

Cavity Bandpass Filters

ZVBP Model Series

50Ω 24.25 to 43.5 GHz

The Big Deal

- Very low insertion loss with excellent power handling
- Sharp roll-off with wide stopband
- Passbands from 24.25 to 43.5 GHz covering 5G bands*.
- Stopbands up to 57 GHz



Product Overview

Mini-Circuits' cavity filters are designed by implementing resonant structures with very high Q and are ideal for narrow-band, high-selectivity applications. These designs can provide bandwidths as narrow as 3% with very high selectivity and excellent low noise floor. Low insertion loss combined with excellent power handling makes them well-suited for transmitter and receiver front end. Advanced filter design and construction enables stopband width greater than 3x the center frequency.

Key Features

| Feature | Advantages |
|---------------------|---|
| 5G bands | Use in various 5G applications, covering n257, n258, n259, n260, and n261 bands. |
| Low insertion loss | Low signal loss results in better SNR in receiver front end and better power delivery to antenna in transmitter |
| Sharp roll-off | Higher selectivity results in better adjacent channel rejection and dynamic range |
| Wide stopband | Wide spur free band results in better receiver sensitivity |
| High power handling | Well suited for transmitter application |
| Protective assembly | Prevents accidental de-tuning of precisely tuned resonant circuit |

*High frequency models operating above 40 GHz are available with 2.4mm connectors.

Cavity Bandpass Filter

ZVBP-38500-K+

50Ω 37000 to 40000 MHz



Generic photo used for illustration purposes only

CASE STYLE: UH3129

| Connectors | Model |
|------------|---------------|
| 2.92mm-F | ZVBP-38500-K+ |

Features

- Low insertion loss, 2.0 dB typical
- Good return loss, 21 dB typical
- High rejection
- Broad stopband performance up to 31 GHz
- Sharp roll-off
- Also available with 2.4mm connectors (model ZVBP-38500-V+)

Applications

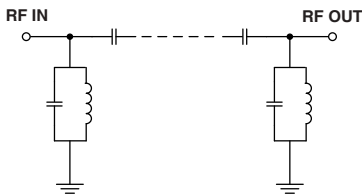
- 5G band n260

Electrical Specifications¹ at 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|-------------------------|------------------|-----------------|---------------|-------|------|------|
| Pass Band | Center Frequency | - | - | 38500 | - | MHz |
| | Insertion Loss | F1-F2 | 37000 - 40000 | - | 2.1 | dB |
| | Return Loss | F1-F2 | 37000 - 40000 | 15 | 27 | dB |
| Stop Band, Lower | Insertion Loss | DC-F3 | DC - 36500 | 80 | 127 | dB |
| | Return Loss | DC-F3 | DC - 36500 | - | 0.21 | dB |
| Stop Band, Upper | Insertion Loss | F4-F5 | 40500 - 55000 | 80 | 116 | dB |
| | Return Loss | F4-F5 | 40500 - 55000 | - | 0.68 | dB |

1.Data measured after calibrating using 2.92mm cal kit.

Simplified Functional Schematic



Maximum Ratings

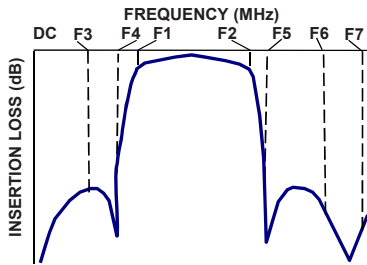
| | |
|-----------------------|---------------|
| Operating Temperature | -30°C to 70°C |
| Storage Temperature | -30°C to 70°C |
| RF Power Input | 2.5 W |

