

# Precision Fixed Attenuator

50Ω 2W 40dB DC to 18000 MHz

## BW-S40W2+



Generic photo used for illustration purposes only

CASE STYLE: FF659

Connectors Model  
SMA Female-SMA Male BW-S40W2+

**+RoHS Compliant**

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

### Maximum Ratings

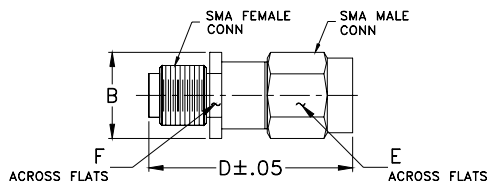
Operating Temperature -55°C to 100°C

Storage Temperature -55°C to 100°C\*\*

\*\*With mated connectors. Unmated, 85°C max.

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

### Outline Drawing



### Outline Dimensions (inch/mm)

| B    | D     | E    | F    | wt    |
|------|-------|------|------|-------|
| .36  | .99   | .312 | .312 | grams |
| 9.14 | 25.15 | 7.92 | 7.92 | 5.1   |

### Features

- DC to 18000 MHz
- precise attenuation
- excellent VSWR, 1.20 typ.
- stainless steel SMA male and female connectors

### Applications

- matching
- instrumentation
- test set-ups

### Electrical Specifications

| FREQ. RANGE (MHz) | ATTENUATION <sup>1</sup> (dB) |            | VSWR <sup>2</sup> (:1) |              |                 | MAX. INPUT POWER <sup>3</sup> (W) |
|-------------------|-------------------------------|------------|------------------------|--------------|-----------------|-----------------------------------|
|                   | Nom.                          | ACCURACY   | DC-4 GHz Max.          | 4-8 GHz Max. | 8-12.4 GHz Max. |                                   |
| $f_L - f_U$       |                               |            |                        |              |                 |                                   |
| DC-18000          | 40                            | -1.5, +1.5 | 1.20                   | 1.25         | 1.30            | 2                                 |

1. At 25°C, accuracy includes frequency and power variations. Temperature coefficient for attenuation: .0004dB/dB/°C typ.

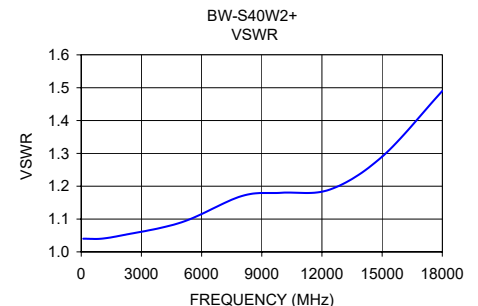
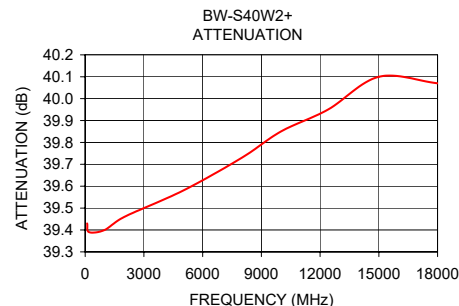
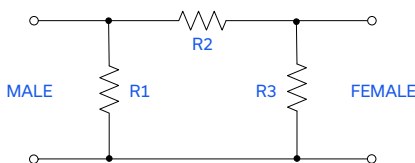
2. VSWR from 12.4 to 18 GHz, 1.6:1 typ.

3. Average power at 25°C ambient, derate linearly to 0.5W at 100°C. Peak Power 125W max. 5μsec pulse width, 100 Hz PRF

### Typical Performance Data

| Frequency (MHz) | Attenuation (dB) | VSWR (:1) |
|-----------------|------------------|-----------|
| 100.00          | 39.43            | 1.04      |
| 199.90          | 39.39            | 1.04      |
| 1000.00         | 39.40            | 1.04      |
| 1999.90         | 39.46            | 1.05      |
| 5000.00         | 39.58            | 1.09      |
| 7999.90         | 39.73            | 1.17      |
| 9999.90         | 39.85            | 1.18      |
| 12400.10        | 39.95            | 1.19      |
| 15000.00        | 40.10            | 1.29      |
| 18000.00        | 40.07            | 1.49      |

### Electrical Schematic



#### 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-Circuits' applicable established test performance criteria and measurement instructions.  
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# Fixed Attenuator

**BW-S40W2+**

## Typical Performance Data

| FREQUENCY<br>(MHz) | ATTENUATION<br>(dB) | RETURN LOSS<br>(dB) |
|--------------------|---------------------|---------------------|
| 100.00             | 39.43               | 34.15               |
| 199.90             | 39.39               | 34.15               |
| 1000.00            | 39.40               | 34.15               |
| 1999.90            | 39.46               | 32.26               |
| 5000.00            | 39.58               | 27.32               |
| 7999.90            | 39.73               | 22.12               |
| 9999.90            | 39.85               | 21.66               |
| 12400.10           | 39.95               | 21.23               |
| 15000.00           | 40.10               | 17.95               |
| 18000.00           | 40.07               | 14.12               |

