



CERAMIC

# High Pass Filter

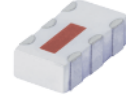
## HFCN-7971+

Mini-Circuits

50Ω 8560 to 12800 MHz

### THE BIG DEAL

- Small size
- Temperature stable
- Excellent power handling, 7W
- Hermetically sealed
- Low cost
- LTCC construction
- Protected by US Patent 7,760,485



Generic photo used for illustration purposes only

CASE STYLE: FV1206-1

### +RoHS Compliant

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

### APPLICATIONS

- Sub-harmonic rejection
- Transmitters/receivers
- Point-to-point radio

### ELECTRICAL SPECIFICATIONS<sup>1,2</sup> AT 25°C

| Parameter | F#             | Frequency (MHz) | Min.       | Typ. | Max. | Units |    |
|-----------|----------------|-----------------|------------|------|------|-------|----|
| Stop Band | Rejection Loss | DC-F1           | DC-5500    | 25   | 30   | —     | dB |
|           |                | F1-F2           | 5500-6945  | 17   | 22   | —     |    |
|           | Freq. Cut-Off  | F3              | 8000       | —    | 3.4  | —     | dB |
|           | VSWR           | DC-F2           | DC-6945    | —    | 40   | —     | :1 |
| Pass Band | Insertion Loss | F4-F7           | 8560-12800 | —    | 1.4  | 4.0   | dB |
|           |                | F5-F6           | 9975-12350 | —    | 1.0  | 2.0   | dB |
|           | VSWR           | F4-F7           | 8560-12800 | —    | 1.7  | —     | :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-285+.

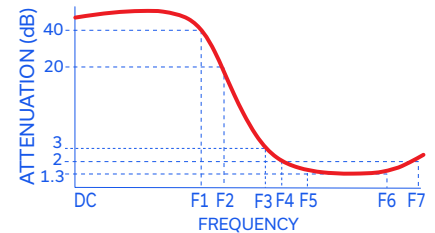
### MAXIMUM RATINGS

| Parameter                   | Ratings         |
|-----------------------------|-----------------|
| Operating temperature       | -55°C to +100°C |
| Storage temperature         | -55°C to +100°C |
| RF Power Input <sup>3</sup> | 7W max. at 25°C |

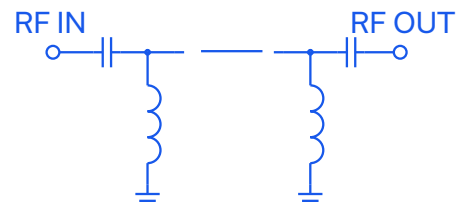
3. Passband rating, derate linearly to 3W at 100°C ambient.

Permanent damage may occur if any of these limits are exceeded.

### TYPICAL FREQUENCY RESPONSE



### FUNCTIONAL SCHEMATIC



Mini-Circuits



CERAMIC

# High Pass Filter

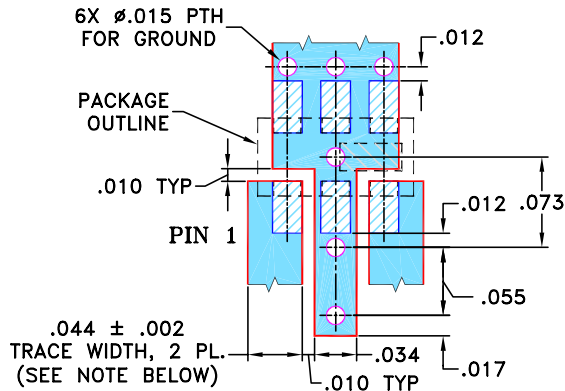
## HFCN-7971+

### PIN CONNECTIONS

|        |         |
|--------|---------|
| RF IN  | 1       |
| RF OUT | 3       |
| GROUND | 2,4,5,6 |

PRODUCT MARKING: FW

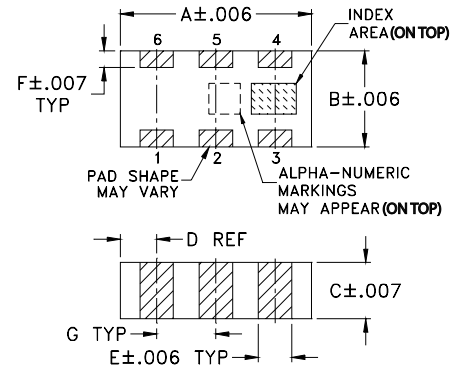
DEMO BOARD MCL P/N: TB-285+  
SUGGESTED PCB LAYOUT (PL-158)



