



CERAMIC

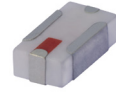
Low Pass Filter

LFCN-123+

50Ω DC¹ to 12000 MHz

FEATURES

- Excellent power handling, 8W
- Small size, 0.12" x .06"
- 7 sections
- Temperature stable
- Hermetically sealed
- LTCC construction
- Protected by U.S. Patent 6,943,646



Generic photo used for illustration purposes only

CASE STYLE: FV1206-4

+RoHS Compliant

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

APPLICATIONS

- Harmonic rejection
- VHF/UHF transmitters/receivers
- Lab use

PRODUCT OVERVIEW

The LFCN-123+ Low Pass Filter gives microwave communication system designers the ability to reject unwanted harmonics using defined RF parameters. The multilayer construction gives high repeatability of performance. Small wrap-around terminations minimize variations in performance due to parasitics. Covering DC-12000 MHz, these units offer low insertion loss and good rejection.

KEY FEATURES

| Feature | Advantages |
|---|---|
| Small Size (3.20mm x1.6 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. |

REV. D
ECO-011891
LFCN-123+
AD/CP/AM
220209





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LFCN-123+

ELECTRICAL SPECIFICATIONS^{1,2} AT 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Units | |
|-----------|----------------|-----------------|-------------|------|------|-------|----|
| Passband | Insertion Loss | DC-F1 | DC-12000 | — | — | 2.5 | dB |
| | Freq. Cut-Off | F2 | 13000 | — | 3.0 | — | dB |
| | VSWR | DC-F1 | DC-12000 | — | 1.6 | — | :1 |
| Stop Band | Rejection Loss | F3 | 15000 | 20 | — | — | dB |
| | | F4-F5 | 15500-20000 | — | 40 | — | dB |
| | VSWR | F3-F6 | 15500-20000 | — | 17 | — | :1 |

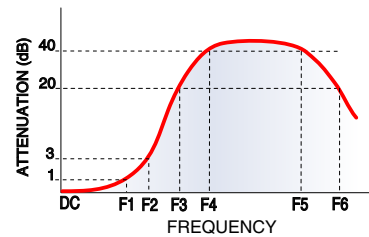
1. In Application where DC voltage is present at either input or output ports, coupling capacitors are required.
2. Measured on Mini-Circuits Characterization Test Board TB-618+.

MAXIMUM RATINGS

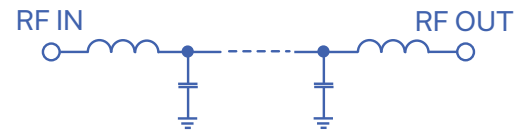
| Parameter | Ratings |
|-----------------------------|------------------|
| Operating temperature | -55°C to 100°C |
| Storage temperature | -55°C to 100°C |
| RF Power Input ³ | 8 W max. at 25°C |

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





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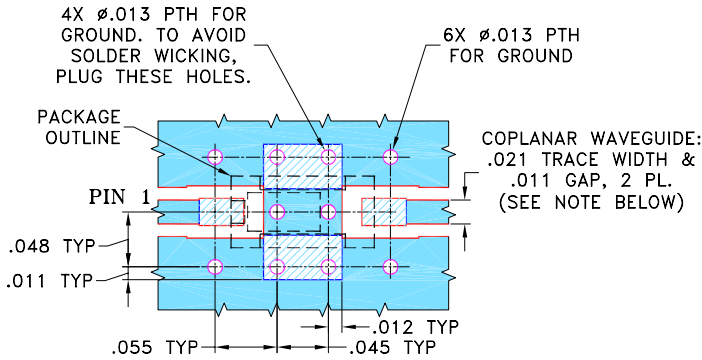
LFCN-123+

PIN CONNECTIONS

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

PRODUCT MARKING: AP

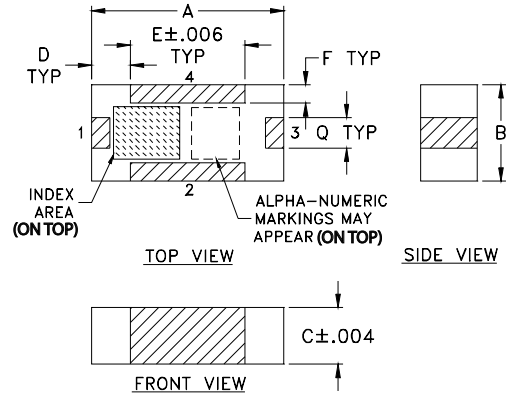
DEMO BOARD MCL P/N: TB-618
SUGGESTED PCB LAYOUT (PL-363)