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BW-S40W2+  
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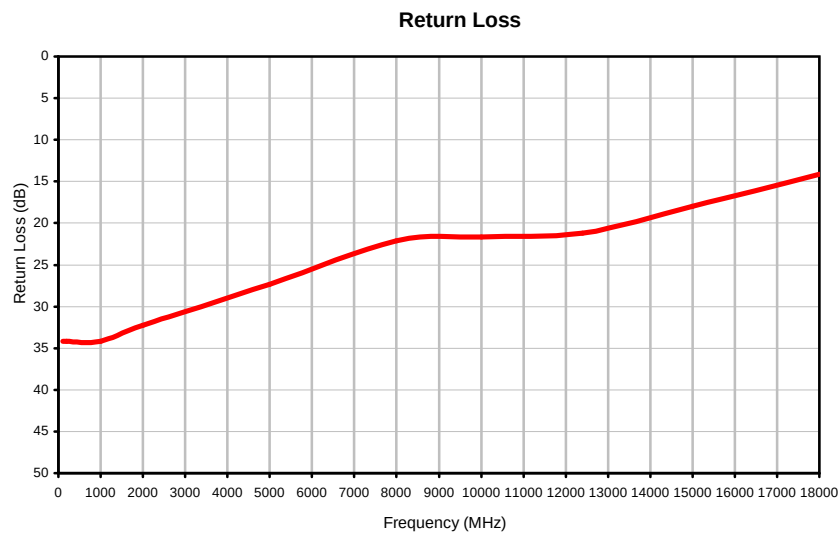
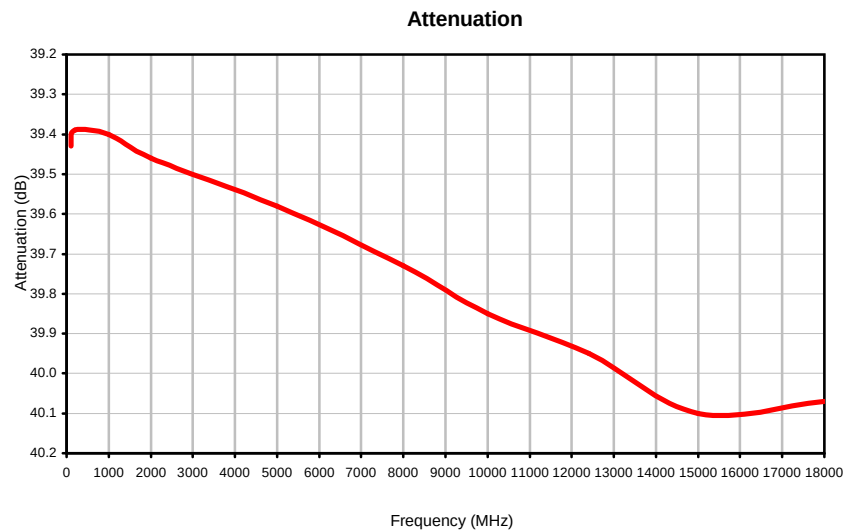
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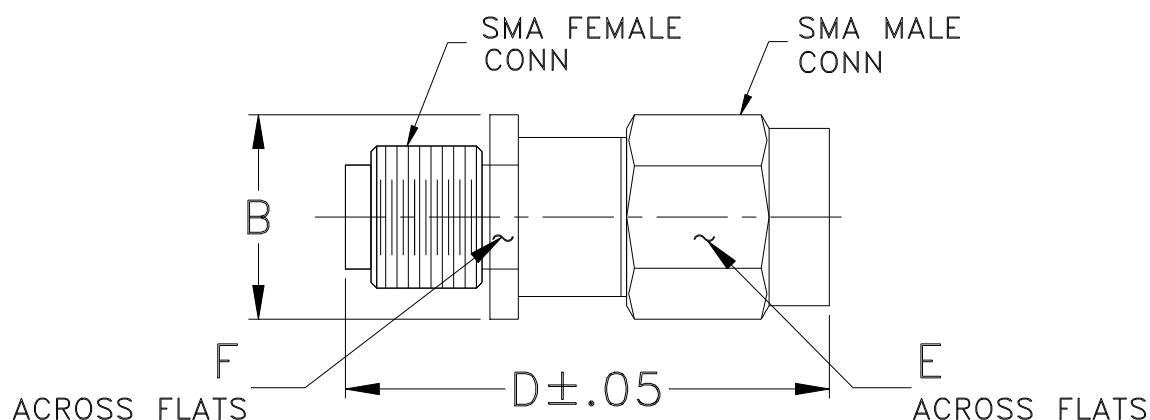
## Typical Performance Curves



## Outline Dimensions

FF658

FF659



| CASE #. | A  | B             | C  | D              | E              | F              | WT GRAMS |
|---------|----|---------------|----|----------------|----------------|----------------|----------|
| FF658   | -- | .36<br>(9.14) | -- | .85<br>(21.59) | .312<br>(7.92) | .312<br>(7.92) | 4.3      |
| FF659   | -- |               | -- | .99<br>(25.15) |                |                | 5.1      |

Dimensions are in inches (mm). Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$

### Note:

- Case material: Stainless steel.



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 |