

# Surface Mount Bandpass Filter

## SXBP-176+

50Ω 175 to 177 MHz

- Narrow band flat group delay response
- Wide stopband rejection, 40 dB
- Good matching, (VSWR 1.3:1 typical)
- Miniature shielded package



CASE STYLE: HF1139

## Product Overview

The SXBP-176+ is a cross coupled design, narrow-band bandpass filter fabricated using SMT technology. Covering 176 MHz ± 1 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. It has repeatable performance across production lots and consistent performance across temperature.

## Key Features

Narrow-band bandpass filter with flat group delay	This helps in excellent adjacent channel rejection and minimum signal distortion.
More than 40dB rejection up to 1000 MHz	This enables the filter to attenuate spurious signals and reject harmonics for broad band of frequency.
Small size, 0.44" x 0.74" x .27"	The surface mount package enables the SXBP-176+ to be used in compact designs.



For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

**Notes:** 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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

## SXBP-176+

50Ω 175 to 177 MHz



CASE STYLE: HF1139  
PRICE: \$19.95 ea. QTY (1-9)

### Features

- Narrow band flat group delay
- Good VSWR, 1.3:1 Typical
- High Rejection, 40 dB
- Shielded case
- Aqueous washable

### Applications

- Harmonic Rejection
- Transmitters / Receivers
- Military

### Electrical Specifications at 25°C

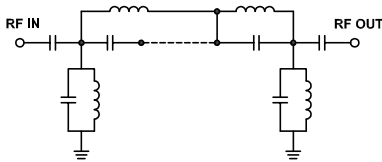
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	—	—	176	—	MHz	
	Insertion Loss	F1-F2	175-177	—	3.3	4.8	dB
	VSWR	F1-F2	175-177	—	1.3	1.5	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-155	20	30	—	dB
	VSWR	DC-F3	DC-155	—	15	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	199-1000	20	31	—	dB
	VSWR	F4-F5	199-1000	—	11	—	:1

### Maximum Ratings

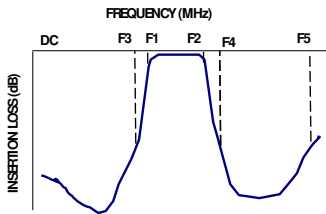
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.25W max.

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

### Functional Schematic



### Typical Frequency Response

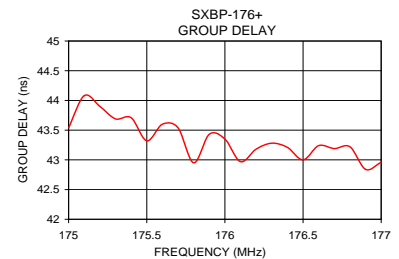
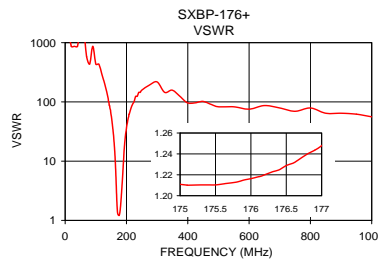
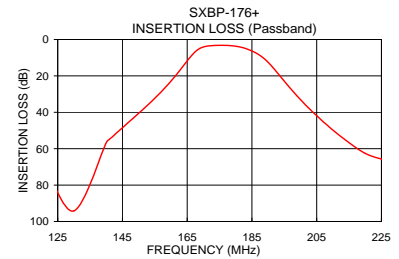
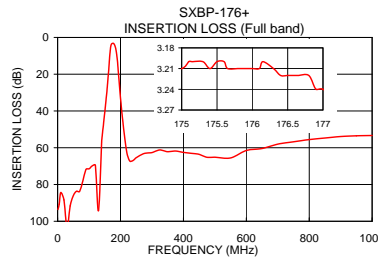


### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1.0	93.62	1737.18	175.00	43.54
143.0	51.62	96.51	175.10	44.08
155.0	32.29	36.97	175.20	43.90
160.0	22.86	19.98	175.30	43.69
164.0	14.07	8.86	175.40	43.71
167.0	7.57	3.49	175.60	43.60
175.0	3.21	1.21	175.70	43.54
176.0	3.21	1.22	175.80	42.95
177.0	3.24	1.25	175.90	43.43
185.0	6.30	3.52	176.00	43.35
190.0	12.52	9.53	176.10	42.97
199.0	31.10	32.79	176.20	43.18
200.0	33.03	36.20	176.30	43.28
205.0	41.84	51.10	176.40	43.21
209.0	48.28	62.05	176.50	43.00
300.0	62.65	217.15	176.60	43.24
500.0	65.17	82.73	176.70	43.19
750.0	56.76	69.49	176.80	43.22
800.0	55.56	78.97	176.90	42.84
1000.0	53.36	56.04	177.00	42.96

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.



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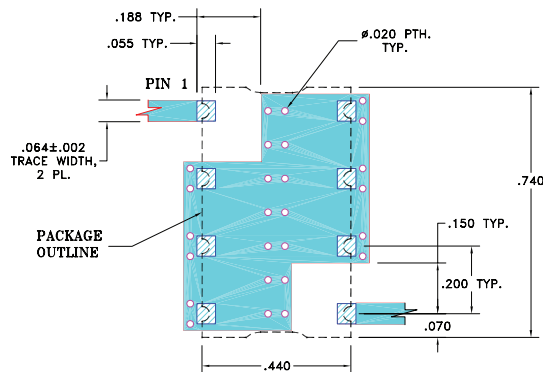
IFIRF MICROWAVE COMPONENTS

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## Pad Connections

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

## Demo Board MCL P/N: TB-368 Suggested PCB Layout (PL-230)

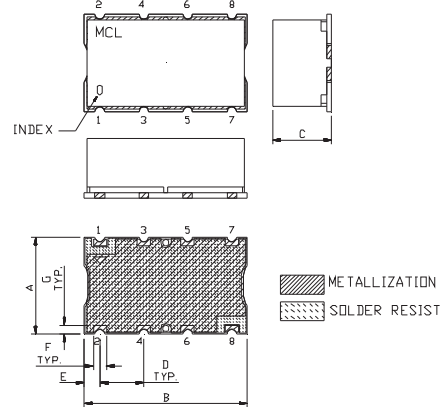


### NOTE:

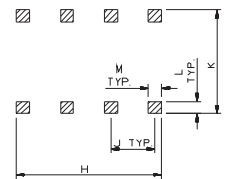
- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS: .025" ± .002". COPPER: 1/2 OZ. EACH SIDE.  
FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

## Outline Drawing



## PCB Land Pattern



## Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.44	.74	.27	.200	.07	.060	.040
11.18	18.80	6.86	5.08	1.78	1.52	1.02
H	J	K	L	M	wt	
.660	.200	.470	.055	.060	grams	
16.76	5.08	11.94	1.40	1.52	3.0	