



# THE DATASHEET OF LFCG-400+



# Ceramic Low Pass Filter

## LFCG-400+

50Ω DC to 400 MHz



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

### The Big Deal

- Good rejection, 30 dB typical
- Rugged, ceramic construction
- Tiny size, 0.079" x 0.049" x 0.037" (0805)
- Excellent power handling, 3.5W

### Product Overview

Mini-Circuits' LFCG-400+ is an LTCC low pass filter with a passband from DC to 400 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 3.5W 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
Good stopband rejection, 30 dB typical	The LTCC lowpass filter provides a good stopband rejection 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.
High 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, 1dB typical
- High rejection 30 dB typical
- Excellent power handling, 3.5W
- Extremely small size 0805 (2.0mm x 1.25mm)
- Temperature stable
- LTCC construction

### Applications

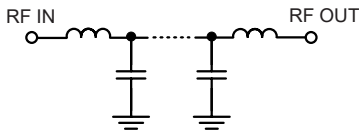
- Harmonic Rejection
- VHF/UHF transmitters / receivers
- RF suppression for DC lines on PCB
- Anti-aliasing for A/D converter

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

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC - 400	—	1.0	1.8	dB
	Freq. Cut-Off	F2	520	—	3.0	—	dB
	Return Loss	DC-F1	DC - 400	—	18	—	dB
Stop Band	Rejection Loss	F3-F4	800 - 2500	25	30	—	dB
		F4-F5	2500 - 4500	—	20	—	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

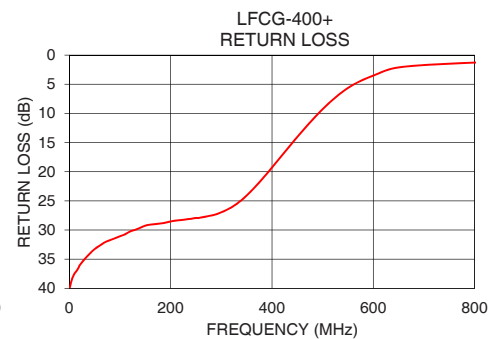
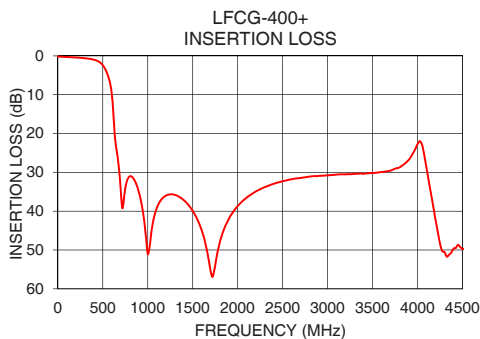
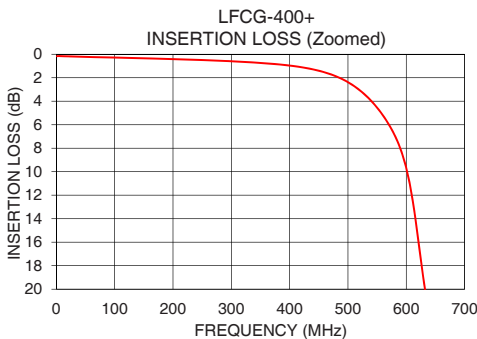
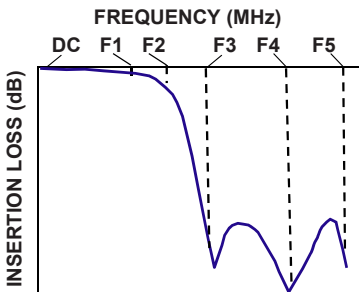
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	3.5W max. @25°C

\*Passband rating, derate linearly to 0.6W 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)
1	0.17	39.85
50	0.22	33.26
100	0.28	31.06
200	0.41	28.53
400	0.96	19.28
500	2.38	9.27
520	3.05	7.65
600	9.68	3.52
635	20.85	2.36
685	30.11	1.80
800	31.03	1.28
900	34.94	0.97
1000	51.02	0.73
1500	39.92	0.31
2000	38.68	0.22
2500	32.28	0.19
3000	30.77	0.17
3500	30.20	0.16
4000	22.73	0.43
4500	49.74	0.17

### Typical Frequency Response



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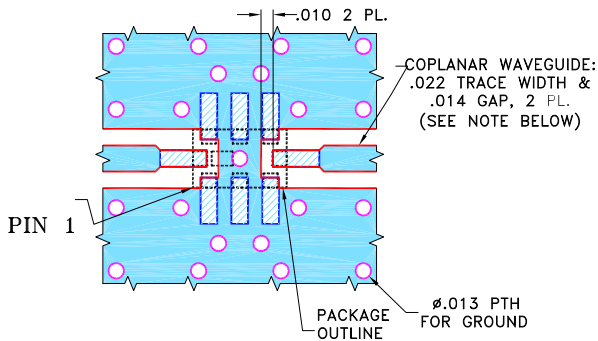
REV. A  
ECO-007606  
LFCG-400+  
EDU3065  
URJ  
210426  
Page 2 of 3

## Pad Connections

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

## Product Marking: KP

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

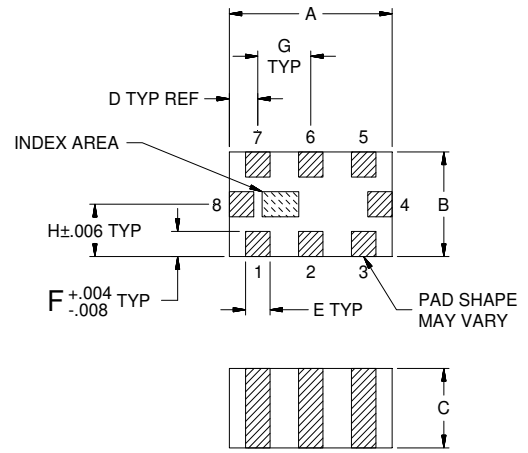


### NOTES:

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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