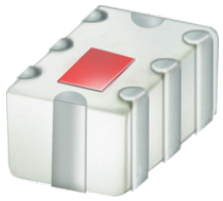
Ceramic

Low Pass Filter

LFCG-400+

50Ω DC to 400 MHz



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, 5 W

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 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

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, 5 W	Supports a wide range of system power requirements.
Wrap-around terminations	Provides excellent solderability and easy visual inspection

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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, 5 W
- Extremely small size 0805 (2.0 x 1.25 mm)
- Temperature stable
- LTCC construction

Applications

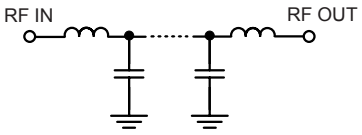
- Harmonic Rejection
- VHF/UHF transmitters / receivers
- RF suppression for DC lines on PCB
- Anti-aliasing for A/D converter

Electrical Specifications[1,2] 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
	VSWR	DC-F1	DC - 400	—	1.3	—	:1
Stop Band	Rejection Loss	F3-F4	800 - 2500	25	30	—	dB
		F4-F5	2500 - 4500	—	20	—	dB
	VSWR	F3-F5	800 - 4500	—	20	—	:1

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+

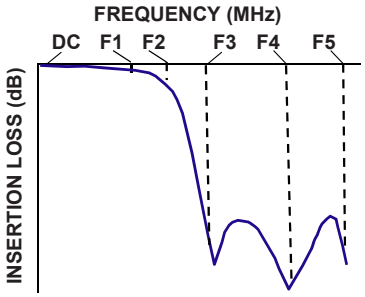
Functional Schematic



Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input*	5 W max.@25°C

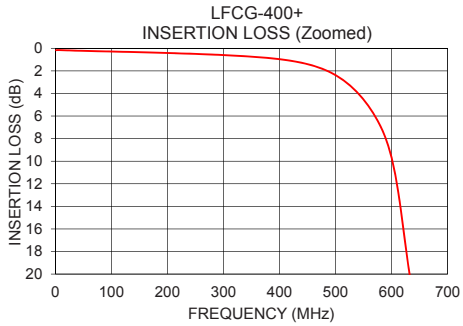
*Passband rating, derate linearly to 2.5 W at 85°C ambient
Permanent damage may occur if any of these limits are exceeded.

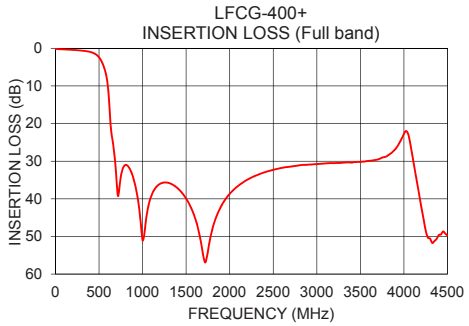
Typical Frequency Response

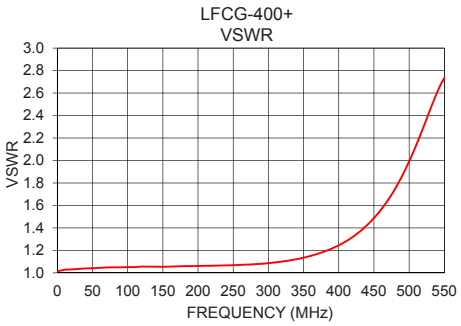


Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1	0.17	1.02
50	0.22	1.04
100	0.28	1.05
200	0.41	1.06
400	0.96	1.25
500	2.38	1.99
520	3.05	2.29
600	9.68	1.59
635	20.85	3.50
685	30.11	10.30
800	31.03	17.21
900	34.94	20.42
1000	51.02	23.46
1500	39.92	39.98
2000	38.68	55.62
2500	32.28	68.33
3000	30.77	75.61
3500	30.20	76.64
4000	22.73	19.69
4500	49.74	75.54





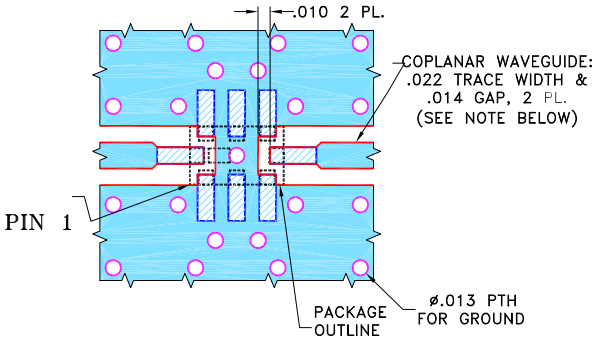


Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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

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)



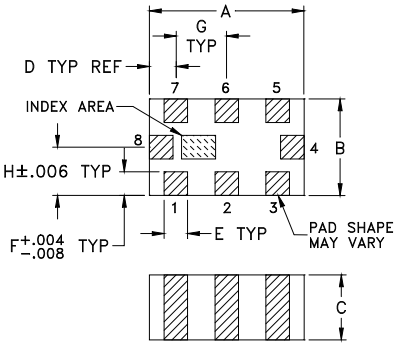
NOTES:

1. COPLANAR WAVEGUIDE IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .010" ± .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.

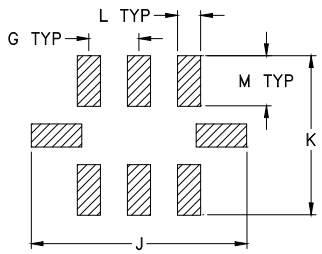
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Outline Drawing



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

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