

Ceramic

# Low Pass Filter

## LFCN-490

50Ω DC<sup>(1)</sup> to 490 MHz



Generic photo used for illustration purposes only

CASE STYLE: FV1206

### Maximum Ratings

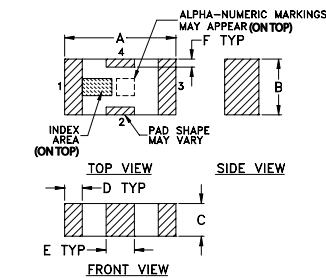
|                       |                   |
|-----------------------|-------------------|
| Operating Temperature | -55°C to 100°C    |
| Storage Temperature   | -55°C to 100°C    |
| RF Power Input*       | 8.5W max. at 25°C |

\* Passband rating, derate linearly to 3.5W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

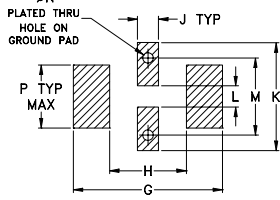
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern

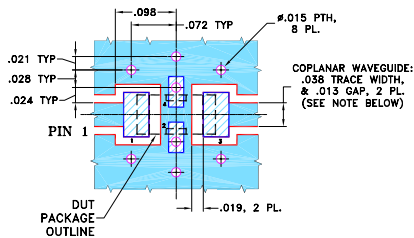


Suggested Layout, Tolerance to be within ±0.02

### 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

### Features

- excellent power handling, 8.5W
- small size
- 7 sections
- temperature stable
- LTCC construction
- protected by U.S. Patent 6,943,646

### Applications

- harmonic rejection
- VHF/UHF transmitters/receivers

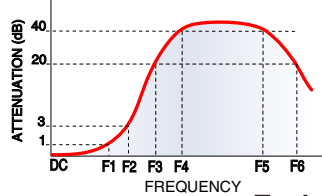
### Electrical Specifications<sup>(1,2)</sup> at 25°C

| Parameter | F#             | Frequency (MHz) | Min.     | Typ. | Max. | Unit |    |
|-----------|----------------|-----------------|----------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1           | DC-490   | —    | —    | 1.2  | dB |
|           | Freq. Cut-Off  | F2              | 650      | —    | 3.0  | —    | dB |
|           | VSWR           | DC-F1           | DC-490   | —    | 1.2  | —    | :1 |
| Stop Band | Rejection Loss | F3              | 800      | 20   | —    | —    | dB |
|           |                | F4-F5           | 880-2500 | —    | 40   | —    | dB |
|           | VSWR           | F6              | 6000     | —    | 20   | —    | dB |
|           |                | F3-F6           | 800-6000 | —    | 20   | —    | :1 |

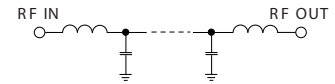
(1) In Applications where DC isolation to ground is required, coupling capacitors are recommended to avoid DC leakage. Alternatively, if DC pass IN-OUT is required, Mini-Circuits' "D" suffix version of this model will support DC IN-OUT, and provide >100 MOhm isolation to ground.

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

### Typical Frequency Response

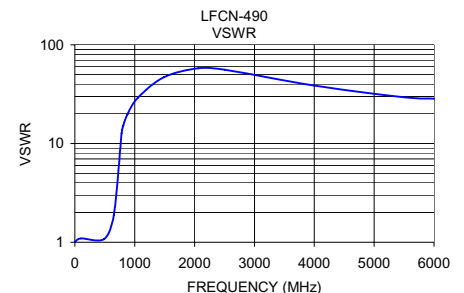
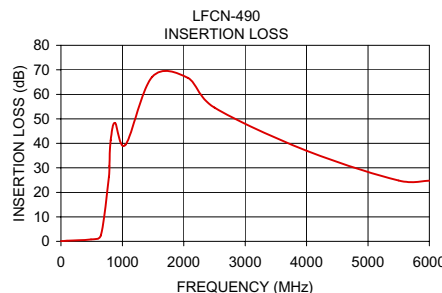


### Electrical Schematic



### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 1.00            | 0.05                | 1.01      |
| 100.00          | 0.25                | 1.09      |
| 490.00          | 0.82                | 1.08      |
| 650.00          | 2.45                | 1.88      |
| 780.00          | 26.27               | 12.71     |
| 790.00          | 30.75               | 13.70     |
| 810.00          | 41.27               | 15.26     |
| 880.00          | 48.37               | 19.76     |
| 1050.00         | 39.38               | 28.96     |
| 1485.00         | 67.14               | 46.96     |
| 2065.00         | 66.75               | 57.91     |
| 2500.00         | 54.57               | 56.04     |
| 4000.00         | 36.98               | 38.61     |
| 5500.00         | 24.86               | 29.46     |
| 6000.00         | 24.74               | 28.49     |



### 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-Circuits' 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)

