Ceramic Low Pass Filter
LFCG-320+

50Ω  DC to 320 MHz

The Big Deal
• Good rejection, 35 dB typical
• Rugged, ceramic construction
• Tiny size, 0.079 x 0.049 x 0.037” (0805)
• Excellent power handling, 5 W

Product Overview
Mini-Circuits’ LFCG-320+ is an LTCC low pass filter with a passband from DC to 320 MHz, supporting a variety of applications. This model provides 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 5 W RF input power and provides a wide operating temperature range from -40°C to 85°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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good stopband rejection, 35 dB typical</td>
<td>The LTCC lowpass filter provides a good stopband rejection suitable for high end applications.</td>
</tr>
<tr>
<td>LTCC Construction</td>
<td>Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.</td>
</tr>
<tr>
<td>Tiny size (0.079 x 0.049 x 0.037”)</td>
<td>Saves space in dense circuit board layouts and minimizes the effects of parasitics.</td>
</tr>
<tr>
<td>High power handling, 5 W</td>
<td>Supports a wide range of system power requirements.</td>
</tr>
<tr>
<td>Wrap-around terminations</td>
<td>Provides excellent solderability and easy visual inspection</td>
</tr>
</tbody>
</table>
Ceramic
Low Pass Filter

50Ω DC to 320 MHz

Features
• Low loss, 1dB typical
• High rejection 35 dB typical
• Excellent power handling, 5 W
• Extremely small size 0805 (2.0 x 1.25 mm)
• Temperature stable
• LTCC construction

Applications
• Harmonic Rejection
• VHF/UHF transmitters / receivers
• RF suppression for DC lines on PCB
• Anti-aliasing for A/D converter

Functional Schematic

Electrical Specifications at 25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>F#</th>
<th>Frequency (MHz)</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass Band</td>
<td>DC-F1</td>
<td>DC - 320</td>
<td>—</td>
<td>1.0</td>
<td>1.7</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>F2</td>
<td>440</td>
<td>—</td>
<td>3.0</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>DC-F1</td>
<td>DC - 320</td>
<td>—</td>
<td>1.2</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td>Stop Band</td>
<td>F3-F4</td>
<td>660 - 2000</td>
<td>25</td>
<td>33</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>F4-F5</td>
<td>2000 - 6000</td>
<td>20</td>
<td>20</td>
<td>—</td>
<td>dB</td>
</tr>
<tr>
<td></td>
<td>F5-F5</td>
<td>660 - 6000</td>
<td>20</td>
<td>—</td>
<td>—</td>
<td>dB</td>
</tr>
</tbody>
</table>

1. In Application where DC voltage is present at either input or output port, coupling capacitors are required.
2. Measured on Mini-Circuits Characterization Test Board TB-799+

Typical Frequency Response

Maximum Ratings

-40°C to 85°C
-55°C to 100°C
5 W max. 85°C ambient

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

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-Circuits’ 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

www.minicircuits.com  P.O. Box 330166, Brooklyn, NY 11235-0003  (718) 934-4500  sales@minicircuits.com
Low Pass Filter

Pad Connections

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

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

Outline Drawing

PCB Land Pattern

Suggested Layout, Tolerance to be within ±0.002

Notes

1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS ROASSIB WITH DIELECTRIC THICKNESS .015" ± .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.

Dimensions are in inches (mm). Tolerances: ±0.002

Outline Dimensions (inch)

A  B   C  D   E   F   G
.079 .049 .037 .014 .012 .012 .026
2.00 1.25 0.95 0.35 0.30 0.30 0.65

H   J   K   L   M   Wt.
.025 .134 .110 .014 .039 grams
0.63 3.40 2.80 0.35 1.00 .008

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-Circuit’s 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-Circuit’s website at www.minicircuits.com/MCLStore/terms.jsp