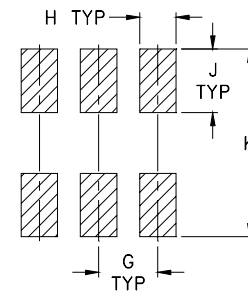
- NOTE:** 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS:  $.020 \pm .0015$ ; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT
- DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

### OUTLINE DRAWING



### PCB Land Pattern



Suggested Layout,  
Tolerance to be within  $\pm .002$

### OUTLINE DIMENSIONS (Inches/mm)

| A    | B    | C    | D    | E     | F    |
|------|------|------|------|-------|------|
| .126 | .063 | .035 | .024 | .022  | .011 |
| 3.20 | 1.60 | 0.89 | 0.61 | 0.56  | 0.28 |
| G    | H    | J    | K    | wt    |      |
| .039 | .024 | .042 | .123 | grams |      |
| 0.99 | 0.61 | 1.07 | 3.12 | .020  |      |

### TAPE & REEL INFORMATION: F75



CERAMIC

# High Pass Filter

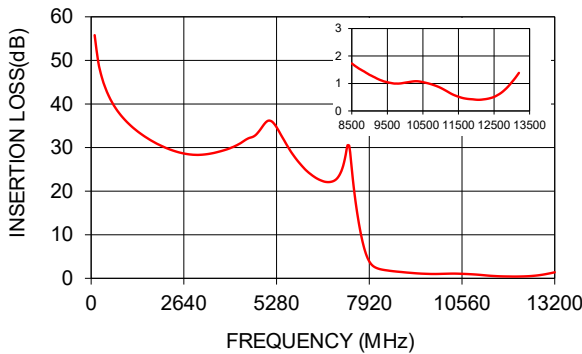
## HFCN-7971+

Mini-Circuits

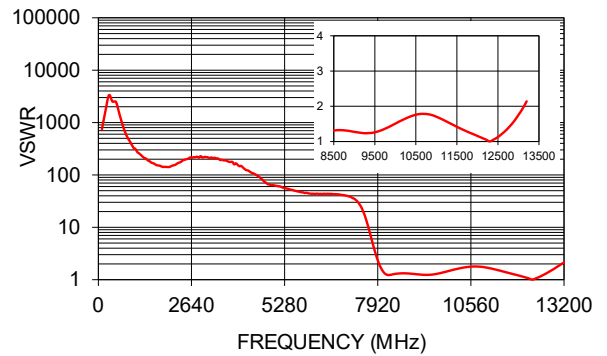
### TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR :1 |
|-----------------|---------------------|---------|
| 100             | 56.76               | 435.00  |
| 500             | 42.89               | 487.79  |
| 1000            | 37.15               | 591.02  |
| 2700            | 31.94               | 156.03  |
| 3000            | 32.72               | 134.81  |
| 4400            | 35.68               | 69.56   |
| 5500            | 29.76               | 35.88   |
| 6000            | 11.10               | 10.02   |
| 6700            | 2.14                | 1.97    |
| 7550            | 1.41                | 1.65    |
| 9100            | 1.07                | 1.53    |
| 9700            | 1.11                | 1.89    |
| 11500           | 0.43                | 1.13    |
| 13000           | 1.76                | 2.36    |
| 15000           | 4.35                | 3.90    |
| 16500           | 2.73                | 3.34    |
| 17000           | 1.77                | 1.81    |
| 17100           | 1.77                | 1.52    |

HFCN-7971+  
INSERTION LOSS



HFCN-7971+  
VSWR



#### 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)

