

# Cavity Bandpass Filters

50Ω DC to 15 GHz

## The Big Deal

- Very low insertion loss with excellent power handling
- Very fast roll-off with wide stopband
- Passbands up to 15 GHz
- Stopbands up to 20 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. 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.  
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# Bandpass Filter

50Ω 2400 to 2500 MHz

ZVBP-2450-S+



Generic photo used for illustration purposes only

CASE STYLE: QT2302

| Connectors | Model        |
|------------|--------------|
| SMA-F      | ZVBP-2450-S+ |

## Electrical Specifications at 25°C

| Parameter        | F#               | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|------------------|------------------|-----------------|------|------|------|------|
| Pass Band        | Center Frequency | -               | -    | 2450 | -    | MHz  |
|                  | Insertion Loss   | F1-F2           | -    | 0.7  | 1.3  | dB   |
|                  | VSWR             | F1-F2           | -    | 1.3  | 1.5  | :1   |
| Stop Band, Lower | Insertion Loss   | DC-F3           | 70   | 80   | -    | dB   |
|                  |                  | F3-F4           | 40   | 55   | -    | dB   |
|                  | VSWR             | DC-F4           | -    | 20   | -    | :1   |
| Stop Band, Upper | Insertion Loss   | F5-F6           | 40   | 55   | -    | dB   |
|                  |                  | F6-F7           | 70   | 80   | -    | dB   |
|                  |                  | F7-F8           | -    | 40   | -    | dB   |
|                  | VSWR             | F5-F8           | -    | 20   | -    | :1   |

## Maximum Ratings

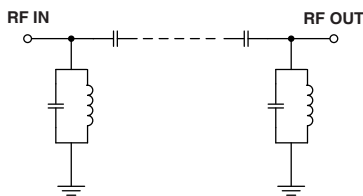
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature   | -55°C to 100°C |
| RF Power Input        | 15 W max.      |

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

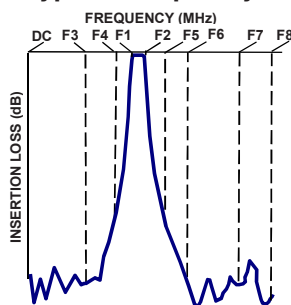
## Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) | Frequency (MHz) | Group Delay (nsec) |
|-----------------|---------------------|-----------|-----------------|--------------------|
| 100             | 83.71               | 1610.03   | 2400            | 12.88              |
| 500             | 84.73               | 200.31    | 2405            | 11.71              |
| 1000            | 103.04              | 235.79    | 2410            | 11.02              |
| 2000            | 89.21               | 307.96    | 2415            | 10.52              |
| 2120            | 79.68               | 298.21    | 2420            | 10.09              |
| 2260            | 55.49               | 223.22    | 2425            | 9.74               |
| 2340            | 29.47               | 97.02     | 2430            | 9.48               |
| 2358            | 19.99               | 54.14     | 2435            | 9.34               |
| 2375            | 8.46                | 12.63     | 2440            | 9.29               |
| 2382            | 3.79                | 4.48      | 2445            | 9.29               |
| 2400            | 0.71                | 1.17      | 2450            | 9.30               |
| 2450            | 0.55                | 1.04      | 2455            | 9.31               |
| 2500            | 0.74                | 1.05      | 2460            | 9.33               |
| 2515            | 3.44                | 3.86      | 2465            | 9.40               |
| 2540            | 19.92               | 42.96     | 2470            | 9.55               |
| 2558            | 29.27               | 71.20     | 2475            | 9.81               |
| 2635            | 54.54               | 147.61    | 2480            | 10.15              |
| 2780            | 78.86               | 212.04    | 2485            | 10.57              |
| 4000            | 96.12               | 200.31    | 2490            | 11.10              |
| 6000            | 103.54              | 204.08    | 2500            | 13.25              |

