

Ceramic Low Pass Filter

LFCW-113+

50Ω DC to 11 GHz



Generic photo used for illustration purposes only
CASE STYLE: JC0603C-1

The Big Deal

- Good rejection, 35 dB typical
- Rugged, ceramic construction
- Tiny size, 0.063" x 0.032" x 0.024" (0603)
- Good power handling, 4 W

Product Overview

Mini-Circuits' LFCW-113+ is an LTCC low pass filter with a passband from DC to 11 GHz, supporting a variety of applications. This model provides 1.5 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It handles up to 4 W RF input power and provides a wide operating temperature range from -55 to +100°C. Housed in a tiny 0603 ceramic form factor with wraparound 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 until 26.5 GHz 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, 4 W | Supports a wide range of system power requirements. |
| Wrap-around terminations | Provides excellent solderability and easy visual inspection |

Notes

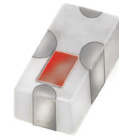
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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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+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Features

- Low loss, 1.5 dB typical
- Good rejection 35 dB typical
- Extremely small size 0603 (0.063" X 0.032" X 0.024")
- Temperature stable
- LTCC construction

Applications

- X-Band Radar
- Public Safety Communications

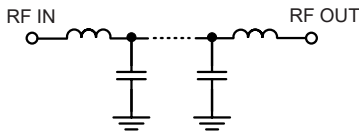
Electrical Specifications^{1,2} at 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|-----------|----------------|-----------------|---------------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1 | DC - 11000 | — | 1.5 | 2.4 | dB |
| | Freq. Cut-Off | F2 | 11900 | — | 3.0 | — | dB |
| | Return Loss | DC-F1 | DC - 11000 | — | 12 | — | dB |
| Stop Band | Rejection Loss | F3-F4 | 14800 - 16000 | 20 | 39 | — | dB |
| | | F4-F5 | 16000 - 19000 | 28 | 36 | — | dB |
| | | F5-F6 | 19000 - 23500 | 23 | 32 | — | dB |
| | | F6-F7 | 23500 - 26500 | — | 20 | — | dB |

¹ DC de-coupling capacitors are required in Applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for alternatives if DC pass from IN-OUT is required.

² Measured on Mini-Circuits Characterization Test Board TB-1114+

Functional Schematic



Maximum Ratings

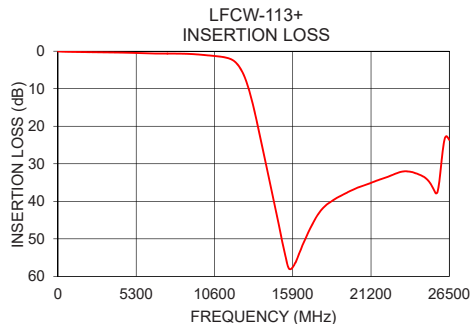
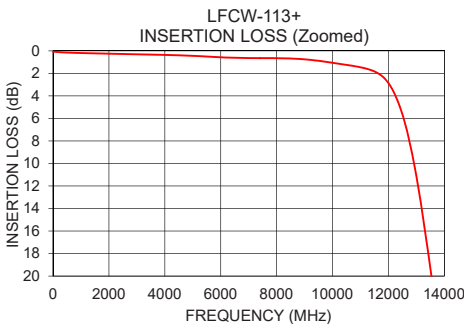
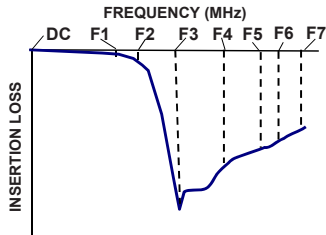
| | |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input* | 4 W @25°C |

*Passband rating, derate linearly to 2 W at 100°C ambient
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10 | 0.08 | 46.35 |
| 100 | 0.09 | 40.80 |
| 500 | 0.15 | 32.87 |
| 1000 | 0.19 | 31.83 |
| 2000 | 0.25 | 29.19 |
| 3000 | 0.30 | 23.03 |
| 6000 | 0.57 | 15.49 |
| 10000 | 1.06 | 16.20 |
| 11000 | 1.45 | 14.49 |
| 11900 | 2.54 | 9.47 |
| 12100 | 3.25 | 7.32 |
| 13600 | 21.13 | 0.84 |
| 14100 | 30.35 | 0.69 |
| 14800 | 43.29 | 0.67 |
| 16000 | 56.97 | 0.74 |
| 19000 | 38.84 | 0.53 |
| 20000 | 36.88 | 0.51 |
| 21000 | 35.38 | 0.50 |
| 23500 | 32.01 | 0.78 |
| 26500 | 23.65 | 0.14 |

Typical Frequency Response



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