

# Ceramic High Pass Filter

## HFCG-3000+

50Ω      3400 to 13000 MHz



Generic photo used for illustration purposes only  
CASE STYLE: GE0805C-9

### The Big Deal

- Small size 2.0 mm x 1.25 mm
- High Power handling
- Ceramic construction

### Product Overview

HFCG-3000+ is a high pass filter with passband from 3400 MHz to 13000 MHz supporting a variety of applications. This model provides 1.0 dB typical insertion loss over a wide band due to strategically constructed layout. Housed in a tiny 0805 ceramic form factor with wraparound terminations, the filter is ideal for dense PCB layouts with minimal performance variation due to parasitics.

### Key Features

Feature	Advantages
Small size, 2.0 mm x 1.25 mm	Accommodates tight space requirements for dense PCB layouts.
Wrap around termination	Provides excellent solderability and easy visual inspection capability.
LTCC construction	Provides a rugged package that is well suited for tough environments including high humidity and high temperature extremes.
Ultra-wide pass band	This filter has a very wide passband from 3.4 GHz to 13 GHz.

#### 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

- Small size
- Temperature stable
- LTCC construction
- Very good power handling, 4W

### Applications

- Transmitters / Receivers
- Test and measurements
- Military applications
- Telecommunications and broadband wireless systems

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

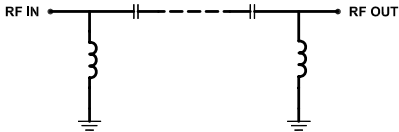
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	Rejection Loss	DC-F1	DC-2350	20	30	-	dB
	Freq. Cut-Off	F2 *	3000	-	3.0	-	dB
Pass Band	Insertion loss	F3-F4	3400-4000	-	2.0	2.8	dB
		F4-F5	4000-11000	-	1.0	1.9	dB
	Return Loss	F5-F6	11000-13000	-	1.4	-	dB
	Return Loss	F3-F6	3000-13000	-	15	-	dB

<sup>1</sup> This component is not intended to act as a DC block. Please consult with Mini-Circuits for further details

<sup>2</sup> Measured on Mini-Circuits Characterization Test Board TB-1104+

\* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

### Functional Schematic



### Maximum Ratings

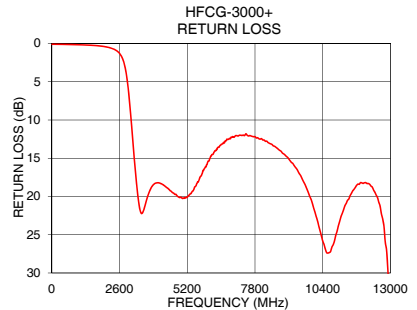
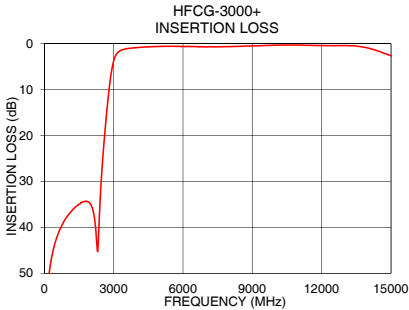
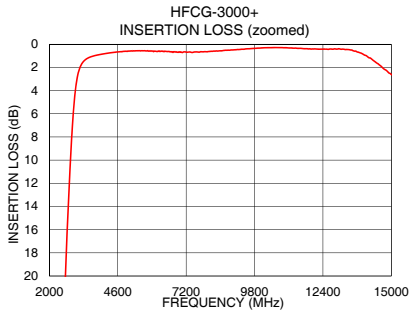
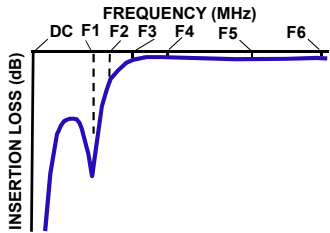
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	4W at 25°C

\*Passband rating, derate linearly to 0.7W 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	63.36	0.11
100	56.19	0.10
500	42.86	0.12
900	38.30	0.15
1100	36.92	0.17
2350	41.43	0.70
2400	35.55	0.78
2460	30.01	0.89
2600	20.44	1.30
2780	10.93	2.65
3000	3.76	8.22
3400	1.28	21.95
4000	0.86	18.24
4900	0.61	20.13
5300	0.57	19.71
8000	0.65	12.50
8200	0.61	12.79
11000	0.30	23.82
12000	0.41	18.20
13000	0.39	41.83

### Typical Frequency Response



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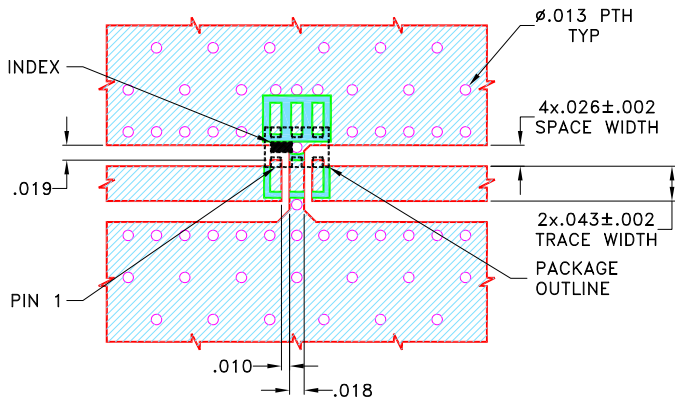
REV. B  
ECO-012606  
HFCG-3000+  
EDU3416  
URJ  
220402  
Page 2 of 3

## Pad Connections

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

Product Marking: LM

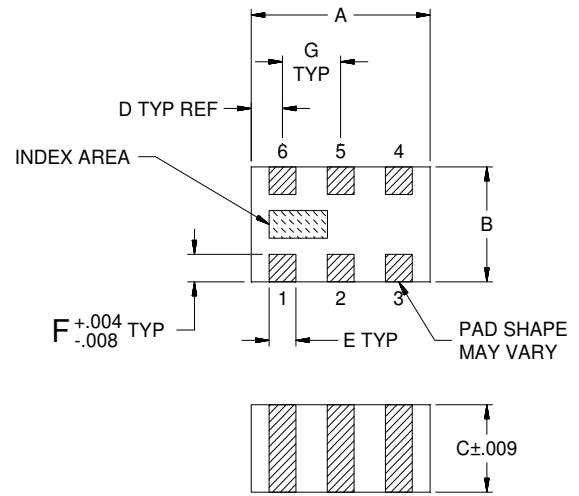
Demo Board MCL P/N: TB-1104+  
Suggested PCB Layout (PL-633)



### NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS (R04350B) WITH DIELECTRIC THICKNESS .020±.0015. 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 PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
▨ DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

## 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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