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

Typical Performance Data at 25°C

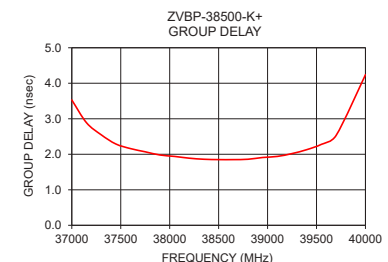
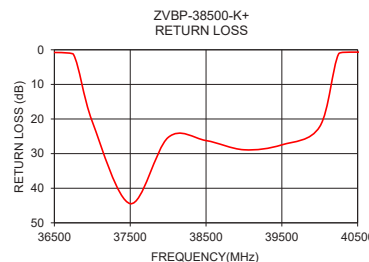
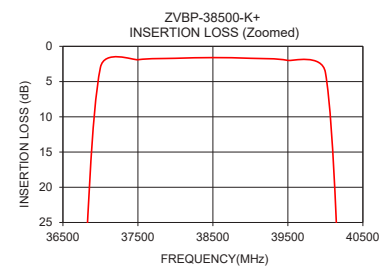
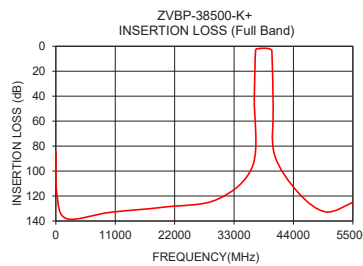
| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|------------------|-----------------|--------------------|
| 10 | 84.6 | 0.01 | 37000 | 3.53 |
| 200 | 118.6 | 0.03 | 37150 | 2.89 |
| 2000 | 138.1 | 0.12 | 37300 | 2.55 |
| 10000 | 133.1 | 0.15 | 37450 | 2.29 |
| 20000 | 128.9 | 0.27 | 37600 | 2.16 |
| 30000 | 122.5 | 0.09 | 37750 | 2.07 |
| 36500 | 95.2 | 0.78 | 37900 | 1.98 |
| 36750 | 41.1 | 1.28 | 38050 | 1.94 |
| 37000 | 3.0 | 20.77 | 38200 | 1.89 |
| 37500 | 1.9 | 44.45 | 38350 | 1.86 |
| 38000 | 1.7 | 25.34 | 38500 | 1.85 |
| 38500 | 1.6 | 26.23 | 38650 | 1.85 |
| 39000 | 1.7 | 28.89 | 38800 | 1.86 |
| 39500 | 2.0 | 27.47 | 38950 | 1.91 |
| 40000 | 3.7 | 22.20 | 39100 | 1.94 |
| 40250 | 48.2 | 1.15 | 39250 | 2.02 |
| 40500 | 87.0 | 0.68 | 39400 | 2.13 |
| 45000 | 117.8 | 0.02 | 39550 | 2.28 |
| 50000 | 132.7 | 0.45 | 39700 | 2.53 |
| 55000 | 125.0 | 0.99 | 40000 | 4.24 |

Typical Frequency Response



+RoHS Compliant

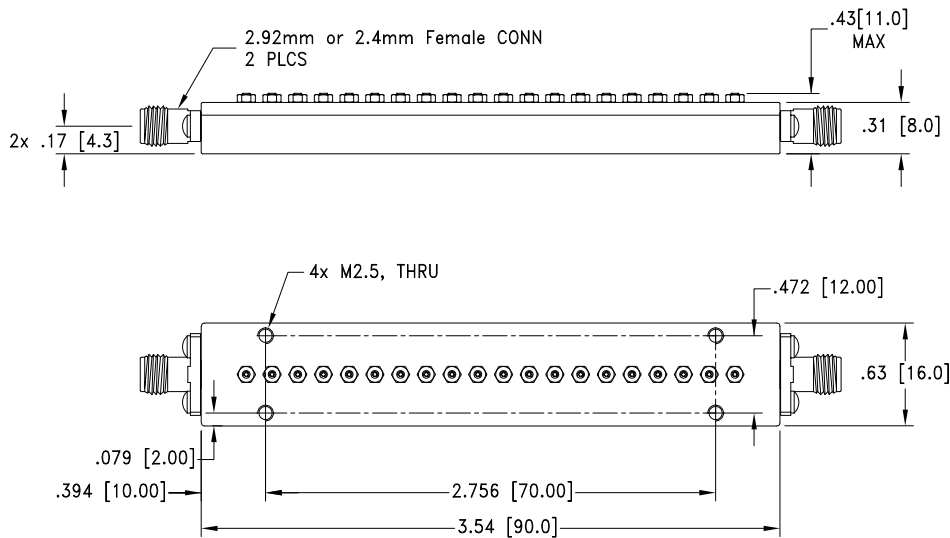
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



Coaxial Connections

| | |
|--------|---------------|
| PORT 1 | 2.92mm-FEMALE |
| PORT 2 | 2.92mm-FEMALE |

Outline Drawing



Weight: 85 grams \pm 5 grams ;
Dimensions are in inches [mm]. Tolerances: 2 Pl. \pm .03; 3 Pl. \pm .015

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