

# Ceramic Low Pass Filter

## LFCG-630+

50Ω DC to 630 MHz



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

### The Big Deal

- Very good rejection, 45 dB typical
- Rugged, ceramic construction
- Tiny size, 0.079" x 0.049" x 0.037" (0805)
- Good power handling, 3.5W

### Product Overview

Mini-Circuits' LFCG-630+ is an LTCC low pass filter with a passband from DC to 630 MHz, supporting a variety of applications. This model provides 1.6 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 3.5W 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 8.5 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.                                                             |
| Good power handling, 3.5W            | 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)



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

### Features

- Low loss, 1.6 dB typical
- High rejection 45 dB typical
- Good power handling, 3.5W
- Extremely small size 0805 (2.0mm x 1.25mm)
- Temperature stable
- LTCC construction

### Applications

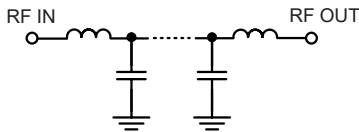
- Harmonic Rejection
- VHF/UHF transmitters / receivers
- Military radar applications
- Test and measurement
- Telecommunications & broadband wireless applications
- Satcom modems

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

| Parameter | F#             | Frequency (MHz) | Min.        | Typ. | Max. | Unit |    |
|-----------|----------------|-----------------|-------------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1           | DC - 630    | —    | 1.6  | 2.1  | dB |
|           | Freq. Cut-Off  | F2              | 780         | —    | 3.0  | —    | dB |
|           | Return Loss    | DC-F1           | DC - 630    | —    | 14   | —    | dB |
| Stop Band | Rejection Loss | F3-F4           | 1050 - 1500 | 20   | 50   | —    | dB |
|           |                | F4-F5           | 1500 - 3800 | 35   | 48   | —    | dB |
|           |                | F5-F6           | 3800 - 8500 | —    | 15   | —    | dB |
|           |                |                 |             |      |      |      |    |

1. DC de-coupling capacitors are required in Applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for alternatives if DC pass from IN-OUT is required.  
2. Measured on Mini-Circuits Characterization Test Board TB-799+

### Functional Schematic



### Maximum Ratings

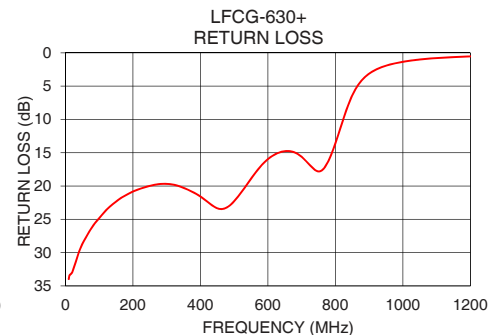
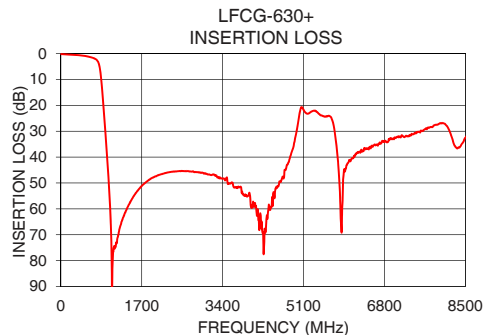
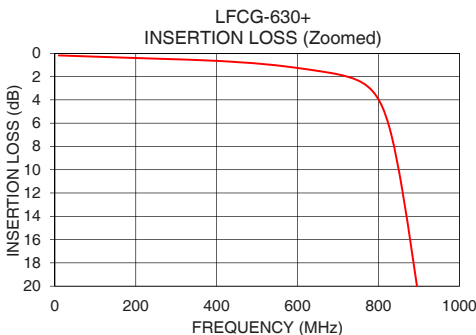
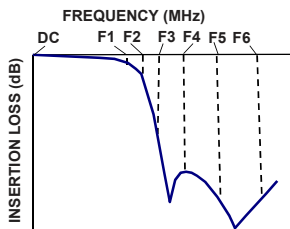
|                       |                 |
|-----------------------|-----------------|
| Operating Temperature | -55°C to 125°C  |
| Storage Temperature   | -55°C to 125°C  |
| RF Power Input*       | 3.5W max. @25°C |

\*Passband rating, derate linearly to 0.8W 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              | 0.19                | 33.98            |
| 100             | 0.29                | 24.85            |
| 500             | 0.88                | 22.28            |
| 600             | 1.26                | 15.96            |
| 630             | 1.41                | 15.04            |
| 780             | 3.06                | 16.17            |
| 800             | 3.96                | 13.60            |
| 915             | 24.90               | 2.66             |
| 960             | 36.30               | 1.78             |
| 1000            | 47.33               | 1.34             |
| 1050            | 65.39               | 1.00             |
| 1500            | 56.03               | 0.27             |
| 2000            | 47.44               | 0.18             |
| 2400            | 45.57               | 0.16             |
| 3000            | 46.34               | 0.14             |
| 3800            | 53.83               | 0.15             |
| 4000            | 59.54               | 0.15             |
| 5000            | 24.87               | 0.88             |
| 7000            | 33.08               | 0.48             |
| 8500            | 32.50               | 2.15             |

### Typical Frequency Response



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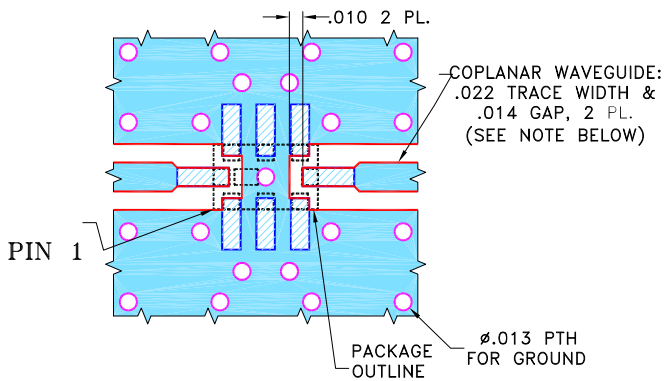


## Pad Connections

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

## Product Marking: LR

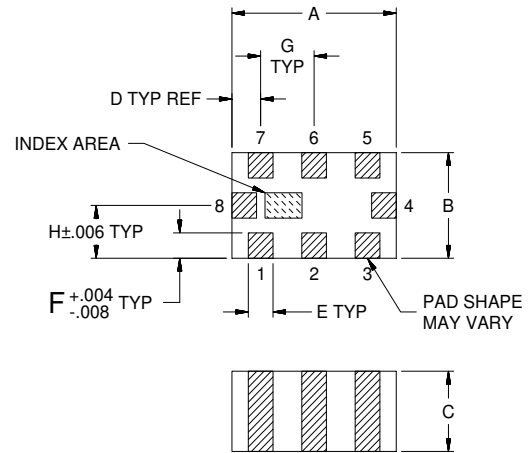
**Demo Board MCL P/N: TB-799+**  
**Suggested PCB Layout (PL-429)**



### NOTES:

- COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010" ± .001". 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    | 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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