

Coaxial Reflectionless Low Pass Filter

ZXLF-Series

50Ω DC to 20 GHz

The Big Deal

- Patented design terminates stopband signal internally
- Stopband performance up to 40 GHz
- Small In-line package size of 0.80" x 0.56"



CASE STYLE: RA2937

Product Overview

Mini-Circuits' ZXLF Series of reflectionless filters employ a novel filter topology which absorbs and terminates stop band signals internally rather than reflecting them back to the source. Reflectionless filters minimize the stopband reflections, thereby allowing them to be paired with sensitive devices and be used in applications that otherwise require circuits such as isolation amplifiers or attenuators. This is developed in a new broadband connectorized package that delivers stable performance over temperature.

Key Features

| Feature | Advantages |
|---|---|
| Easy integration with sensitive reflective components, e.g. mixers, multipliers | Reflectionless filters absorb unwanted signals, preventing reflections back to the source. This reduces generation of additional unwanted signals without the need for extra components like attenuators, improving system dynamic range. |
| Cascadable | Reflectionless filters can be cascaded in multiple sections to provide sharper and higher attenuation, while also preventing any standing waves that could affect pass band signals. |
| Excellent stability over temperature | Ensures minimal variation in electrical performance across temperature. |
| Wide Operating temperature from -40 to +85°C | Suitable for use in wide temperature range applications. |
| Broadband connectorized package | The connectorized package works well even in high frequencies and easy to interface with other devices. This is well suited for test setups. |



Coaxial Reflectionless Low Pass Filter

50Ω DC to 13 GHz

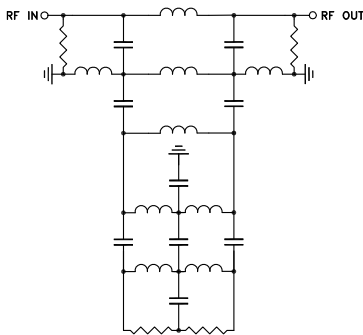
Features

- Match to 50Ω in the stop band, eliminates undesired reflections
- Cascadable
- Temperature stable, up to 85°C
- Protected by US Patent No. 8,392,495

Applications

- Harmonics Rejection
- Satellite
- Radar
- Military & Space

Functional Schematic



ZLXF-K133+



Generic photo used for illustration purposes only

CASE STYLE: RA2937
Connectors Model
2.92mm-F to 2.92mm-M ZLXF-K133+

+RoHS Compliant

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

Electrical Specifications at 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|-----------|----------------|-----------------|-------------|------|------|------|----|
| Pass Band | Insertion Loss | DC-F1 | DC-13000 | | 1.7 | 2.8 | dB |
| | Freq. Cut-off | F2 | 15000 | | 3.0 | | dB |
| | VSWR | DC-F1 | DC-13000 | | 1.45 | | :1 |
| Stop Band | Rejection | F3-F4 | 20000-30000 | 18.0 | 23.0 | | dB |
| | | F4-F5 | 30000-35000 | | 20.0 | | dB |
| | VSWR | F3-F4 | 20000-30000 | | 3.0 | | :1 |
| | | F4-F5 | 30000-35000 | | 5.8 | | :1 |

Absolute Maximum Ratings³

| | |
|---|-----------------|
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -55°C to +100°C |
| RF Power Input, Passband (DC-F1) ¹ | 2W at 25°C |
| RF Power Input, Stopband (F2-F5) ² | 50mW at 25°C |

¹ Passband rating derates linearly to 1W at 85°C ambient

² Stopband rating derates linearly to 25mW at 85°C ambient

³ Permanent damage may occur if any of these limits are exceeded

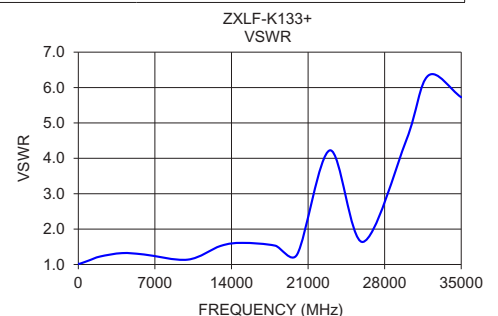
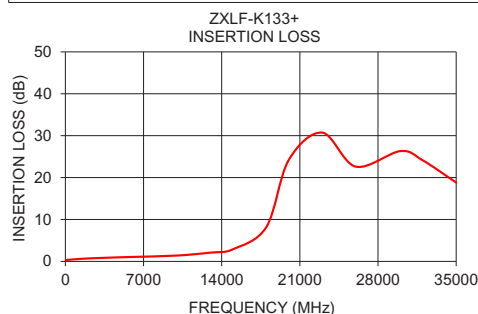
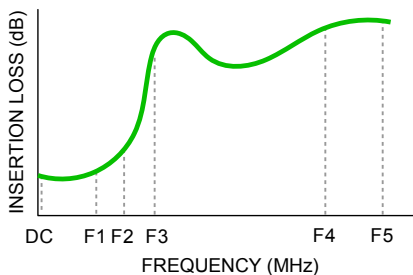
ESD rating

Human Body Model (HBM): Class 1A (250 to <500V) in accordance with ANSI/ESD 5.1 - 2001

Typical Performance Data at 25°C

| Frequency (GHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 10 | 0.31 | 1.02 |
| 100 | 0.34 | 1.02 |
| 1000 | 0.53 | 1.12 |
| 2000 | 0.70 | 1.23 |
| 4000 | 0.90 | 1.32 |
| 6000 | 1.06 | 1.28 |
| 10000 | 1.40 | 1.14 |
| 13000 | 2.10 | 1.52 |
| 15000 | 2.89 | 1.61 |
| 18000 | 8.20 | 1.53 |
| 20000 | 24.18 | 1.28 |
| 23000 | 30.73 | 4.23 |
| 26000 | 22.62 | 1.64 |
| 30000 | 26.32 | 4.53 |
| 32000 | 24.13 | 6.34 |
| 35000 | 18.83 | 5.73 |

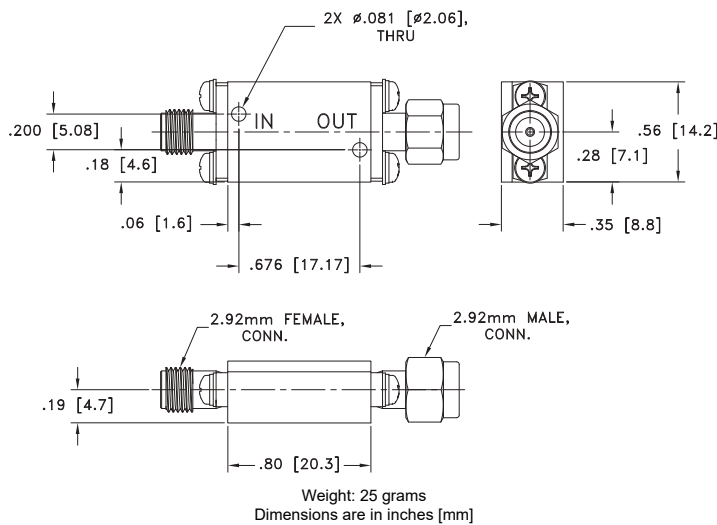
Specification Definition



Coaxial Connections

| | |
|------------|-------------|
| PORT - IN | 2.92mm-Fem |
| PORT - OUT | 2.92mm-Male |

Outline Drawing



Additional Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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