## Functional Schematic

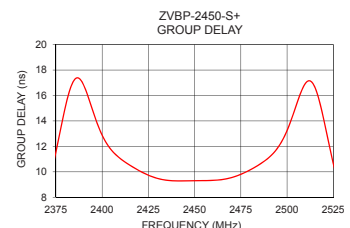
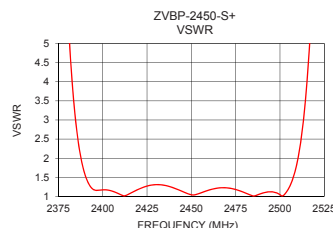
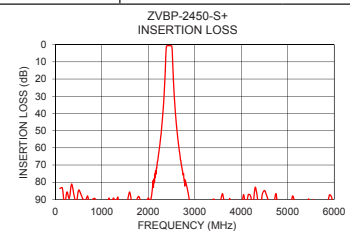
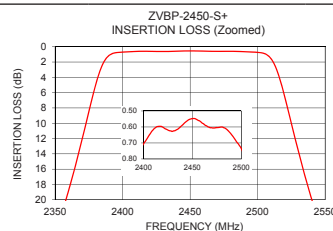


## Typical Frequency Response



## +RoHS Compliant

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



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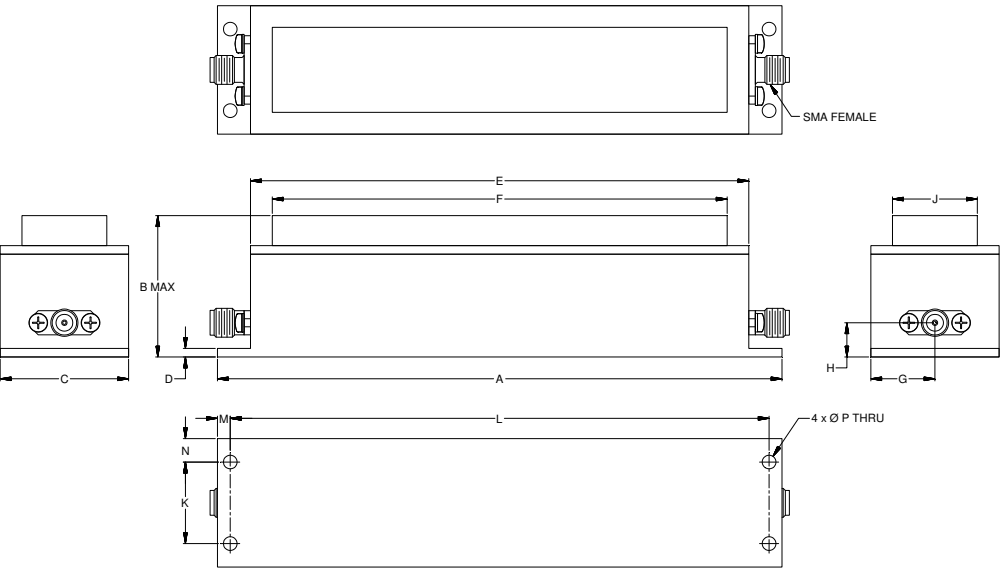


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Coaxial Connections

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

Outline Drawing



Outline Dimensions ( inch mm )

|        |       |        |      |        |        |       |       |
|--------|-------|--------|------|--------|--------|-------|-------|
| A      | B     | C      | D    | E      | F      | G     | H     |
| 5.20   | 1.38  | 1.18   | .08  | 4.59   | 4.19   | .59   | .31   |
| 132.00 | 35.00 | 30.00  | 2.00 | 116.50 | 106.34 | 15.00 | 8.00  |
| J      | K     | L      | M    | N      | P      |       | Wt.   |
| .78    | .750  | 4.960  | .12  | .22    | .126   |       | grams |
| 19.84  | 19.05 | 125.98 | 3.01 | 5.47   | 3.20   |       | 184   |

Note: Please refer to case style drawing for details

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