

# Ceramic Bandpass Filter

## BFCG-552+

50Ω 5100 to 5930 MHz

### The Big Deal

- Rugged, ceramic construction
- Tiny size, 0.079" x 0.049" x 0.037" (0805)
- Good power handling



CASE STYLE: GE0805C-3

### Product Overview

Mini-Circuits' BFCG-552+ is a LTCC band pass filter with a passband from 5100 to 5930 MHz, supporting a variety of applications. This model provides 1.2 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0805 ceramic form factor with wrap-around terminations, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

### Key Features

| Feature                            | Advantages                                                                                                                                      |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Ultra-wide stopband                | The LTCC band pass filter provides a very good stopband rejection suitable for high end applications.                                           |
| LTCC Construction                  | Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes. |
| Tiny size (0.079 x 0.049 x 0.037") | Saves space in dense circuit board layouts and minimizes the effects of parasitics.                                                             |
| Good power handling                | Supports a wide range of system power requirements.                                                                                             |
| Wrap-around terminations           | Provides excellent solderability and easy visual inspection                                                                                     |

#### 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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50Ω 5100 to 5930 MHz

BFCG-552+



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-3

## Features

- Miniature size 0805 (0.079" [2.0mm] x 0.049" [1.25mm] x 0.037" [0.95mm])
- Low cost
- Aqueous washable

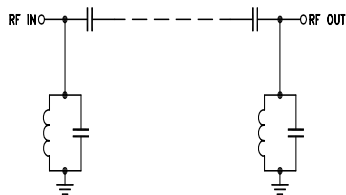
### +RoHS Compliant

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

## Applications

- ISM Band
- WLAN

## Functional Schematic



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

| Parameter        | F#               | Frequency (MHz) | Min.          | Typ. | Max. | Unit |
|------------------|------------------|-----------------|---------------|------|------|------|
| Pass Band        | Center Frequency | —               | —             | 5515 | —    | dB   |
|                  | Insertion Loss   | F1-F2           | 5100 - 5930   | —    | 1.2  | dB   |
|                  | Return Loss      | F1-F2           | 5100 - 5930   | —    | 12   | dB   |
| Stop Band, Lower | Insertion Loss   | DC-F3           | 10 - 3360     | 20   | 35   | dB   |
| Stop Band, Upper | Insertion Loss   | F4-F5           | 8770 - 11000  | 20   | 23   | —    |
|                  |                  | F5-F6           | 11000 - 15600 | 23   | 32   | dB   |

1. Tested on Evaluation Board TB-BFCG-552+

2. This Filter is not intended for use as DC Blocking circuits element. In Application where DC Voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF ports.

### Maximum Ratings

|                                  |                |
|----------------------------------|----------------|
| Operating Temperature            | -55°C to 125°C |
| Storage Temperature <sup>3</sup> | -55°C to 125°C |
| RF Power Input <sup>4</sup>      | 2W at 25°C     |

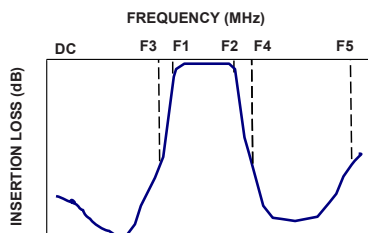
3. Refer to product storage temperature after installation.

Suggestion for T&R unused product storage condition +5 - +35°C.  
Humidity 45-75% RH, 12 month Max.

