

# LTCC High Pass Filter

**HFCN-1080+**

50Ω      1140 to 4240 MHz

## The Big Deal

- Small size 3.2mm x 1.6mm
- Pass band (1140-4240 MHz)
- Low Insertion Loss (2.0 dB typical)
- Sharp rejection peaks close to stop band



CASE STYLE: FV1206

## Product Overview

The HFCN-1080+ LTCC High Pass Filter is constructed with 12 layers in order to achieve a miniature size and high repeatability of performance. Wrap-around terminations minimize variations in performance due to parasitics. Covering 1140-4240 MHz, these units offer low insertion loss and good rejection.

## Key Features

Feature	Advantages
Small Size (3.20mm x 1.6 mm)	Allows for high layout density of circuit boards, while minimizing affects of parasitics.
Rejection peaks at harmonic frequencies	Provides good rejection of signals at harmonic frequencies, for improved system performance.
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.

### 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)



# Ceramic High Pass Filter

50Ω 1140 to 4240 MHz

## HFCN-1080+



CASE STYLE: FV1206

### Maximum Ratings

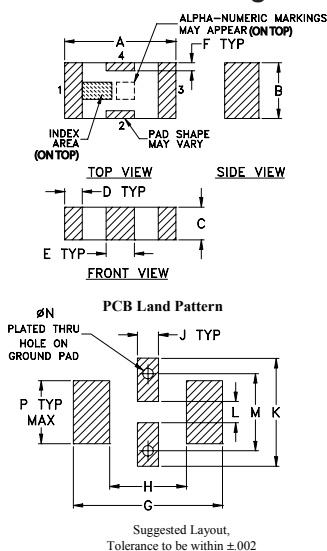
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	7W max. at 25°C

\* Passband rating, derate linearly to 3W at 100°C ambient.  
Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

RF IN	1
RF OUT	3
GROUND	2,4

### Outline Drawing



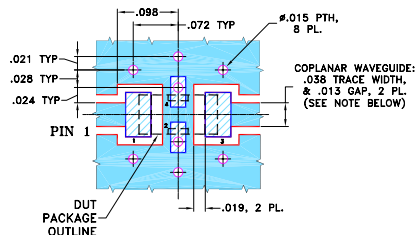
### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.126	.063	.037	.020	.032	.009	.169
3.20	1.60	0.94	0.51	0.81	0.23	4.29

H	J	K	L	M	N	P	wt
.087	.024	.122	.024	.087	.012	.071	grams
2.21	0.61	3.10	0.61	2.21	0.30	1.80	.020

### Demo Board MCL P/N: TB-270 Suggested PCB Layout (PL-137)



NOTES: 1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH THICKNESS .020" ± .0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & 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

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### Features

- low cost
- small size
- 7 sections
- temperature stable
- excellent power handling, 7W
- hermetically sealed

### Applications

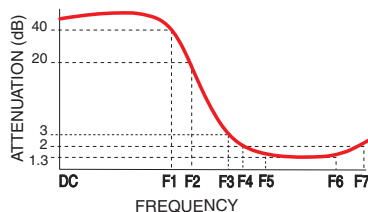
- sub-harmonic rejection
- transmitters/receivers
- lab use

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

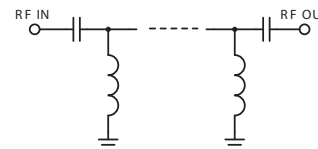
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Stop Band	Rejection Loss	DC-F1	DC-600	40	—	—	dB
		F1-F2	DC-700	20	—	—	dB
	Freq. Cut-Off	F3	1080	—	3.0	—	dB
	VSWR	DC-F2	DC-780	—	20	—	:1
Pass Band	Insertion Loss	F4-F7	1140-4240	—	—	2.0	dB
		F5-F6	1250-3730	—	—	1.4	dB
	VSWR	F4-F7	1140-4240	—	2.0	—	:1

(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.  
(2) Measured on Mini-Circuits Characterization Test Board TB-270.

### Typical Frequency Response



### Electrical Schematic



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
10.0	94.10	0.00
600.0	49.17	66.82
700.0	37.65	48.26
780.0	29.42	36.20
1080.0	3.02	2.68
1140.0	1.49	1.46
1190.0	1.08	1.13
3010.0	0.35	1.05
4240.0	1.18	2.33
4600.0	1.64	2.88

