



**THE DATASHEET OF  
LFCG-3000+**



# Ceramic Low Pass Filter

## LFCG-3000+

50Ω DC to 3000 MHz



Generic photo used for illustration purposes only  
CASE STYLE: GE0805C-2

### The Big Deal

- Very good rejection, 50 dB typical
- Rugged, ceramic construction
- Tiny size, 0.079 x 0.049 x 0.037" (0805)
- Excellent power handling, 4.5W

### Product Overview

Mini-Circuits' LFCG-3000+ is an LTCC low pass filter with a passband from DC to 3000 MHz, supporting a variety of applications. This model provides 1.1 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It handles up to 4.5W RF input power and provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0805 ceramic form factor with wraparound 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 lowpass filter provides a very good stopband rejection until 15 GHz 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.   |
| Excellent power handling, 4.5W     | 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.  
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)



# Low Pass Filter

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**+RoHS Compliant**

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

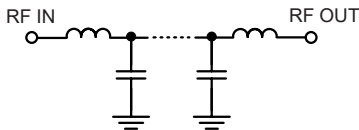
### Features

- Low loss, 1.1 dB typical
- High rejection 50 dB typical
- Excellent power handling, 4.5W
- Extremely small size 0805 (2.0 mm x 1.25 mm)
- Temperature stable
- LTCC construction

### Applications

- Harmonic Rejection
- VHF/UHF transmitters / receivers
- Military radar applications
- Test and measurement
- Telecommunications & broadband wireless applications

### Functional Schematic



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

| Parameter |                | F#    | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|-----------|----------------|-------|-----------------|------|------|------|------|
| Pass Band | Insertion Loss | DC-F1 | DC-3000         | —    | 1.1  | 2.2  | dB   |
|           | Freq. Cut-Off  | F2    | 3460            | —    | 3.0  | —    | dB   |
|           | Return Loss    | DC-F1 | DC-3000         | —    | 18   | —    | dB   |
| Stop Band | Rejection Loss | F3-F4 | 4550-4800       | 20   | 50   | —    | dB   |
|           |                | F4-F5 | 4800-7000       | 38   | 50   | —    | dB   |
|           |                | F5-F6 | 7000-11000      | —    | 30   | —    | dB   |
|           |                | F6-F7 | 11000-15000     | —    | 25   | —    | dB   |

1 In Applications where DC voltage and/or current is present at either input or output ports, DC de-coupling capacitors are required. If DC pass from IN-OUT is required, please contact Mini-Circuits for alternatives.

2 Measured on Mini-Circuits Characterization Test Board TB-799+

### Maximum Ratings

|                       |                 |
|-----------------------|-----------------|
| Operating Temperature | -55°C to 125°C  |
| Storage Temperature   | -55°C to 125°C  |
| RF Power Input*       | 4.5W max. @25°C |

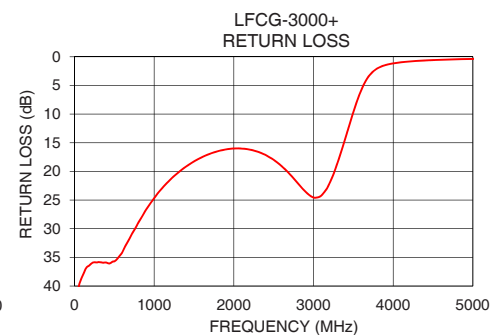
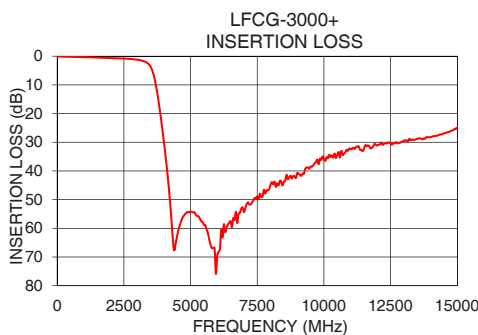
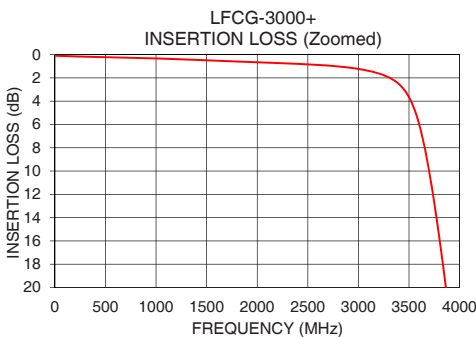
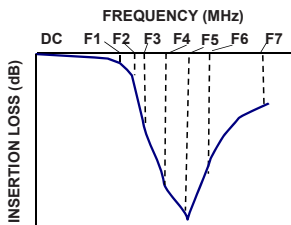
\*Passband rating, derate linearly to 1W at 125°C ambient

