



# THE DATASHEET OF BPF-C670+



# Surface Mount Bandpass Filter

## BPF-C670+

50Ω 470 to 870 MHz

### The Big Deal

- Wide passband
- Good VSWR (1.4:1 typical)
- High rejection (50 dB typical)
- Flat group delay (4 ns typical)
- Sharp roll-off
- Miniature shielded package



CASE STYLE: HU1186

### Product Overview

The BPF-C670+ is a band pass filter fabricated using SMT technology and built into a shielded case (size of 0.87" x 0.80" x .25"). Covering 670 MHz  $\pm$  200 MHz band width, this model is suited for Digital TV application. 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
Sharp shape factor, 1.1	Sharp shape factor helps in adjacent channel rejection and hence increased selectivity.
Good VSWR, 1.4:1 over passband	This provides well matched input and output ports.
More than 50 dB rejection up to 2100MHz	This enables the filter to attenuate spurious signals and reject harmonics for broad band of frequency.
Flat group delay characteristics.	This model has a group delay flatness of 4 ns 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)



# Bandpass Filter

## BPF-C670+

50Ω 470 to 870 MHz



CASE STYLE: HU1186

### Features

- High rejection, 50 dB typical
- Good VSWR, 1.4:1 typical over passband
- Sharp insertion loss roll-off
- Shielded case
- Aqueous washable

### Applications

- Digital TV
- Harmonic rejection
- Transmitters / receivers

### Electrical Specifications at 25°C

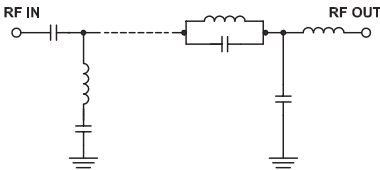
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Center Frequency	—	—	670	—	MHz	
	Insertion Loss	F1-F2	470 - 870	—	2.0	2.8	dB
	VSWR	F1-F2	470 - 870	—	1.4	1.8	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC - 365	20	40	—	dB
	VSWR	DC-F3	DC - 365	—	29	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	965 - 2700	20	30	—	dB
	VSWR	F4-F5	965 - 2700	—	18	—	:1

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.7W max.

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

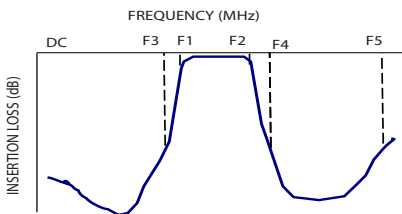
### Functional Schematic



### Typical Performance Data at 25°C

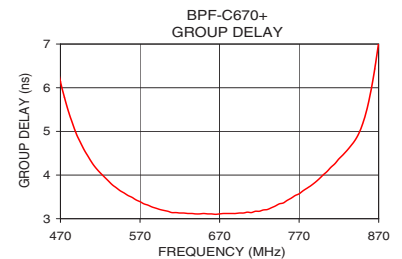
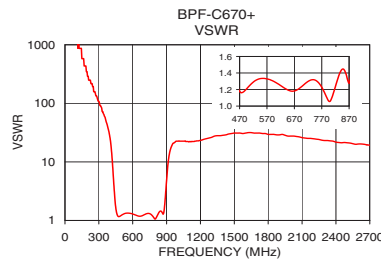
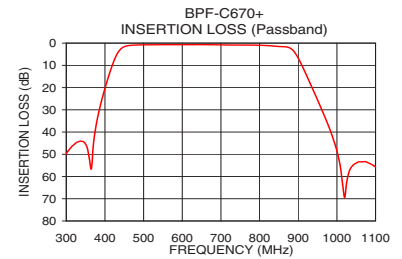
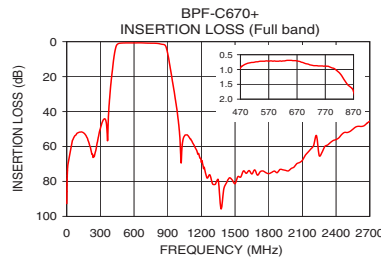
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
1.0	92.72	1737.18	470.0	6.14
50.0	56.79	5124.42	500.0	4.57
300.0	49.71	108.58	525.0	3.96
365.0	56.55	48.26	550.0	3.59
400.0	20.38	24.83	580.0	3.31
410.0	14.61	17.22	600.0	3.19
425.0	7.25	7.11	620.0	3.13
440.0	2.79	2.61	630.0	3.12
450.0	1.60	1.66	640.0	3.11
470.0	0.94	1.18	660.0	3.11
670.0	0.71	1.18	670.0	3.11
870.0	1.74	1.28	680.0	3.12
885.0	3.02	2.00	700.0	3.13
900.0	6.77	4.84	740.0	3.29
920.0	13.98	12.01	760.0	3.47
965.0	31.63	20.95	780.0	3.70
1010.0	56.87	22.87	800.0	4.00
1500.0	81.29	31.03	840.0	4.79
2000.0	72.59	27.59	850.0	5.18
2700.0	45.58	19.32	870.0	7.04

### Typical Frequency Response



### +RoHS Compliant

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



### Notes

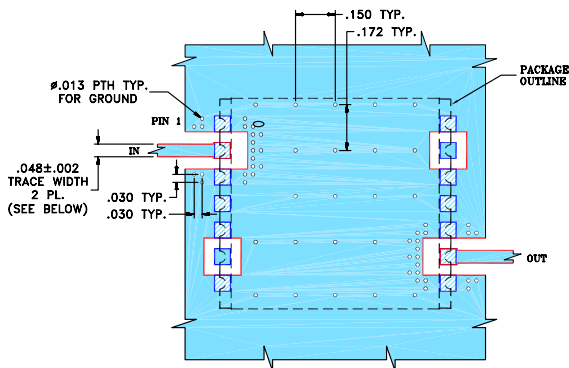
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## Pad Connections

INPUT	2
OUTPUT	9
NOT CONNECTED	6,13
GROUND	1,3,4,5,7,8,10,11,12,14

**Demo Board MCL P/N: TB-500+**  
**Suggested PCB Layout (PL-294)**

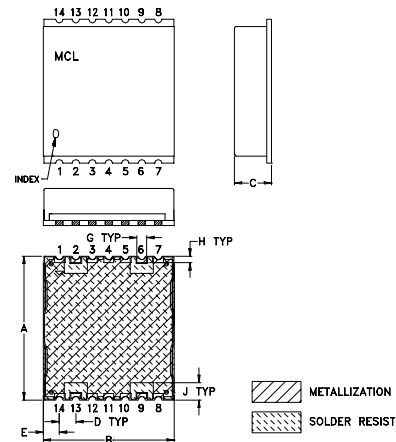


**NOTES:**

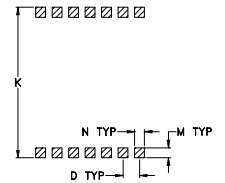
- TRACE WIDTH IS SHOWN FOR ROGERS R04350B.  
 DIELECTRIC THICKNESS: .030" ± .002";  
 COPPER: 1/2 OZ ON EACH SIDE.  
 FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- 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

## Outline Dimensions ( inch / mm)

A	B	C	D	E	F	G	H
.870	.800	.25	.100	.097	--	.060	.040
22.10	20.32	6.35	2.54	2.46	--	1.52	1.02
J	K	L	M	N	P	wt	
.105	.910	--	.060	.060	--	grams	
2.67	23.11	--	1.52	1.52	--	2.85	

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