

# LTCC Bandpass Filter

**BFCN-1152+**

50Ω      11160 to 11970 MHz

## The Big Deal

- Small size 3.2mm x 1.6mm
- Pass band (11000-12000 MHz)
- Very high rejection over wide band



CASE STYLE: FV1206-9

## Product Overview

The BFCN-1152+ LTCC Band Pass Filter achieves a miniature size and high repeatability of performance. Wrap-around terminations minimize variations in performance due to parasitics. Covering 11160 to 11970 MHz, these units offer excellent rejection over a wide stopband.

## Key Features

| Feature                            | Advantages  |
|------------------------------------|---|
| Small Size (3.20mm x1.6 mm)        | Allows for high layout density of circuit boards, while minimizing effects of parasitics.                                   |
| Rejection peaks close to pass band | Provides good rejection of signals close to the pass band, for improved system performance.                                 |
| Wide stopband                      | No regrowth at 2nd harmonic permits filter to be used in presence of wideband undesired signals.                            |
| LTCC construction                  | Provides a rugged package that is well suited for tough environments including high humidity and high temperature extremes. |

Ceramic

# Bandpass Filter

50Ω

11160 to 11970 MHz

## Features

- Small size
- Temperature stable
- Hermetically sealed
- LTCC construction

## Applications

- Harmonic Rejection
- Transmitters / Receivers

**BFCN-1152+**



Generic photo used for illustration purposes only

CASE STYLE: FV1206-9

**+RoHS Compliant**

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



Available Tape and Reel  
at no extra cost

| Reel Size | Devices/Reel                      |
|-----------|-----------------------------------|
| 7"        | 20, 50, 100, 200, 500, 1000, 3000 |

## Electrical Specifications<sup>(1,2)</sup> at 25°C

| Parameter        | F#               | Frequency (MHz) | Min. | Typ.  | Max. | Unit |
|------------------|------------------|-----------------|------|-------|------|------|
| Pass Band        | Center Frequency | —               | —    | 11540 | —    | MHz  |
|                  | Insertion Loss   | F1-F2           | —    | 5.0   | 7    | dB   |
|                  | VSWR             | F1-F2           | —    | 1.65  | —    | :1   |
|                  | Insertion Loss   | —               | —    | 4     | —    | dB   |
| Stop Band, Lower | Insertion Loss   | DC-F3           | 35   | 50    | —    | dB   |
|                  | VSWR             | DC-F3           | —    | 20    | —    | :1   |
| Stop Band, Upper | Insertion Loss   | F4-F5           | 25   | 35    | —    | dB   |
|                  | —                | F5-F6           | 15   | 25    | —    | dB   |
|                  | VSWR             | F4-F6           | —    | 10    | —    | :1   |

1. Measured on Mini-Circuits Characterization Test Board TB-1003+ with feedline losses removed by normalization of S12 and S21 traces to measurement of TB thru-line.

2. This filter is not intended for use as a DC Blocking circuit element. In Application where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

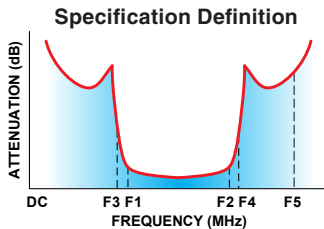
## Maximum Ratings

|                       |                 |
|-----------------------|-----------------|
| Operating Temperature | -55°C to +100°C |
| Storage Temperature   | -55°C to +100°C |
| RF Power Input*       | 2W at 25°C      |

\*Passband rating, derate linearly to 0.5W at 100°C ambient  
Permanent damage may occur if any of these limits are exceeded.

