

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



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+RoHS Compliant

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

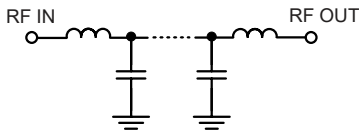
Features

- 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^{1,2} 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 |

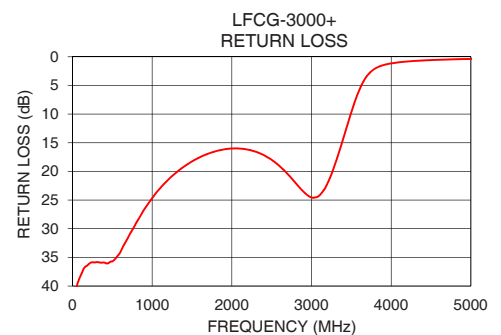
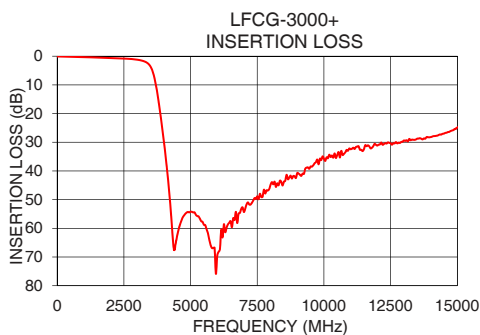
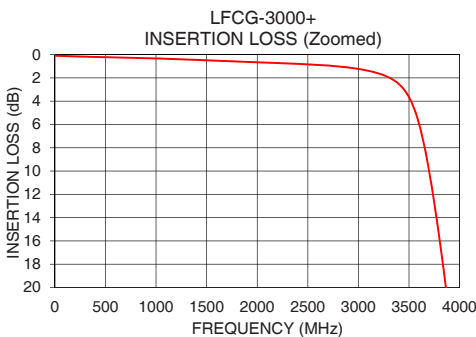
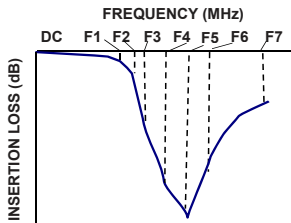
*Passband rating, derate linearly to 1W at 125°C ambient

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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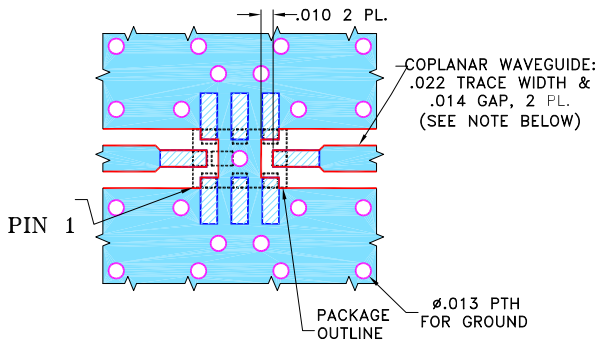


Pad Connections

| | |
|--------|-------------|
| 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)

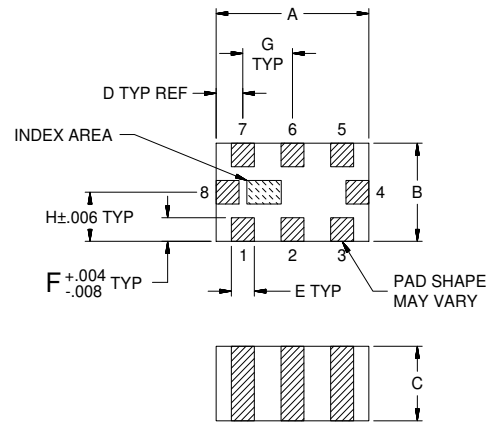


NOTES:

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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