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

### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10              | 0.10                | 44.32            |
| 100             | 0.12                | 38.27            |
| 1000            | 0.33                | 24.69            |
| 1400            | 0.45                | 19.16            |
| 1800            | 0.59                | 16.47            |
| 2020            | 0.67                | 16.00            |
| 2500            | 0.84                | 17.98            |
| 2600            | 0.88                | 19.09            |
| 3000            | 1.23                | 24.56            |
| 3460            | 3.10                | 11.45            |
| 3480            | 3.35                | 10.56            |
| 3900            | 22.39               | 1.46             |
| 4030            | 32.10               | 1.09             |
| 4550            | 60.43               | 0.55             |
| 4800            | 54.97               | 0.44             |
| 7000            | 54.31               | 0.16             |
| 9000            | 40.72               | 0.21             |
| 11000           | 32.42               | 0.34             |
| 12000           | 31.15               | 0.32             |
| 15000           | 24.85               | 0.63             |

### Typical Frequency Response



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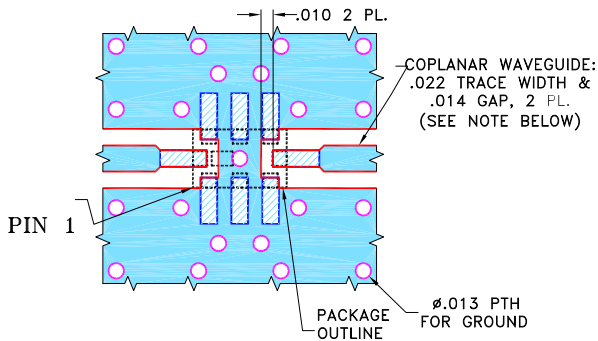


## Pad Connections

|        |             |
|--------|-------------|
| INPUT  | 8           |
| OUTPUT | 4           |
| GROUND | 1,2,3,5,6,7 |

Product Marking: LK

Demo Board MCL P/N: TB-799+  
Suggested PCB Layout (PL-429)

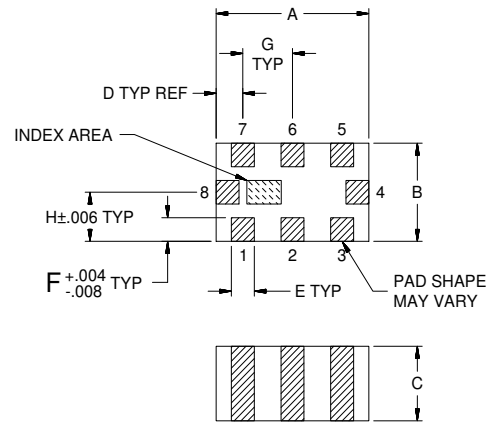


### NOTES:

1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS  $.010" \pm .001"$ . 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.

- 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    | G    | Wt.   |
|------|------|------|------|------|------|------|-------|
| .079 | .049 | .037 | .014 | .012 | .012 | .026 | grams |
| 2.00 | 1.25 | 0.95 | 0.35 | 0.30 | 0.30 | 0.65 | .008  |

Note: Please refer to case style drawing for details

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