4. Derate linearly to 0.5W@125°C.

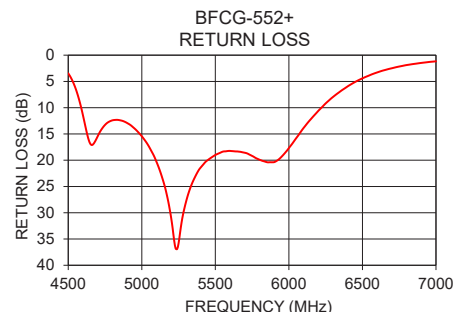
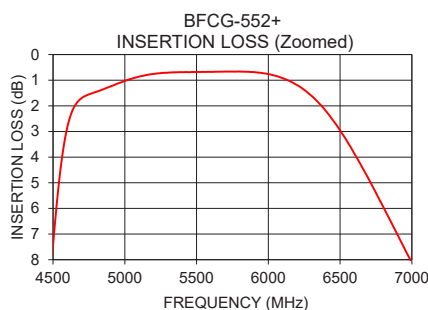
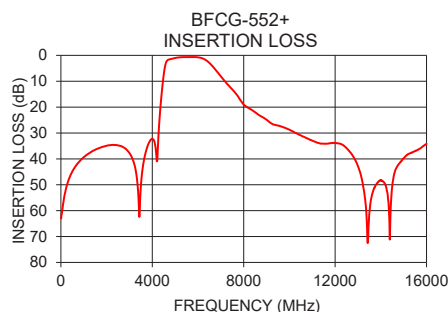
Permanent damage may occur if any of these limits exceeded.

## Typical Frequency Response



## Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10              | 63.06               | 0.07             |
| 1000            | 39.35               | 0.00             |
| 2000            | 34.93               | 0.00             |
| 3360            | 50.53               | 0.13             |
| 4000            | 32.25               | 0.32             |
| 5100            | 0.86                | 20.31            |
| 5930            | 0.70                | 19.87            |
| 7000            | 8.12                | 1.17             |
| 8770            | 23.60               | 0.38             |
| 10000           | 28.74               | 0.19             |
| 11000           | 32.94               | 0.22             |
| 12000           | 33.90               | 0.60             |
| 13000           | 42.81               | 0.68             |
| 14000           | 48.21               | 0.55             |
| 15000           | 39.77               | 0.54             |
| 15600           | 36.58               | 0.49             |



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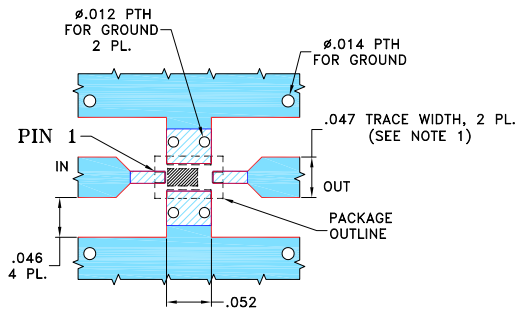
REV. A  
ECO-005628  
BFCG-552+  
RS/CP/AM  
210104  
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Pad Connections

|        |     |
|--------|-----|
| INPUT  | 1   |
| OUTPUT | 3   |
| GROUND | 2,4 |

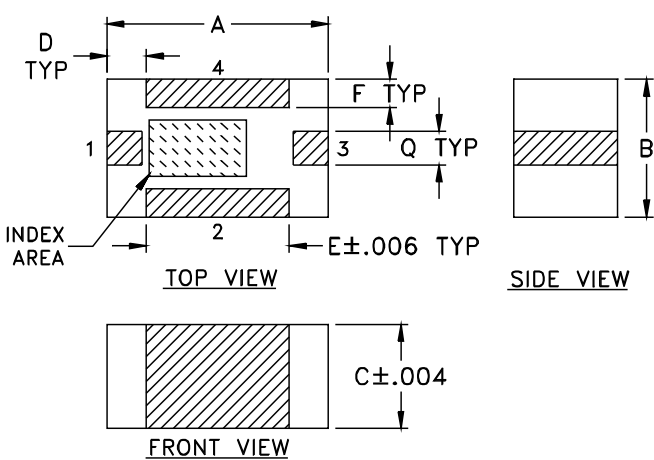
Product Marking: N/A

Evaluation Board MCL P/N: TB-BFCG-552+  
Suggested PCB Layout (PL-566)



- NOTES:
- TRACE WIDTH IS SHOWN FOR ROGERS R04233 WITH DIELECTRIC THICKNESS .020±.0015. 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 Drawing



Outline Dimensions ( inch mm )

| A    | B    | C    | D    | E    | F    | Q    | wt    |
|------|------|------|------|------|------|------|-------|
| .079 | .049 | .037 | .014 | .051 | .010 | .012 | grams |
| 2.01 | 1.24 | 0.94 | 0.36 | 1.30 | 0.25 | 0.30 | .020  |

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