

Cavity Bandpass Filters

50Ω DC to 40 GHz

The Big Deal

- Very low insertion loss with excellent power handling
- Very fast roll-off with wide stopband
- Passbands up to 36 GHz
- Stopbands up to 40 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 1% 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.

Mini-Circuits' cavity filters feature a special protective assembly to prevent accidental de-tuning that would otherwise require expensive replacement or return to factory for re-tuning. Custom integrated assembly with LNA and bias tees results in greatly simplifying system integration. Precise machining allows realization of cavity filters with small form factors for applications where size is critical. Excellent repeatability across units is achieved through precise tuning and process control.

Key Features

| Feature | Advantages |
|---------------------|---|
| Low insertion loss | Low signal loss results in better SNR in receiver front end and better power delivery to antenna in transmitter |
| Fast 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 |

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



Bandpass Filter

ZVBP-4810-S+

50Ω 4750 to 4870 MHz



Generic photo used for illustration purposes only

CASE STYLE: ME1656
Connectors Model
SMA-F ZVBP-4810-S+

Features

- Low insertion loss, 0.7 dB typical
- Good VSWR, 1.3:1 typical
- High rejection
- Fast roll-off
- Connectorized package

Applications

- Fixed-Satellite
- Radio astronomy
- Defence systems

Electrical Specifications at 25°C

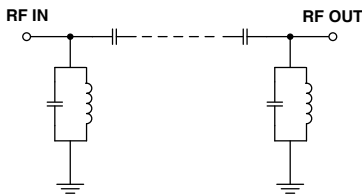
| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Unit | |
|------------------|------------------|-----------------|-----------|------|------|------|----|
| Pass Band | Center Frequency | - | - | 4810 | - | MHz | |
| | Insertion Loss | F1-F2 | 4750-4870 | - | 0.7 | 1.5 | dB |
| | VSWR | F1-F2 | 4750-4870 | - | 1.3 | 1.5 | :1 |
| Stop Band, Lower | Insertion Loss | DC-F3 | DC - 4600 | 20 | 31 | - | dB |
| | VSWR | DC-F3 | DC - 4600 | - | 20 | - | :1 |
| Stop Band, Upper | Insertion Loss | F4-F5 | 5020-8250 | 20 | 31 | - | dB |
| | VSWR | F4-F5 | 5020-8250 | - | 20 | - | :1 |

Maximum Ratings

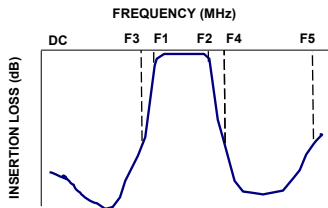
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input | 10 W max. |

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

Functional Schematic



Typical Frequency Response

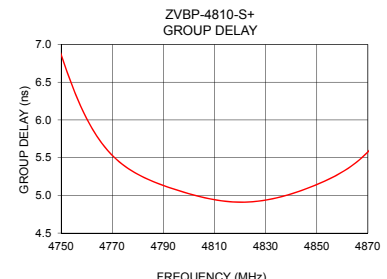
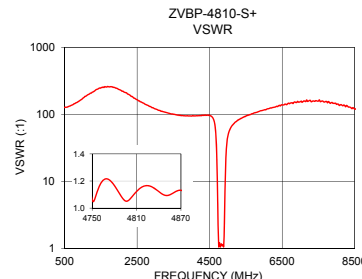
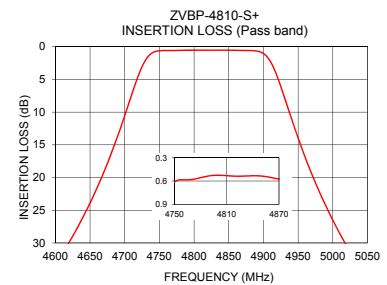
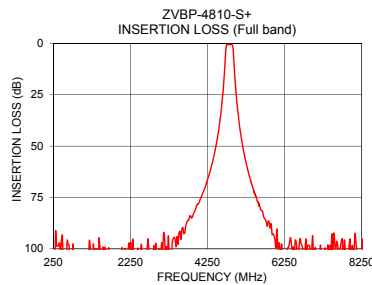


Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|--------------------|
| 510 | 90.70 | 157.93 | 4750 | 6.28 |
| 1010 | 97.97 | 193.02 | 4755 | 5.94 |
| 4420 | 54.36 | 102.19 | 4760 | 5.70 |
| 4600 | 32.77 | 82.73 | 4765 | 5.52 |
| 4615 | 30.11 | 78.97 | 4770 | 5.40 |
| 4660 | 20.40 | 52.65 | 4775 | 5.31 |
| 4700 | 8.58 | 13.81 | 4780 | 5.24 |
| 4718 | 3.16 | 3.96 | 4785 | 5.18 |
| 4750 | 0.67 | 1.16 | 4790 | 5.11 |
| 4810 | 0.63 | 1.23 | 4795 | 5.06 |
| 4870 | 0.69 | 1.22 | 4800 | 5.00 |
| 4910 | 3.56 | 4.12 | 4805 | 4.97 |
| 4935 | 11.65 | 17.57 | 4810 | 4.94 |
| 4965 | 20.48 | 34.75 | 4820 | 4.96 |
| 5010 | 30.50 | 51.10 | 4830 | 5.04 |
| 5020 | 32.36 | 54.29 | 4840 | 5.16 |
| 5800 | 85.95 | 115.81 | 4850 | 5.30 |
| 6500 | 102.48 | 144.77 | 4860 | 5.48 |
| 7500 | 101.36 | 144.77 | 4865 | 5.62 |
| 8250 | 114.23 | 108.58 | 4870 | 5.82 |

+RoHS Compliant

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



Notes

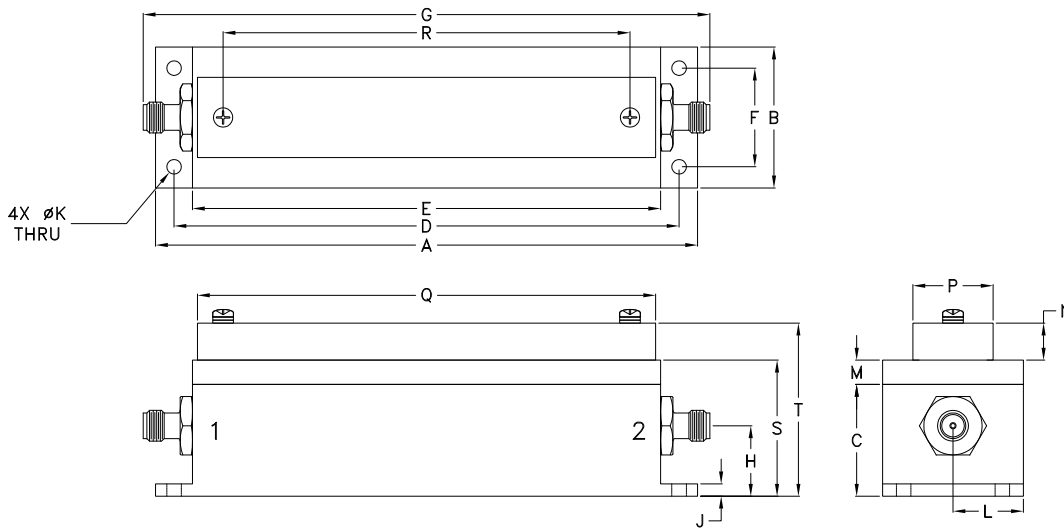
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Coaxial Connections

| | |
|----------|------------|
| PORT - 1 | SMA-FEMALE |
| PORT - 2 | SMA-FEMALE |

Outline Drawing



Outline Dimensions (inch/mm)

| | | | | | | | | | |
|--------|-------|-------|--------|-------|-------|--------|-------|------|-------|
| A | B | C | D | E | F | G | H | J | K |
| 4.40 | 1.14 | 0.91 | 4.096 | 3.80 | 0.800 | 4.60 | 0.57 | 0.10 | 0.118 |
| 111.66 | 29.03 | 23.01 | 104.04 | 96.42 | 20.32 | 116.74 | 14.50 | 2.54 | 3.00 |
| L | M | N | P | Q | R | S | T | | Wt. |
| 0.57 | 0.20 | 0.30 | 0.65 | 3.72 | 3.30 | 1.10 | 1.40 | | grams |
| 14.53 | 5.00 | 7.62 | 16.51 | 94.39 | 83.82 | 28.02 | 35.64 | | 160 |

Note: Please refer to case style drawing for details

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