

# Bandpass Filter

VBF-2900+

50Ω 2700 to 3100 MHz

## Maximum Ratings

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

- Rugged uni-body construction, small size
- Temperature stable

## Applications

- Harmonic rejection
- Transmitters/receivers
- Lab use
- Test instrumentation



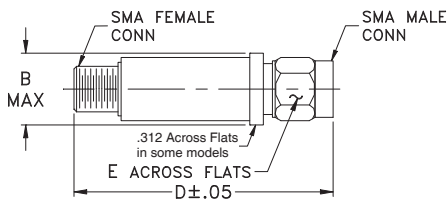
Generic photo used for illustration purposes only  
CASE STYLE: FF704

| Connectors | Model     |
|------------|-----------|
| SMA        | VBF-2900+ |

### +RoHS Compliant

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

## Outline Drawing



## Outline Dimensions (inch mm)

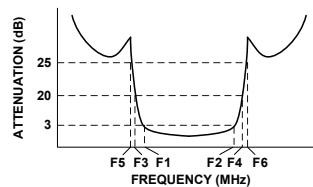
| B     | D     | E    | wt.   |
|-------|-------|------|-------|
| .410  | 1.43  | .312 | grams |
| 10.41 | 36.32 | 7.92 | 10    |

Note: Please refer to case style drawing for details

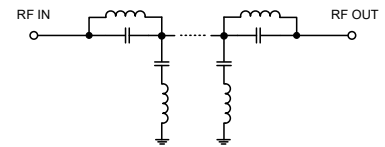
## Bandpass Filter Electrical Specifications (T<sub>AMB</sub> = 25°C)

| CENTER FREQ. (MHz)<br>F <sub>c</sub> | PASSBAND (MHz)<br>(Loss < 3dB)<br>F <sub>1</sub> - F <sub>2</sub> | STOPBANDS (MHz) |                |                |                | VSWR (:1) |      |          |
|--------------------------------------|-------------------------------------------------------------------|-----------------|----------------|----------------|----------------|-----------|------|----------|
|                                      |                                                                   | Loss > 20dB     |                | Loss 25dB Typ  |                | Passband  |      | Stopband |
|                                      |                                                                   | F <sub>3</sub>  | F <sub>4</sub> | F <sub>5</sub> | F <sub>6</sub> | Typ.      | Max. | Typ.     |
| 2900                                 | 2700 - 3100                                                       | 1850            | 4200           | 1800           | 4900 - 7000    | 2.3       | 3.6  | 20       |

## Typical Frequency Response

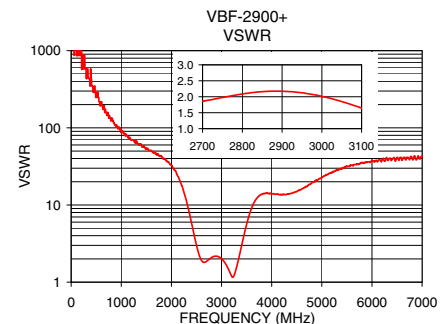
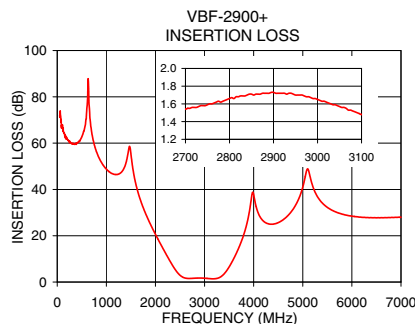


## Functional Schematic



## Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|-----------------|---------------------|-----------|
| 50              | 72.12               | 1737.18   |
| 500             | 62.70               | 289.53    |
| 1000            | 48.80               | 86.86     |
| 1800            | 29.54               | 43.44     |
| 1850            | 27.15               | 40.41     |
| 2200            | 12.70               | 18.11     |
| 2380            | 6.11                | 6.78      |
| 2480            | 3.34                | 3.42      |
| 2700            | 1.54                | 1.86      |
| 2900            | 1.73                | 2.17      |
| 3100            | 1.48                | 1.65      |
| 3400            | 3.57                | 2.97      |
| 3500            | 6.52                | 5.61      |
| 3650            | 12.55               | 10.75     |
| 4200            | 26.29               | 13.60     |
| 4900            | 35.11               | 20.95     |
| 5200            | 41.62               | 25.94     |
| 5500            | 32.26               | 31.60     |
| 7000            | 27.99               | 42.38     |



### 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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## Typical Performance Data

| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | RETURN<br>LOSS<br>(dB) |
|--------------------|---------------------------|------------------------|
| 50                 | 72.12                     | 0.01                   |
| 500                | 62.70                     | 0.06                   |
| 1000               | 48.80                     | 0.20                   |
| 1800               | 29.54                     | 0.40                   |
| 1850               | 27.15                     | 0.43                   |
| 2200               | 12.70                     | 0.96                   |
| 2380               | 6.11                      | 2.58                   |
| 2480               | 3.34                      | 5.24                   |
| 2700               | 1.54                      | 10.43                  |
| 2900               | 1.73                      | 8.65                   |
| 3100               | 1.48                      | 12.25                  |
| 3400               | 3.57                      | 6.09                   |
| 3500               | 6.52                      | 3.13                   |
| 3650               | 12.55                     | 1.62                   |
| 4200               | 26.29                     | 1.28                   |
| 4900               | 35.11                     | 0.83                   |
| 5200               | 41.62                     | 0.67                   |
| 5500               | 32.26                     | 0.55                   |
| 7000               | 27.99                     | 0.41                   |

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VBF-2900+  
080221  
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Patent Pending



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant

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## Typical Performance Curves



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### 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.

| Specification              | Test/Inspection Condition                                                              | Reference/Spec                       |
|----------------------------|----------------------------------------------------------------------------------------|--------------------------------------|
| 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 |