

Ceramic Low Pass Filter

LFCW-332+

50Ω 10 to 3300 MHz

The Big Deal

- Very good rejection, 30 dB typical
- Rugged, ceramic construction
- Tiny size, 0.063" x 0.032" x 0.024" (0603)
- Good power handling, 2W



CASE STYLE: JC0603C

Product Overview

Mini-Circuits' LFCW-332+ is a LTCC low pass filter with a passband from 10 to 3300 MHz, supporting a variety of applications. This model provides 1.2 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0603 ceramic form factor with wrap-around terminations, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

Key Features

| Feature | Advantages |
|------------------------------------|---|
| Ultra-wide stopband | The LTCC lowpass filter provides a very good stopband rejection suitable for high end applications. |
| LTCC Construction | Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes. |
| Tiny size (0.063 x 0.032 x 0.024") | Saves space in dense circuit board layouts and minimizes the effects of parasitics. |
| Good power handling | Supports a wide range of system power requirements. |
| Wrap-around terminations | Provides excellent solderability and easy visual inspection |

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



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LFCW-332+



Generic photo used for illustration purposes only

CASE STYLE: JC0603C

Features

- Miniature size 0603 (0.063"[1.6mm] x 0.031"[0.8mm] x 0.024"[0.6mm])
- Replaces one inductor and three capacitors
- Low cost
- Aqueous washable

+RoHS Compliant

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

Applications

- ISM Band
- WLAN
- Bluetooth
- 5G sub 6GHz

Electrical Specifications^{1,2} at 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|-----------|----------------|-----------------|-------------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1 | DC - 3300 | — | 1.2 | 2.0 | dB |
| | Freq. Cut-Off | F2 | 3500 | — | 2.0 | — | dB |
| | Return Loss | DC-F1 | DC - 3300 | — | 12 | — | dB |
| Stop Band | Rejection Loss | F3-F4 | 4550 - 8000 | 25 | 30 | — | dB |

1. Tested on Evaluation Board TB-LFCW-332+

2. In application where DC voltage is present at either input or poutput port, coupling capacitors are required.

Maximum Ratings

| | |
|-----------------------------|----------------|
| Operating Temperature | -55°C to 125°C |
| Storage Temperature | -55°C to 125°C |
| RF Power Input ³ | 2W at 25°C |

3. Refer to product storage temperature after installation

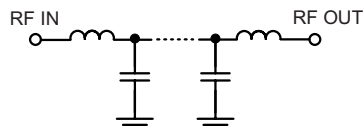
Suggestion for T&R unused product storage condition:

+5 ~ +35 °C, Humidity 45~75%RH, 12 month Max

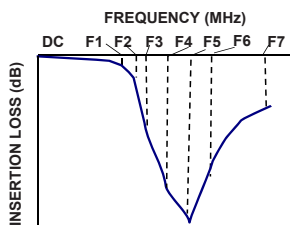
4. Derate linearly to 0.5W at 125°C.

Permanent damage may occur if any of these limits exceeded.

Functional Schematic



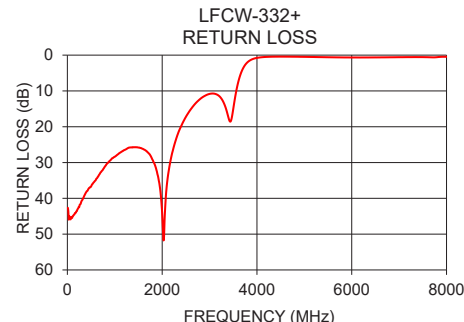
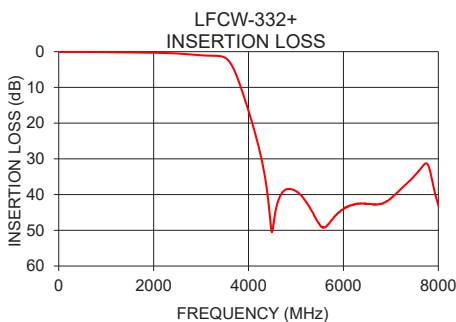
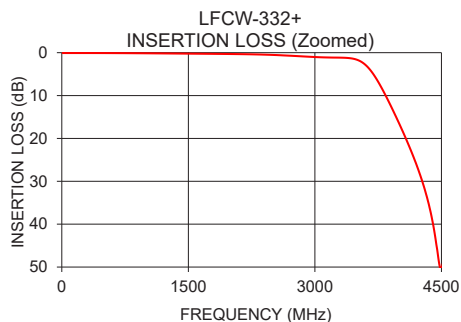
Typical Frequency Response



Typical Performance Data⁴ at 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10 | 0.08 | 42.63 |
| 100 | 0.08 | 45.49 |
| 200 | 0.08 | 43.58 |
| 500 | 0.09 | 36.67 |
| 1000 | 0.14 | 28.39 |
| 1200 | 0.17 | 26.53 |
| 1600 | 0.24 | 26.23 |
| 1800 | 0.27 | 29.30 |
| 2000 | 0.31 | 44.12 |
| 2500 | 0.52 | 17.26 |
| 3000 | 1.02 | 10.84 |
| 3300 | 1.16 | 13.34 |
| 4000 | 16.57 | 0.77 |
| 4550 | 46.21 | 0.42 |
| 5000 | 39.06 | 0.48 |
| 6000 | 44.00 | 0.66 |
| 7000 | 41.14 | 0.57 |
| 8000 | 42.92 | 0.46 |

4. Measured with Agilent E5071B network analyzer using port extension.



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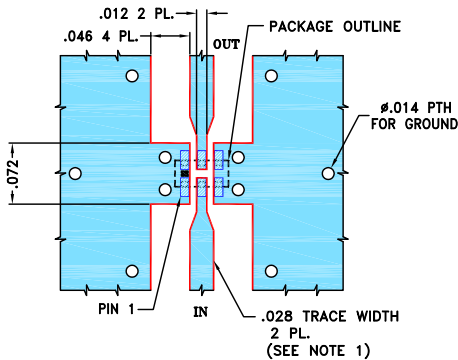
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LFCW-332+
RS/CP/AM
201203
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Pad Connections

| | |
|--------|---------|
| INPUT | 2 |
| OUTPUT | 5 |
| GROUND | 1,3,4,6 |

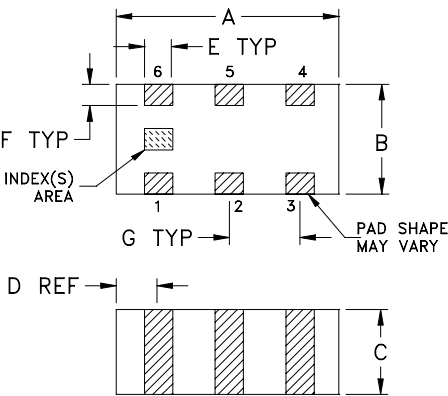
Product Marking: N/A

Evaluation Board MCL P/N: TB-LFCW-332+
Suggested PCB Layout (PL-554)



- NOTES:
- TRACE WIDTH IS SHOWN FOR FR4, GRADE IT-180TC (ITEQ CORP.) WITH DIELECTRIC THICKNESS .016±.0015. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
 - 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



Outline Dimensions (inch mm)

| A | B | C | D | E | F | G | wt |
|------|------|------|------|------|------|------|-------|
| .063 | .031 | .024 | .012 | .008 | .006 | .020 | grams |
| 1.60 | 0.79 | 0.61 | 0.30 | 0.20 | 0.15 | 0.51 | 0.005 |

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