

# LTCC High Pass Filter

## HFCN-1000+

50Ω      1080 to 4000 MHz

### The Big Deal

- Small size 3.2mm x 1.6mm
- Pass band (1080-4000 MHz)
- Low Insertion Loss (2.0 dB typical)
- Sharp rejection peaks close to stop band



CASE STYLE: FV1206

### Product Overview

The HFCN-1000+ 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 1080-4000 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 1080 to 4000 MHz

## HFCN-1000+



Generic photo used for illustration purposes only  
CASE STYLE: FV1206

**+RoHS Compliant**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



Available Tape and Reel at no extra cost

| Reel Size | Devices/Reel                      |
|-----------|-----------------------------------|
| 7"        | 20, 50, 100, 200, 500, 1000, 3000 |

### Maximum Ratings

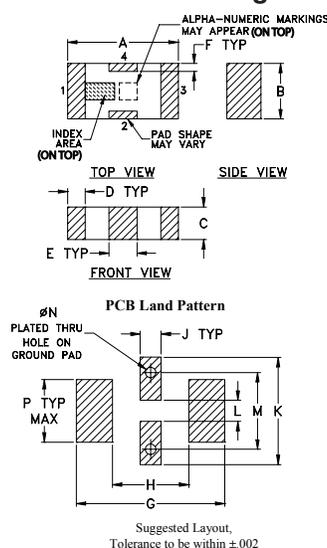
|                       |                 |
|-----------------------|-----------------|
| Operating Temperature | -55°C to 100°C  |
| Storage Temperature   | -55°C to 100°C  |
| RF Power Input*       | 7W max. at 25°C |

\* 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 |

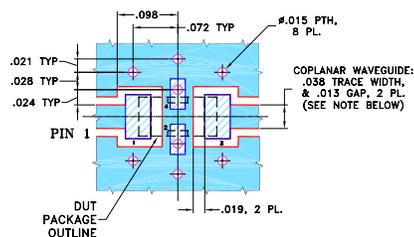
### Outline Drawing



### 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
- dc block in/out, breakdown voltage, 1kV typ.
- excellent power handling, 7W
- hermetically sealed

### Applications

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

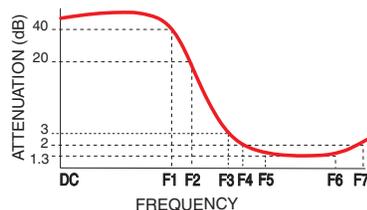
### Electrical Specifications<sup>(1,2)</sup> at 25°C

| Parameter | F#             | Frequency (MHz) | Min.      | Typ. | Max. | Unit |
|-----------|----------------|-----------------|-----------|------|------|------|
| Stop Band | Rejection Loss | DC-F1           | DC-570    | 40   | —    | dB   |
|           |                | F1-F2           | DC-740    | 20   | —    | dB   |
|           | Freq. Cut-Off  | F3              | 1000      | —    | 3.0  | dB   |
|           | VSWR           | DC-F2           | DC-740    | —    | 20   | :1   |
| Pass Band | Insertion Loss | F4-F7           | 1080-4000 | —    | —    | dB   |
|           |                | F5-F6           | 1150-3700 | —    | —    | dB   |
|           | VSWR           | F4-F7           | 1080-4000 | —    | 1.5  | :1   |

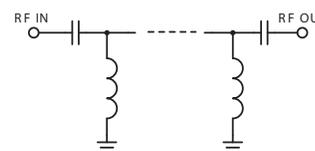
(1) In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

(2) Measured on Mini-Circuits Characterization Test Board TB-270.

### Typical Frequency Response

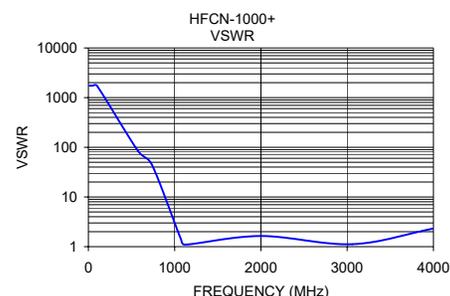
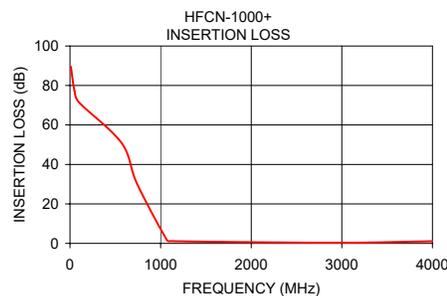


### Electrical Schematic



### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 10.0            | 89.53               | 1737.18   |
| 50.0            | 77.22               | 1737.18   |
| 100.0           | 71.42               | 1737.18   |
| 570.0           | 50.83               | 86.86     |
| 740.0           | 30.15               | 43.44     |
| 1070.0          | 1.65                | 1.45      |
| 1120.0          | 1.14                | 1.10      |
| 2000.0          | 0.62                | 1.64      |
| 3060.0          | 0.33                | 1.12      |
| 4000.0          | 1.12                | 2.32      |



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Page 2 of 2