

Coaxial

# Bandpass Filter

VBF-1525+

50Ω

1480 to 1570 MHz

## The Big Deal

- Low Insertion Loss (2.0 dB typical)
- Good close-in rejection
- Versatile small size, coaxial, 1.43" length



CASE STYLE: FF704

## Product Overview

The VBF-1525+ Band Pass Filter is constructed using internal LTCC Band Pass Filter structure to achieve repeatable performance. Covering 1525 MHz  $\pm$  45 MHz, these units offer low insertion loss and good rejection at the band reject edges. Built using Mini-Circuits proven unibody construction which integrates the RF connectors with the case body, the VBF-1525+ takes very little space and meets rugged test lab system environment.

## Key Features

| Feature                              | Advantages   |
|--------------------------------------|--|
| Good Rejection close to pass band    | Provides good rejection of signals close to the pass band, for improved system performance.  |
| Compact Versatile Case (1.43"x0.41") | Enables use in a variety of applications including space constrained connectorized systems. Connectors: SMA Female (1), SMA Male (1) |
| Rugged Unibody Construction          | Mini-Circuits Unibody construction allows survivability in critical applications including militarized or industrial systems.        |

### 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Bandpass Filter

## VBF-1525+

50Ω 1480 to 1570 MHz



### Maximum Ratings

|                       |                   |
|-----------------------|-------------------|
| Operating Temperature | -55°C to 100°C    |
| Storage Temperature   | -55°C to 100°C    |
| RF Power Input*       | 1.5W max. at 25°C |

\*Passband rating, derate linearly to 0.25W at 100°C ambient  
Permanent damage may occur if any of these limits are exceeded.

### Features

- Small size
- Temperature stable
- Rugged unibody construction

CASE STYLE: FF704

|            |           |
|------------|-----------|
| Connectors | Model     |
| SMA        | VBF-1525+ |

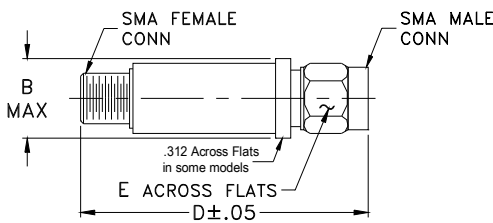
### Applications

- Harmonic Rejection
- Transmitters / Receivers

**+RoHS Compliant**

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

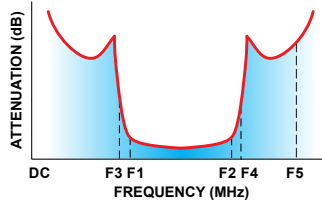
### Outline Drawing



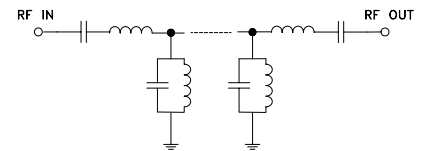
### Electrical Specifications at 25°C

| Parameter        | F#               | Frequency (MHz) | Min.      | Typ. | Max. | Unit |
|------------------|------------------|-----------------|-----------|------|------|------|
| Pass Band        | Center Frequency | —               | —         | 1525 | —    | MHz  |
|                  | Insertion Loss   | F1-F2           | 1480-1570 | —    | 3.0  | dB   |
|                  | VSWR             | F1-F2           | 1480-1570 | —    | 2.5  | :1   |
| Stop Band, Lower | Insertion Loss   | DC-F3           | DC-1150   | —    | 20   | dB   |
|                  | VSWR             | DC-F3           | DC-1150   | —    | 25   | :1   |
| Stop Band, Upper | Insertion Loss   | F4-F5           | 2900-5100 | —    | 25   | dB   |
|                  | VSWR             | F4-F5           | 2900-5100 | —    | 20   | :1   |

### Typical Frequency Response



### Functional Schematic

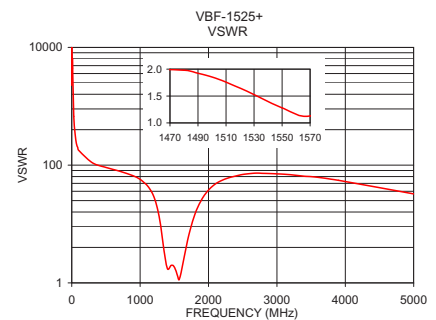
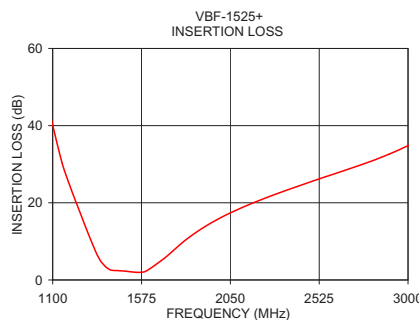
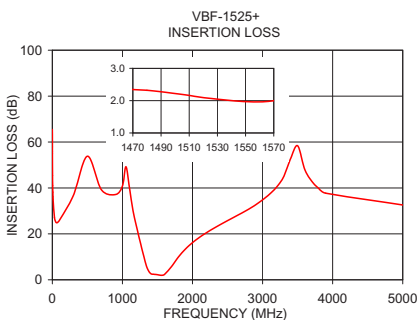


