

Ceramic

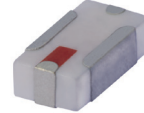
# Bandpass Filter

**BFCN-3700+**

50Ω    3000 to 4600 MHz

## The Big Deal

- LTCC construction
- Temperature stable from -55 to +100°C
- Small size (0.126 x .063 X .037")



CASE STYLE: FV1206-4

## Product Overview

The BFCN-3700+ LTCC bandpass filter covers the 3000 to 4600 MHz passband with 1.9 dB passband insertion loss and 28 dB lower stopband rejection, and 24 dB upper stopband rejection. This model handles up to 2.5W RF input power and provides a wide operating temperature range from -55 to +100°C. Utilizing LTCC multi-layer construction, the filter achieves excellent repeatability of performance and comes in a tiny 1206 ceramic package with wraparound terminations, minimizing performance variations due to parasitics and saving space in dense PCB layouts.

## Key Features

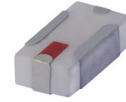
| Feature   | Advantages   |
|---|--|
| LTCC Construction                               | Provides a rugged package well suited for tough environments such as high humidity and temperature extremes. |
| Tiny size (0.126 x .063 x .037")                | Saves space in dense circuit boards and minimizes the effects of parasitics.                                 |
| Wrap-around terminations                        | Provides excellent solderability and easy visual inspection  |
| Wide operating temperature range, -55 to +100°C | Enables reliable performance in extreme environments   |



# Ceramic Bandpass Filter

50Ω 3000 to 4600 MHz

## BFCN-3700+



Generic photo used for illustration purposes only

CASE STYLE: FV1206-4

### Features

- Small size(0.126 x .063 x .037)
- Temperature stable
- LTCC construction

### Applications

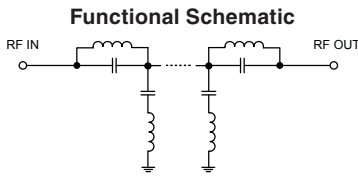
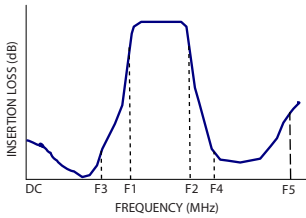
- Harmonic rejection
- Transmitters / Receivers

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

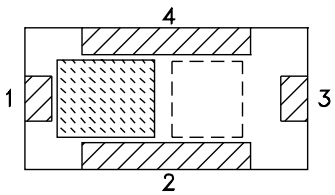
Available Tape and Reel at no extra cost

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

### Specification Definition



### Top View



### Pad Connections

|        |     |
|--------|-----|
| Input  | 1   |
| Output | 3   |
| Ground | 2,4 |

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

| Parameter        | F#               | Frequency (MHz) | Min.        | Typ. | Max. | Unit |
|------------------|------------------|-----------------|-------------|------|------|------|
| Pass Band        | Center Frequency | —               | —           | 3700 | —    | MHz  |
|                  | Insertion Loss   | F1 - F2         | 3000 - 4600 | —    | 1.9  | dB   |
|                  | VSWR             | F1 - F2         | 3000 - 4600 | —    | 2.26 | :1   |
| Stop Band, Lower | Insertion Loss   | DC - F3         | 2100        | 21   | 28   | dB   |
|                  | VSWR             | DC - F3         | 2100        | —    | 23   | :1   |
| Stop Band, Upper | Insertion Loss   | F4 - F5         | 5600 - 8000 | 10   | 24   | dB   |
|                  | VSWR             | F4 - F5         | 5600 - 8000 | —    | 16   | :1   |

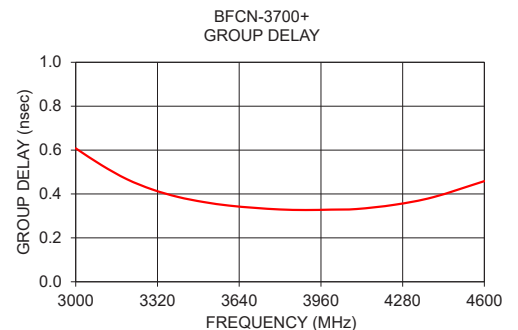
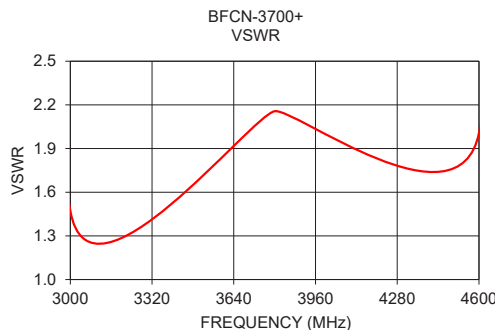
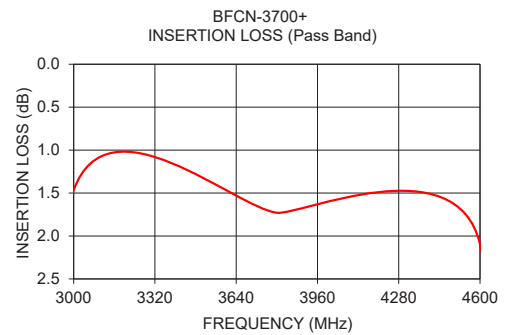
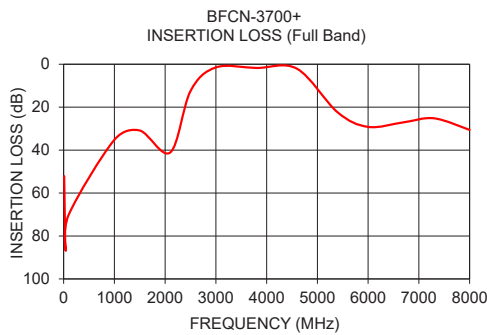
1. Measured on Mini-Circuits Characterization Test Board TB-824+.

