

# Ceramic Low Pass Filter

## LFCG-1700+

50Ω DC to 1700 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, 5.5W

### Product Overview

Mini-Circuits' LFCG-1700+ is an LTCC low pass filter with a passband from DC to 1700 MHz, supporting a variety of applications. This model provides 0.9 dB passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It handles up to 5.5W RF input power and provides a wide operating temperature range from -55°C 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  |
|---|---|
| Very good stopband rejection, 50 dB typical | The LTCC lowpass filter provides a very good stopband rejection until 13 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, 5.5W              | 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.  
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## LFCG-1700+



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**+RoHS Compliant**

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

### Features

- Low loss, 0.9 dB typical
- High rejection 50 dB typical
- Excellent power handling, 5.5W
- Extremely small size 0805 (2.0mm x 1.25mm)
- Temperature stable
- LTCC construction

### Applications

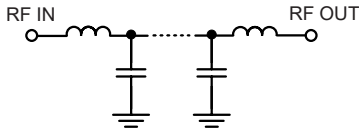
- Harmonic Rejection
- VHF/UHF transmitters / receivers
- Lab use

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

| Parameter | F#             | Frequency (MHz) | Min.       | Typ. | Max. | Unit |    |
|-----------|----------------|-----------------|------------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1           | DC-1700    | —    | 0.9  | 1.8  | dB |
|           | Freq. Cut-Off  | F2              | 2025       | —    | 3.0  | —    | dB |
|           | Return Loss    | DC-F1           | DC-1700    | —    | 18   | —    | dB |
| Stop Band | Rejection Loss | F3-F4           | 2400-2800  | 20   | 30   | —    | dB |
|           |                | F4-F5           | 2800-8000  | 35   | 50   | —    | dB |
|           |                | F5-F6           | 8000-13000 | —    | 35   | —    | dB |

<sup>1</sup> 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.  
<sup>2</sup> Measured on Mini-Circuits Characterization Test Board TB-799+

### Functional Schematic



### Maximum Ratings

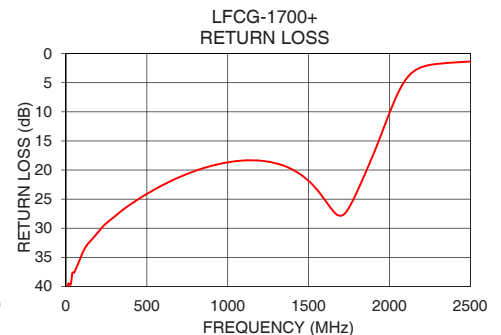
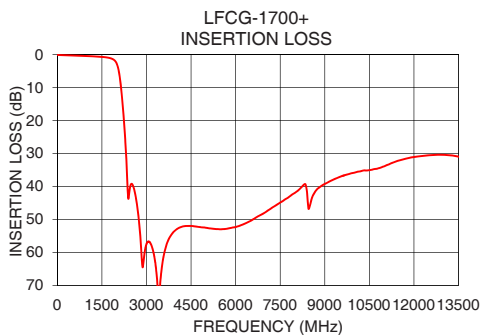
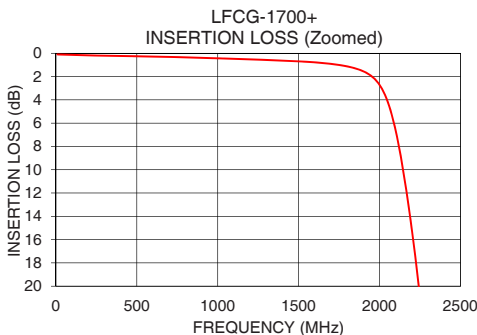
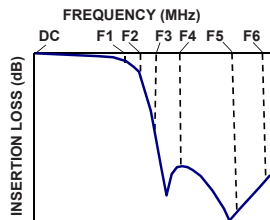
|                       |                 |
|-----------------------|-----------------|
| Operating Temperature | -55°C to 125°C  |
| Storage Temperature   | -55°C to 125°C  |
| RF Power Input*       | 5.5W max. @25°C |

\*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                | 40.69            |
| 100             | 0.14                | 34.39            |
| 1000            | 0.43                | 18.66            |
| 1700            | 0.91                | 27.84            |
| 2025            | 3.33                | 8.44             |
| 2180            | 13.23               | 2.52             |
| 2245            | 20.38               | 1.96             |
| 2315            | 30.42               | 1.70             |
| 2400            | 43.51               | 1.52             |
| 2500            | 39.17               | 1.35             |
| 2750            | 50.67               | 1.00             |
| 2800            | 55.91               | 0.95             |
| 4000            | 53.07               | 0.34             |
| 5000            | 52.51               | 0.18             |
| 8000            | 41.89               | 0.30             |
| 10000           | 35.78               | 0.31             |
| 11000           | 33.88               | 0.26             |
| 12000           | 31.05               | 0.23             |
| 12500           | 30.53               | 0.23             |
| 13000           | 30.38               | 0.26             |

### Typical Frequency Response



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ECO-007606  
LFCG-1700+  
EDU2886  
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## Pad Connections

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

## Product Marking: KE

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

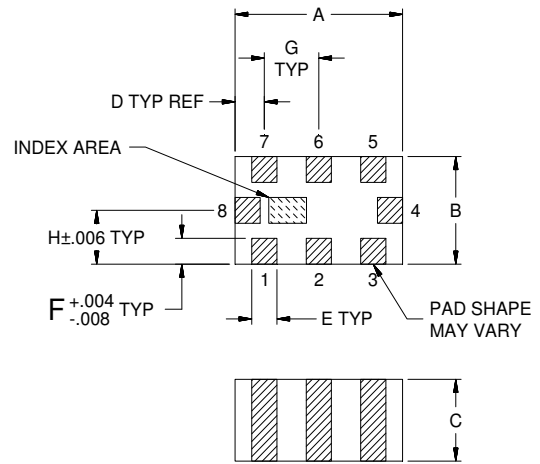


### NOTES:

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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