### Outline Dimensions (inch/mm)

|       |       |      |     |
|-------|-------|------|-----|
| B     | D     | E    |     |
| .410  | 1.43  | .312 | gra |
| 10.41 | 36.32 | 7.92 | 1'  |

### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 0.30            | 65.45               | 2271.75   |
| 300.00          | 36.71               | 110.05    |
| 900.00          | 37.14               | 65.76     |
| 1050.00         | 49.26               | 51.32     |
| 1100.00         | 40.11               | 45.74     |
| 1250.00         | 17.00               | 18.94     |
| 1400.00         | 2.80                | 1.73      |
| 1480.00         | 2.32                | 1.98      |
| 1570.00         | 2.00                | 1.13      |
| 2100.00         | 18.50               | 47.88     |
| 2400.00         | 24.10               | 65.44     |
| 2600.00         | 27.40               | 71.84     |
| 3000.00         | 34.81               | 71.10     |
| 3500.00         | 58.38               | 63.85     |
| 5100.00         | 32.14               | 30.99     |



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# VBF-1525+

## Typical Performance Data

| FREQUENCY | INSERTION LOSS | RETURN LOSS |
|-----------|----------------|-------------|
| (MHz)     | (dB)           | (dB)        |
| 0.3       | 65.45          | 0.01        |
| 0.7       | 57.88          | 0.00        |
| 1.0       | 55.06          | 0.00        |
| 3.0       | 45.43          | 0.00        |
| 7.0       | 38.17          | 0.00        |
| 10.0      | 35.19          | 0.00        |
| 30.0      | 27.12          | 0.03        |
| 70.0      | 24.89          | 0.08        |
| 100.0     | 25.83          | 0.10        |
| 300.0     | 36.71          | 0.16        |
| 700.0     | 39.24          | 0.22        |
| 1000.0    | 40.83          | 0.30        |
| 1050.0    | 49.26          | 0.34        |
| 1100.0    | 40.11          | 0.38        |
| 1150.0    | 30.35          | 0.46        |
| 1200.0    | 23.31          | 0.60        |
| 1250.0    | 17.00          | 0.92        |
| 1300.0    | 10.84          | 1.84        |
| 1350.0    | 5.41           | 5.10        |
| 1400.0    | 2.80           | 11.44       |
| 1450.0    | 2.42           | 9.75        |
| 1480.0    | 2.32           | 9.67        |
| 1498.0    | 2.23           | 10.38       |
| 1516.0    | 2.12           | 11.80       |
| 1525.0    | 2.07           | 12.87       |
| 1550.0    | 1.97           | 18.18       |
| 1570.0    | 2.00           | 24.59       |
| 1600.0    | 2.31           | 13.75       |
| 1700.0    | 5.74           | 3.08        |
| 1800.0    | 9.95           | 1.20        |
| 1900.0    | 13.40          | 0.67        |
| 2000.0    | 16.19          | 0.46        |
| 2100.0    | 18.50          | 0.36        |
| 2200.0    | 20.52          | 0.31        |
| 2300.0    | 22.36          | 0.28        |
| 2400.0    | 24.10          | 0.27        |
| 2500.0    | 25.78          | 0.25        |
| 2600.0    | 27.40          | 0.24        |
| 2700.0    | 29.02          | 0.24        |
| 2800.0    | 30.73          | 0.24        |
| 2900.0    | 32.63          | 0.24        |
| 3000.0    | 34.81          | 0.24        |
| 3100.0    | 37.30          | 0.25        |
| 3200.0    | 40.39          | 0.25        |
| 3300.0    | 44.85          | 0.26        |
| 3400.0    | 52.78          | 0.27        |
| 3500.0    | 58.38          | 0.27        |
| 3600.0    | 48.23          | 0.28        |
| 3800.0    | 39.82          | 0.30        |
| 4000.0    | 36.18          | 0.33        |



