*Coaxial*

# Bandpass Filter

## VBFZ-2000-S+

50Ω 1730 to 2270 MHz

*Generic photo used for illustration purposes only*

CASE STYLE: FF1145

| Connectors | Model |
|---|---|
| **SMA** | VBFZ-2000-S+ |

***+RoHS Compliant***

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

### Maximum Ratings

| | |
|---|---|
| Operating Temperature | -55°C to 100°C |
| Storage Temperature | -55°C to 100°C |
| RF Power Input* | 7W at 25°C |

*Passband rating, derate linearly to 3W at 100°C ambient.
Permanent damage may occur if any of these limits are exceeded.

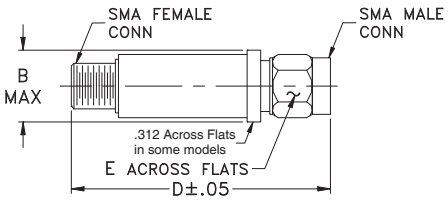
### Features

- Good Rejection, 30dB up to 16GHz
- Low insertion loss
- Excellent power handling, 7W
- Temperature stable LTCC internal structure
- Rugged stainless steel unibody
- Protected by US Patent 6,943,646

### Applications

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

### Outline Drawing




### Outline Dimensions ( inch / mm )

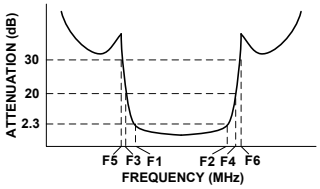
| B | D | E | wt. |
|---|---|---|---|
| **.410** | **1.91** | **.312** | grams |
| 10.41 | 48.51 | 7.92 | 11.8 |

*Note: Please refer to case style drawing for details*

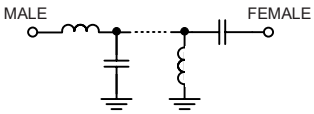
### Bandpass Filter Electrical Specifications ($T_{AMB}$= 25°C)

| CENTER FREQ. (MHz) | PASSBAND (MHz) (Loss < 2.3dB) | STOPBANDS (MHz) (Loss > 20dB) | | (Loss 30dB Typ) | | VSWR (:1) Passband | | Stopband |
|---|---|---|---|---|---|---|---|---|
| Fc | F1 - F2 | F3 | F4 | F5 | F6 | Typ. | Max. | Typ. |
| 2000 | 1730 - 2270 | 1210 | 2960 | 1200 | 2960 - 16000 | 1.6 | 2.4 | 20 |

### Typical Frequency Response



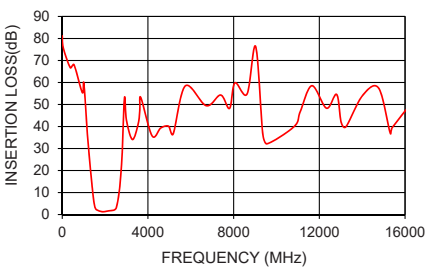

### Functional Schematic



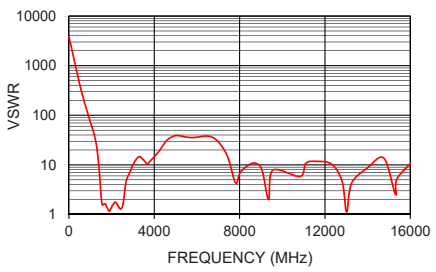

### Typical Performance Data at 25°C

| Frequency (MHz) | Insertion Loss (dB) | VSWR (:1) |
|---|---|---|
| 50 | 79.14 | 18637.82 |
| 250 | 68.15 | 1353.31 |
| 1200 | 33.44 | 38.13 |
| 1210 | 32.29 | 36.51 |
| 1360 | 16.33 | 14.94 |
| 1461 | 6.99 | 4.47 |
| 1530 | 3.28 | 1.87 |
| 1730 | 1.63 | 1.56 |
| 2000 | 1.37 | 1.42 |
| 2270 | 1.80 | 1.72 |
| 2556 | 3.93 | 1.89 |
| 2635 | 8.17 | 3.61 |
| 2720 | 16.45 | 5.44 |
| 2800 | 27.89 | 6.30 |
| 2850 | 37.66 | 6.86 |
| 2960 | 48.75 | 9.06 |
| 5000 | 39.36 | 40.30 |
| 10000 | 37.29 | 15.72 |
| 13000 | 42.80 | 1.31 |
| 16000 | 51.77 | 20.73 |

VBFZ-2000-S+
INSERTION LOSS




VBFZ-2000-S+
VSWR




**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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# Coaxial SMA Band Pass Filter VBFZ-2000-S+

