

# Surface Mount Bandpass Filter

## BPF-E16+

50Ω 2 to 30 MHz

### The Big Deal

- Low insertion loss (1 dB typical)
- Good VSWR (1.4:1 typical)
- High rejection
- Fast roll-off



CASE STYLE: HR1176

### Product Overview

The BPF-E16+ is a 50Ω band pass filter in a shielded package (size of 1.20" x 1.20" x 0.370") fabricated using SMT technology. These units offer good matching within the pass band and high rejection. This unit has 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
Sharp shape factor	Sharp shape factor helps in adjacent channel rejection and increased selectivity.
Good VSWR, 1.4:1 typical in passband	The BPF-E16+ has very good return loss which provides good matching when used with other devices.
More than 40dB rejection up to 500MHz	This enables the filter to attenuate spurious signals and reject harmonics for broad band of frequency.
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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Surface Mount Bandpass Filter

## BPF-E16+

50Ω 2 to 30 MHz



CASE STYLE: HR1176

### Features

- Excellent VSWR, 1.4:1 typical in passband
- High rejection
- Sharp insertion loss roll off
- Shielded case
- Aqueous washable

### Applications

- Harmonic rejection
- Transmitters / receivers
- Lab use

### Electrical Specifications at 25°C

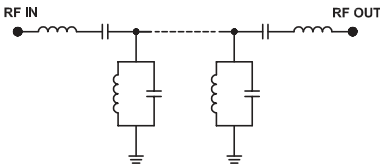
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	16	—	MHz
	Insertion Loss	F1-F2	2-30	1.5	3.0	dB
	VSWR	F1-F2	2-30	1.4	1.9	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-1.4	20	40	dB
	VSWR	DC-F3	DC-1.4	—	21	:1
Stop Band, Upper	Insertion Loss	F4-F5	35-500	20	32	dB
	VSWR	F4-F5	35-500	—	22	:1

### Maximum Ratings

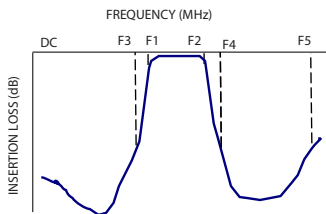
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5W max.

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

### Functional Schematic



### Typical Frequency Response

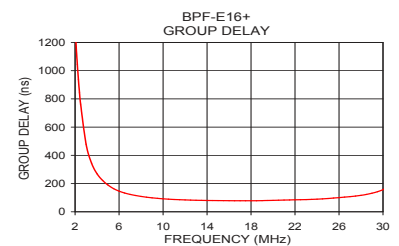
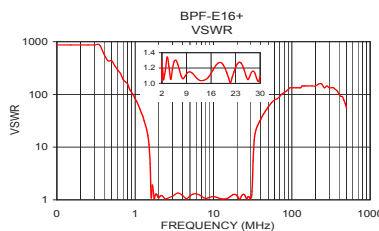
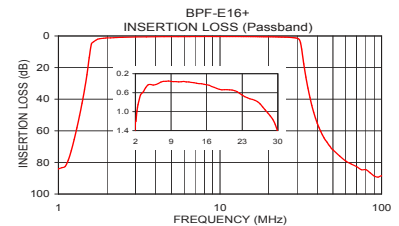
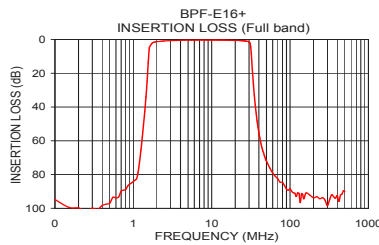


### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
0.10	89.63	868.59	2	1325.56
1.20	72.57	44.55	4	269.01
1.40	41.88	21.46	6	146.43
1.50	23.78	11.03	8	108.69
1.55	12.95	4.88	10	91.88
1.60	4.84	1.10	11	87.19
1.70	2.58	1.49	12	84.03
2.00	1.25	1.09	13	81.77
3.00	0.70	1.18	14	80.25
16.00	0.49	1.13	15	79.26
25.00	0.81	1.23	16	78.69
30.00	1.47	1.09	17	78.29
31.00	2.29	1.44	18	78.21
31.50	4.11	2.65	20	80.84
32.00	7.86	5.47	22	84.77
33.00	17.29	13.29	24	89.39
35.00	32.63	21.73	25	94.14
40.00	54.55	33.42	26	100.52
200.00	91.51	144.77	28	116.42
500.00	93.56	54.29	30	156.93

### +RoHS Compliant

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



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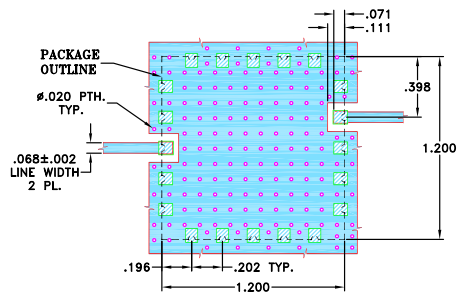
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REV. A  
M160153  
BPF-E16+  
EDR-8470/3U  
RAV/URJ/NY  
161230  
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## Pad Connections

INPUT	18
OUTPUT	9
GROUND	1-8, 10-17, 19-,20

**Demo Board MCL P/N: TB-573+**  
**Suggested PCB Layout (PL-329)**

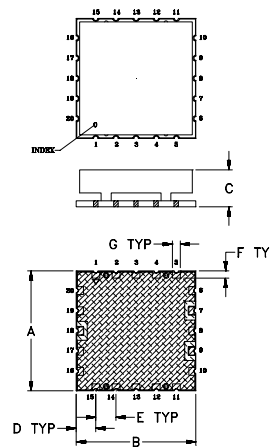


### NOTES:

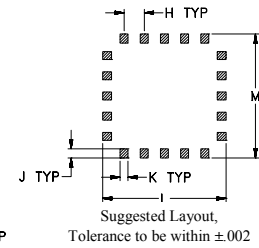
- TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030"±.003". COPPER: 1/2 OZ. EACH SIDE.  
 FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

## Outline Drawing



## PCB Land Pattern



Suggested Layout,  
 Tolerance to be within ±.002

- METALLIZATION
- SOLDER RESIST

## Outline Dimensions ( inch / mm)

A	B	C	D	E	F	G
1.200	1.200	.370	.196	.202	.071	.079
30.48	30.48	9.40	4.98	5.13	1.80	2.01
H	J	K	L	M	wt	
.202	.091	.079	1.240	1.240	grams	
5.13	2.31	2.01	31.50	31.50	8.5	

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