

Ceramic

# Low Pass Filter

LFCG-3800+

50Ω

DC to 3900 MHz

## 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



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-2

## Product Overview

Mini-Circuits' LFCG-3800+ is an LTCC low pass filter with a passband from DC to 3900 MHz, supporting a variety of applications. This model provides 1.3 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 18 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](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

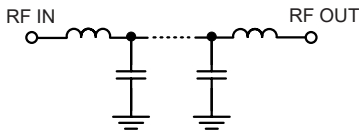
## Features

- Low loss, 1.3 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
- Public safety communication
- Satcom modems

## Functional Schematic



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

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 3900	—	1.3	1.8	dB
	Freq. Cut-Off	F2	5000	—	3.0	—	dB
	Return Loss	DC-F1	DC - 3900	—	14	—	dB
Stop Band	Rejection Loss	F3-F4	5800 - 6200	20	40	—	dB
		F4-F5	6200 - 8400	35	42	—	dB
		F5-F6	8400 - 12000	25	48	—	dB
		F6-F7	12000 - 18000	—	20	—	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+

## Maximum Ratings

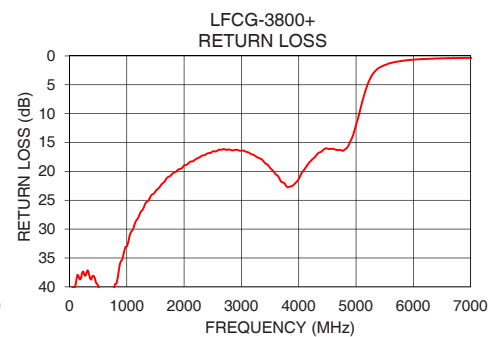
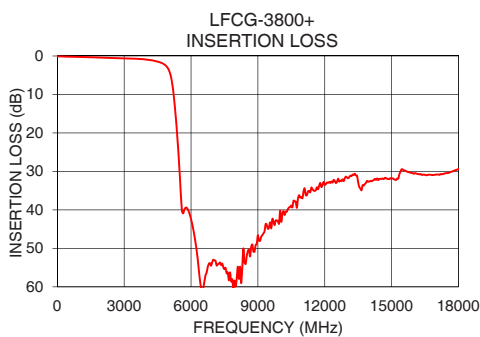
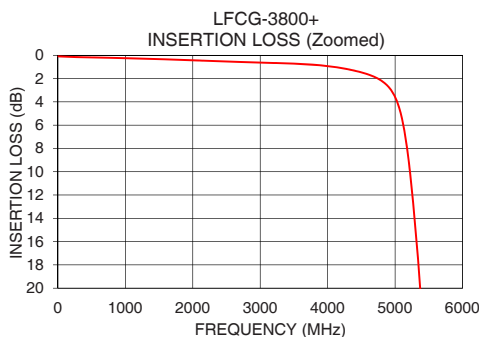
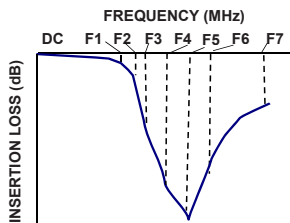
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	4.5W max. @25°C

\*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	0.09	46.99
100	0.12	39.94
500	0.18	39.75
1000	0.25	32.99
1500	0.33	23.47
3800	0.82	22.72
3900	0.87	22.44
5000	3.58	11.97
5380	20.59	2.19
5490	30.36	1.61
5800	39.45	0.86
6000	42.37	0.66
6200	48.44	0.53
8000	59.93	0.42
8400	53.65	0.49
9000	46.61	0.64
10000	40.21	0.83
12000	33.47	0.74
15000	31.92	0.37
18000	29.42	0.77

## Typical Frequency Response



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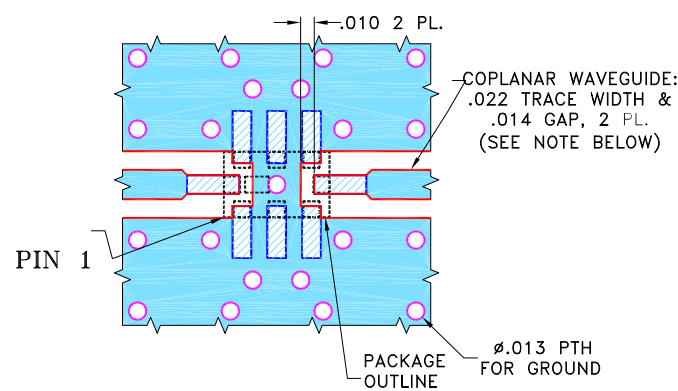
[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 [sales@minicircuits.com](mailto:sales@minicircuits.com)

Pad Connections

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

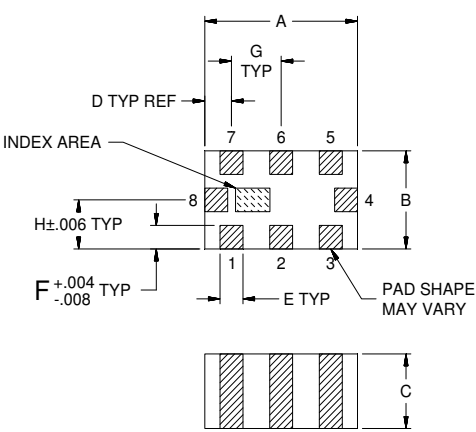
Product Marking: LS

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



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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