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*       | 2.5 W at 25°C   |

\*Passband rating, derate linearly to 0.7 W at 100°C ambient  
Permanent damage may occur if any of these limits are exceeded.



### Full Band Performance

### Pass Band Performance

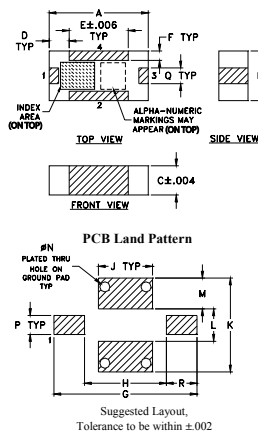
| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Insertion Loss (dB) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|---------------------|--------------------|
| 10              | 52.11               | 164.39    | 3000            | 1.47                | 0.61               |
| 40              | 86.34               | 64.21     | 3100            | 1.25                | 0.53               |
| 100             | 70.07               | 63.01     | 3200            | 1.22                | 0.47               |
| 1000            | 35.19               | 45.24     | 3300            | 1.26                | 0.42               |
| 1500            | 30.86               | 41.09     | 3400            | 1.34                | 0.39               |
| 2100            | 41.10               | 34.12     | 3500            | 1.43                | 0.36               |
| 2500            | 12.46               | 15.28     | 3600            | 1.53                | 0.35               |
| 3000            | 1.47                | 1.47      | 3700            | 1.64                | 0.34               |
| 3800            | 1.73                | 2.16      | 3800            | 1.73                | 0.33               |
| 4600            | 2.10                | 2.01      | 3900            | 1.84                | 0.33               |
| 5400            | 22.42               | 16.29     | 4000            | 1.92                | 0.33               |
| 6000            | 29.18               | 26.35     | 4100            | 2.00                | 0.33               |
| 6700            | 27.04               | 24.76     | 4250            | 2.08                | 0.35               |
| 7300            | 25.18               | 14.98     | 4400            | 2.11                | 0.39               |
| 8000            | 30.58               | 4.62      | 4600            | 2.10                | 0.46               |

### Pad Connections

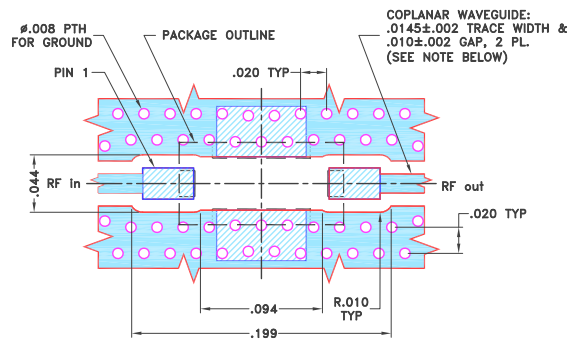
|        |     |
|--------|-----|
| Input  | 1   |
| Output | 3   |
| Ground | 2,4 |

### Product Marking: GP

### Outline Drawing



### Demo Board MCL P/N: TB-824+ Suggested PCB Layout (PL-454)



### NOTES:

- TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .0066" ± .0007". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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 Dimensions ( inch mm)

| A    | B    | C    | D    | E    | F    | G    | H    | J     |  |  |
|------|------|------|------|------|------|------|------|-------|--|--|
| .126 | .063 | .037 | .026 | .075 | .012 | .182 | .104 | .069  |  |  |
| 3.20 | 1.60 | 0.94 | 0.66 | 1.91 | 0.30 | 4.62 | 2.64 | 1.75  |  |  |
| K    | L    | M    | N    | P    | Q    | R    |      | wt    |  |  |
| .119 | .041 | .039 | .013 | .024 | .020 | .039 |      | grams |  |  |
| 3.02 | 1.04 | 0.99 | 0.33 | 0.61 | 0.51 | 0.99 |      | .020  |  |  |

### Additional 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.
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