*Typical Performance Data*

| FREQUENCY (MHz) | INSERTION LOSS (dB) | RETURN LOSS (dB) |
|---|---|---|
| 50 | 79.14 | 0.00 |
| 250 | 68.15 | 0.01 |
| 1200 | 33.44 | 0.46 |
| 1210 | 32.29 | 0.48 |
| 1360 | 16.33 | 1.16 |
| 1461 | 6.99 | 3.96 |
| 1530 | 3.28 | 10.34 |
| 1730 | 1.63 | 13.17 |
| 2000 | 1.37 | 15.29 |
| 2270 | 1.80 | 11.54 |
| 2556 | 3.93 | 10.24 |
| 2635 | 8.17 | 4.95 |
| 2720 | 16.45 | 3.23 |
| 2800 | 27.89 | 2.78 |
| 2850 | 37.66 | 2.55 |
| 2960 | 48.75 | 1.92 |
| 5000 | 39.36 | 0.43 |
| 10000 | 37.29 | 1.11 |
| 16000 | 51.77 | 0.84 |
| 18000 | 29.76 | 7.46 |



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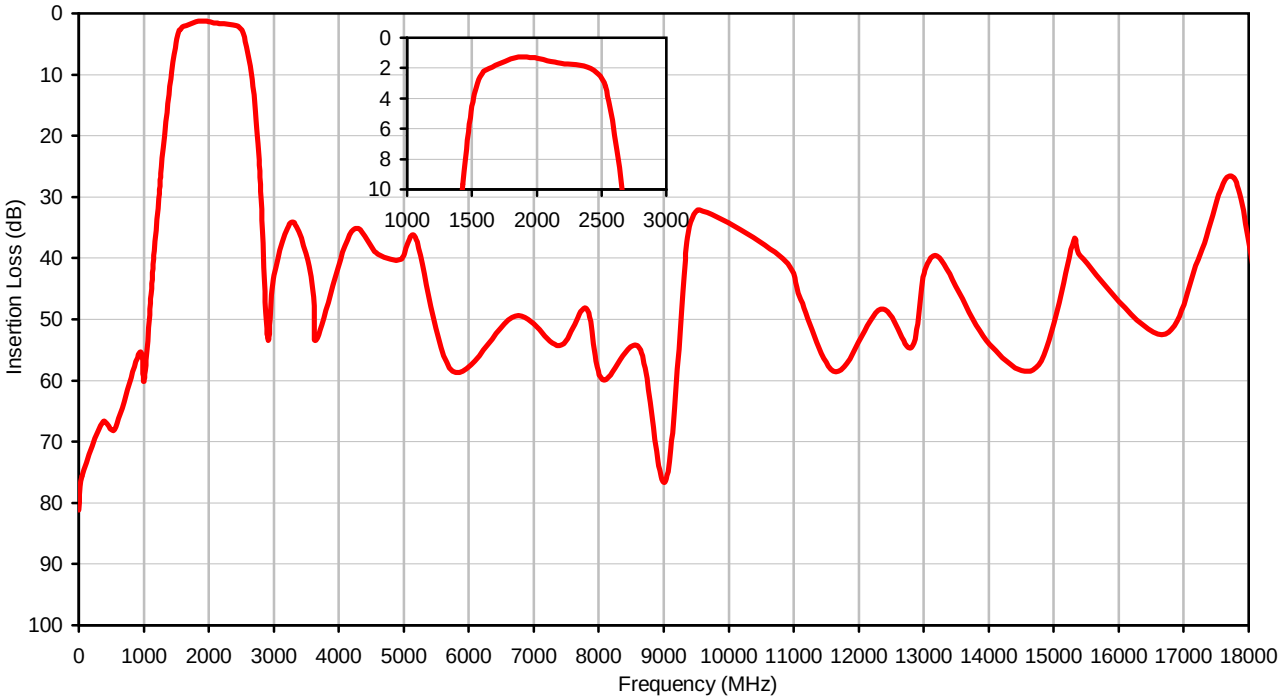
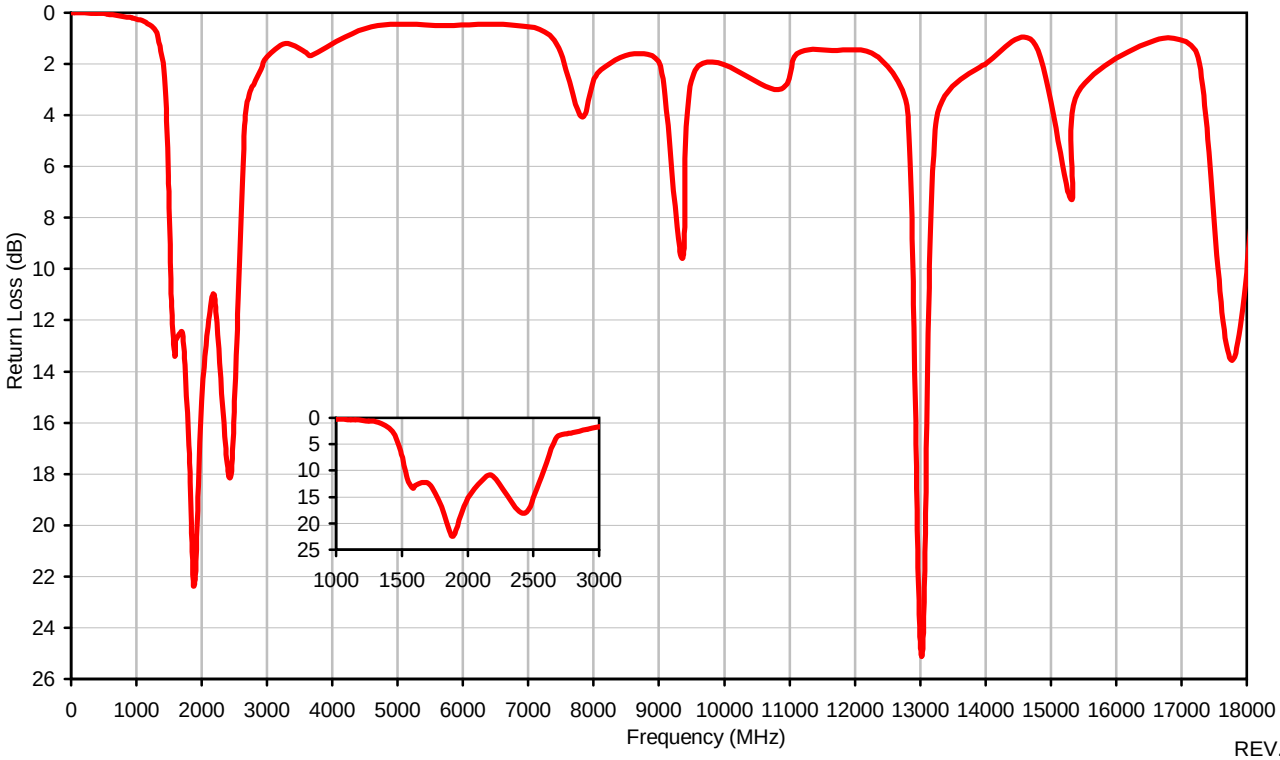
# Coaxial SMA Band Pass Filter VBFZ-2000-S+