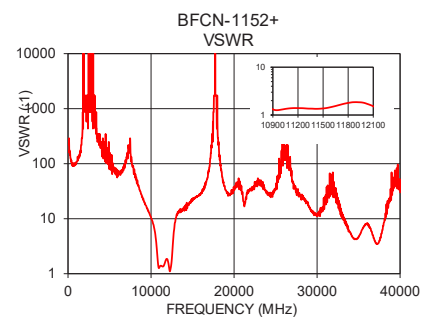
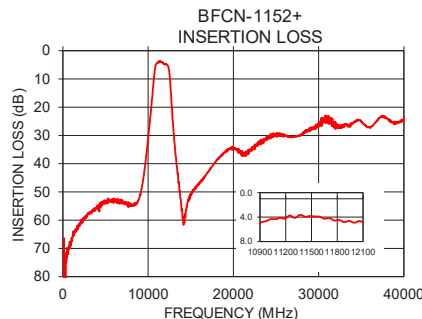
## Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 1000            | 67.38               | 108.58    |
| 5000            | 54.08               | 86.86     |
| 9000            | 51.69               | 23.49     |
| 10000           | 31.18               | 10.56     |
| 10600           | 12.50               | 4.02      |
| 10800           | 6.48                | 1.79      |
| 11550           | 3.91                | 1.41      |
| 11800           | 4.50                | 1.79      |
| 12600           | 11.62               | 2.99      |
| 13000           | 29.17               | 10.37     |
| 17000           | 42.95               | 82.73     |
| 25000           | 30.09               | 36.20     |
| 32000           | 25.63               | 42.38     |
| 36000           | 27.21               | 8.23      |
| 40000           | 23.94               | 29.96     |



## Pad Connections

|        |   |
|--------|---|
| Input  | 1 |
| Output | 3 |
| Ground | 2 |



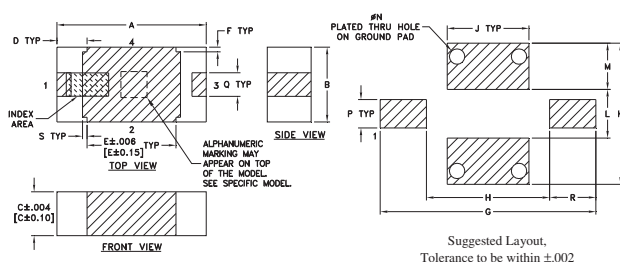
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M168340  
BFCN-1152+  
BK/CP/AM  
190726  
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# Bandpass Filter

# BFCN-1152+

## Outline Drawing



## Pad Connections

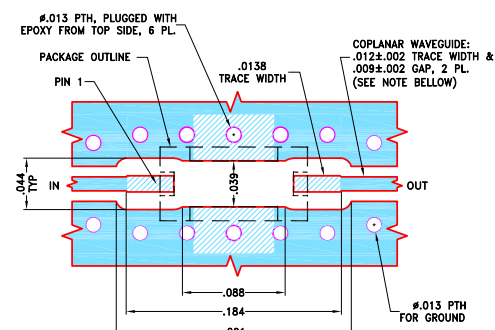
|        |   |
|--------|---|
| Input  | 1 |
| Output | 3 |
| Ground | 2 |



Product Marking: JP

## Outline Dimensions ( $\frac{\text{inch}}{\text{mm}}$ )

|       |       |      |      |      |      |      |      |       |
|-------|-------|------|------|------|------|------|------|-------|
| A     | B     | C    | D    | E    | F    | G    | H    | J     |
| .126  | .063  | .037 | .026 | .075 | .004 | .182 | .104 | .069  |
| 3.20  | 1.60  | 0.94 | 0.66 | 1.91 | 0.10 | 4.62 | 2.64 | 1.753 |
| K     | L     | M    | N    | P    | Q    | R    | S    | wt    |
| 0.119 | 0.041 | .039 | .013 | .024 | .020 | .039 | .004 | grams |
| 3.023 | 1.041 | 0.99 | 0.33 | 0.61 | 0.51 | 0.99 | 0.10 | .020  |

## Demo Board MCL P/N: TB- 1003+ Suggested PCB Layout (PL-610)



- NOTES:
1. TRACE WIDTH AND GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066"  $\pm$  .0007". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
  3. UNIT LAND PATTERN WAS OPTIMIZED FOR BETTER PERFORMANCE.
-  DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).  
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

## Additional 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.
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