

# Surface Mount Bandpass Filter

## SXBP-310+

50Ω      300 to 320 MHz

### The Big Deal

- Narrow band filter (BW of 6.5%)
- High rejection (64 dB typical)
- Good VSWR (1.35:1 typical)
- Fast roll-off
- Miniature shielded package



CASE STYLE: HF1139

### Product Overview

The SXBP-310+ is a narrow-band bandpass filter fabricated using SMT technology. Covering 310 MHz  $\pm$  10 MHz, 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 6.5%)	Provides sharp rejection which enables the filter to be used in adjacent channel rejection.
More than 40dB rejection up to 2250MHz	This enables the filter to attenuate spurious signals and reject harmonics for a broad frequency band.
Good VSWR, 1.35:1 typical over passband	The SXBP-310+ has very good return loss for a narrow bandwidth which provides good interface when used with other devices.
Flat group delay characteristics	The model has a group delay flatness of 8 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Surface Mount Bandpass Filter

## SXBP-310+

50Ω 300 to 320 MHz



CASE STYLE: HF1139

### Features

- Flat group delay over passband
- Good VSWR, 1.35:1 typical in passband
- Sharp insertion loss roll-off
- High rejection, (64 dB typical)
- Shielded case
- Aqueous washable

### Applications

- Harmonic Rejection
- Transmitters / Receivers
- Military

### Electrical Specifications at 25°C

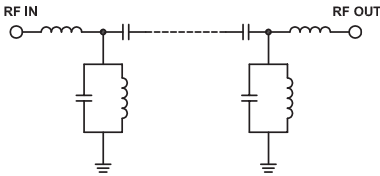
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	—	—	310	—	MHz	
	Insertion Loss	F1-F2	300-320	—	4.3	5.5	dB
	VSWR	F1-F2	300-320	—	1.35	1.8	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-280	20	30	—	dB
	VSWR	DC-F3	DC-280	—	25	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	342-2250	20	30	—	dB
	VSWR	F4-F5	342-2250	—	20	—	:1

### Maximum Ratings

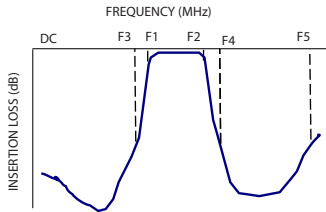
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.4W max.

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

### Functional Schematic



### Typical Frequency Response

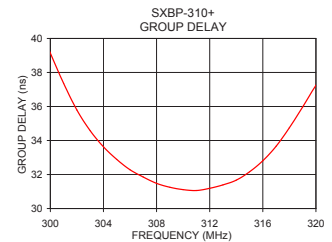
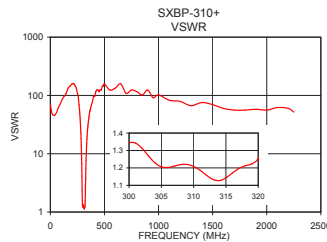
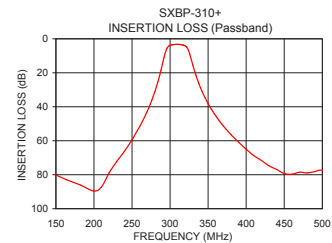
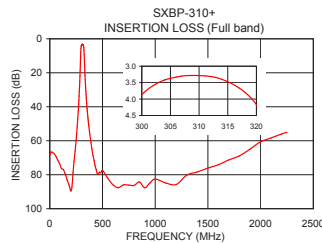


### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1.0	65.44	69.49	300.0	39.14
146.0	74.81	108.58	301.0	37.36
260.0	51.84	86.86	302.0	35.79
280.0	31.19	27.59	303.0	34.58
288.0	18.55	10.13	304.0	33.63
292.0	10.95	4.12	305.0	32.89
294.0	7.59	2.32	306.0	32.28
300.0	3.89	1.34	307.0	31.85
305.0	3.39	1.21	308.0	31.48
310.0	3.31	1.21	310.0	31.11
320.0	4.24	1.25	311.0	31.06
326.0	9.58	3.65	312.0	31.19
330.0	15.90	7.70	313.0	31.39
342.0	31.20	23.18	314.0	31.67
370.0	51.85	57.91	315.0	32.16
500.0	74.60	157.93	316.0	32.81
1000.0	83.03	102.19	317.0	33.66
1500.0	78.06	69.49	318.0	34.75
2000.0	60.78	56.04	319.0	35.97
2250.0	54.90	51.86	320.0	37.24

### +RoHS Compliant

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



### Notes

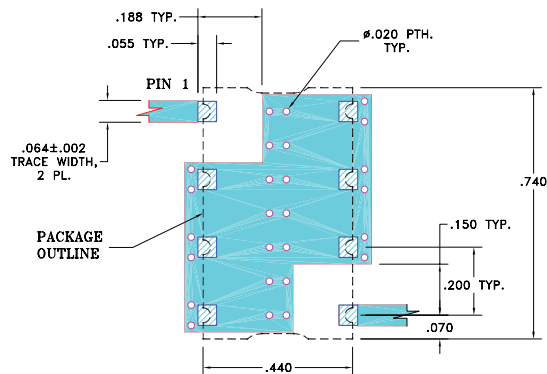
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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)



## 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)

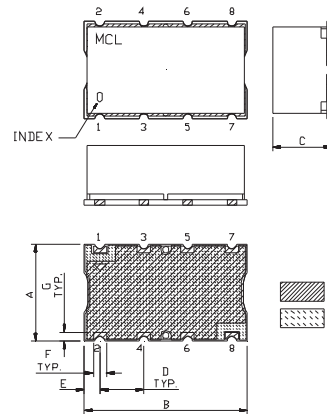


### NOTE:

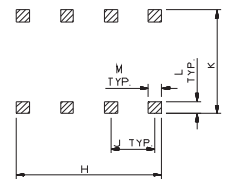
- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS: .025"±.002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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	

### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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)