Pad Connections

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

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

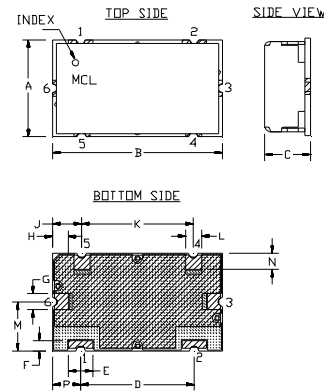


### NOTES:

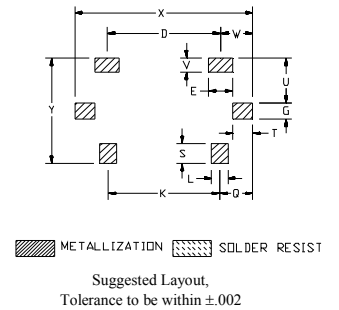
- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .025"±.002". COPPER: 1/2 OZ. EACH SIDE.  
 FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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 / mm)

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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