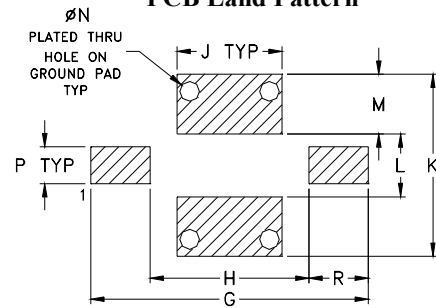
- NOTE:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .010" \pm .001". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

OUTLINE DRAWING



PCB Land Pattern



Suggested Layout,
Tolerance to be within \pm .002

OUTLINE DIMENSIONS (Inches / mm)

| | | | | | | | | |
|------|------|------|------|------|------|------|-------|------|
| A | B | C | D | E | F | G | H | J |
| .126 | .063 | .037 | .026 | .075 | .012 | .182 | .104 | .069 |
| 3.20 | 1.60 | 0.94 | 0.66 | 1.91 | 0.30 | 4.62 | 2.64 | 1.75 |
| K | L | M | N | P | Q | R | wt | |
| .119 | .041 | .039 | .013 | .024 | .020 | .039 | grams | |
| 3.02 | 1.04 | 0.99 | 0.33 | 0.61 | 0.51 | 0.99 | .020 | |

TAPE & REEL INFORMATION: F75



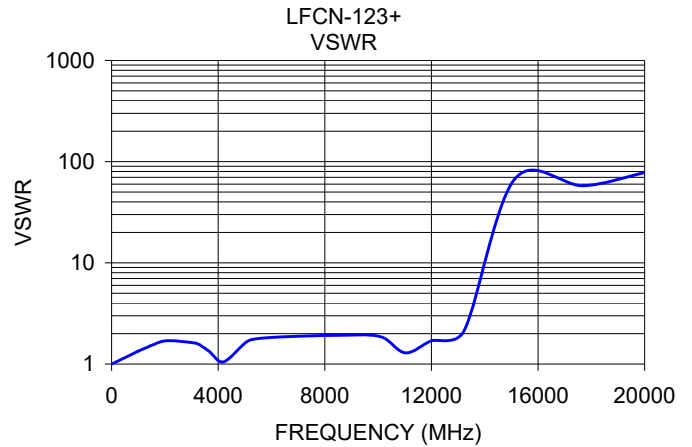
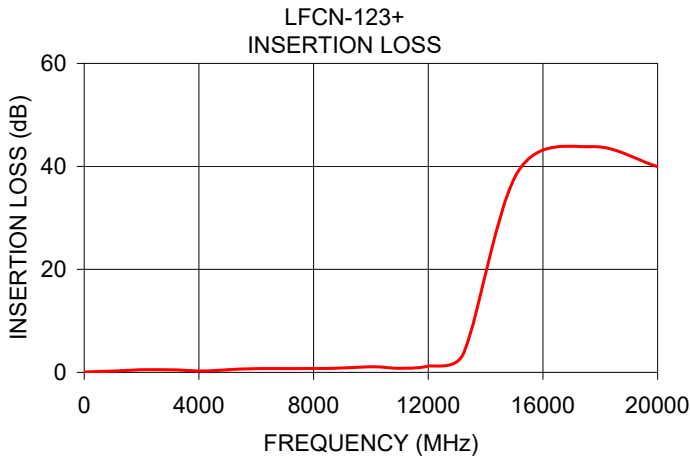
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TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 10.00 | 0.07 | 1.00 |
| 1280.00 | 0.31 | 1.44 |
| 1550.00 | 0.39 | 1.55 |
| 2080.00 | 0.51 | 1.70 |
| 3140.00 | 0.48 | 1.61 |
| 4200.00 | 0.26 | 1.05 |
| 5000.00 | 0.48 | 1.61 |
| 5330.00 | 0.62 | 1.76 |
| 6260.00 | 0.73 | 1.85 |
| 8450.00 | 0.77 | 1.92 |
| 10070.00 | 1.07 | 1.87 |
| 11020.00 | 0.78 | 1.29 |
| 12010.00 | 1.23 | 1.70 |
| 13220.00 | 3.56 | 2.12 |
| 15120.00 | 38.92 | 67.22 |
| 17710.00 | 43.82 | 57.85 |
| 20000.00 | 39.95 | 78.02 |



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