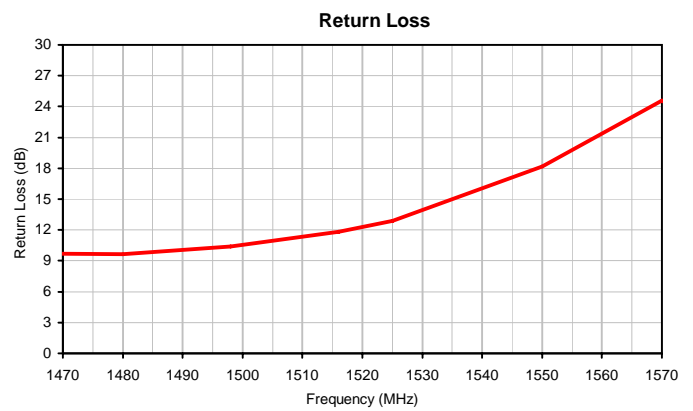
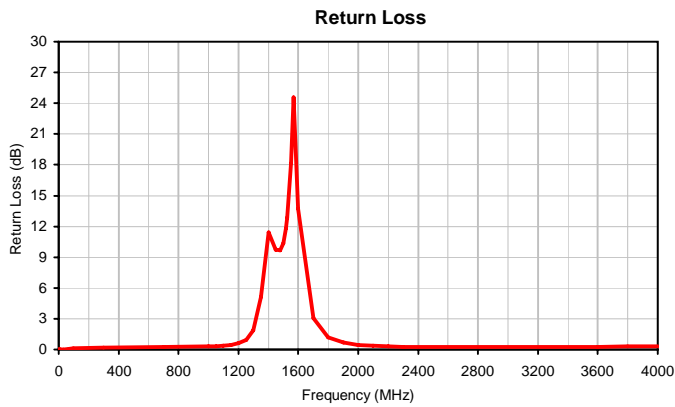
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## Typical Performance Curves

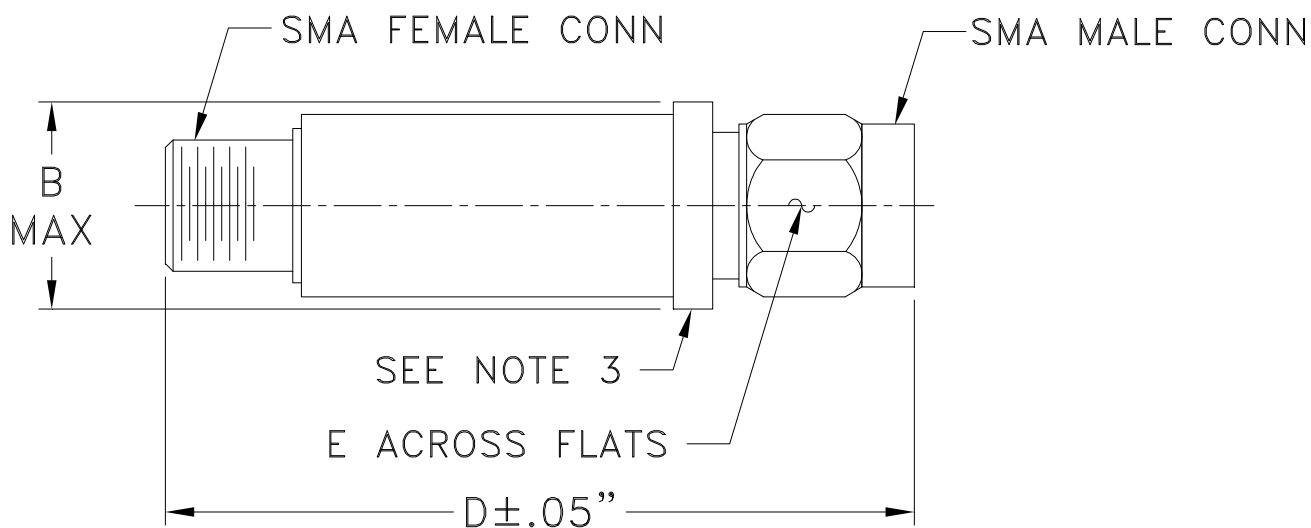


# Case Style

# FF

## FF704

### Outline Dimensions



| CASE #. | A  | B               | C  | D               | E              | WT GRAMS |
|---------|----|-----------------|----|-----------------|----------------|----------|
| FF704   | -- | .410<br>(10.41) | -- | 1.43<br>(36.32) | .312<br>(7.92) | 10.0     |

Dimensions are in inches (mm). Tolerances: 2Pl. ± .04; 3Pl. ± .030

#### Notes:

1. Case material: Stainless steel.
2. Case finish: Gold plated.
3. Round Flange may have .312 Across Flats in some models.

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RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

| <b>Specification</b>       | <b>Test/Inspection Condition</b>   | <b>Reference/Spec</b>                |
|----------------------------|--|--------------------------------------|
| Operating Temperature      | -55° to 100°C<br>Ambient Environment   | Individual Model Data Sheet          |
| Storage Temperature        | -55° to 100° C<br>Ambient Environment  | Individual Model Data Sheet          |
| Barometric Pressure        | 100,000 Feet   | MIL-STD-202, Method 105, Condition D |
| Humidity                   | 90% RH, 65°C<br>Units may require bake-out after humidity to restore full performance. | MIL-STD-202, Method 103              |
| Thermal Shock              | -65° to 125°C, 5 cycles  | MIL-STD-202, Method 107, Condition B |
| Vibration (High Frequency) | 20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)    | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock           | 100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)                          | MIL-STD-202, Method 213, Condition I |