*Typical Performance Curves*

**Insertion Loss**




**Return Loss**



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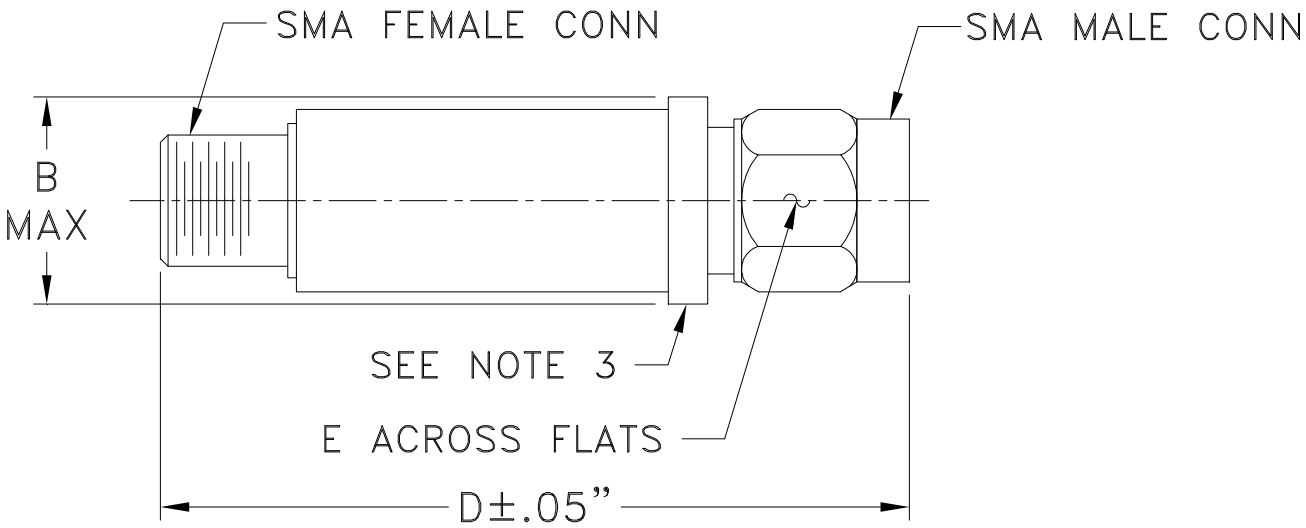
# Case Style FF

**FF1145**

## Outline Dimensions




| CASE #. | A | B | C | D | E | WT GRAMS |
|---|---|---|---|---|---|---|
| FF1145 | --<br>-- | .410<br>(10.41) | --<br>-- | 1.91<br>(48.51) | .312<br>(7.92) | 11.8 |

**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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# Environmental Specifications ENV28

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 |


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