



Mini-Circuits

COAXIAL MILLIMETER WAVE

# Precision Fixed Attenuator **BW-S10-2W263A+**

50Ω 2W 10dB DC to 26 GHz

## THE BIG DEAL

- DC to 26 GHz
- Precise attenuation
- Excellent VSWR, 1.09 typ.
- Passivated stainless steel connectors

## APPLICATIONS

- Matching
- Instrumentation
- Test set-ups

## PRODUCT OVERVIEW

The BW-SX-2W263A+ Series of precision fixed attenuators achieves ultra-wide frequency range with excellent VSWR. Available in a variety of attenuation values for different requirements, these units support a broad range of system and testing applications. Precise performance, excellent VSWR and wide band features make these models ideal solutions for systems requiring precise attenuation across very wide frequency range.

## KEY FEATURES

| Feature                               | Advantages                                                                                               |
|---------------------------------------|----------------------------------------------------------------------------------------------------------|
| Ultra wideband, DC to 26 GHz          | Ideal for an exceptionally wide variety of applications.                                                 |
| Excellent VSWR, 1.09 typ.             | Efficient power utilization with low power reflected back to source.                                     |
| Passivated stainless steel connectors | Rugged construction withstands harsh environmental conditions for high reliability and long life of use. |



Generic photo used for illustration purposes only

|            |                     |
|------------|---------------------|
| Model No.  | BW-S10-2W263A+      |
| Case Style | FF3336              |
| Connectors | SMA-Fem to SMA-Male |

### +RoHS Compliant

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



Precision Fixed Attenuator **BW-S10-2W263A+**

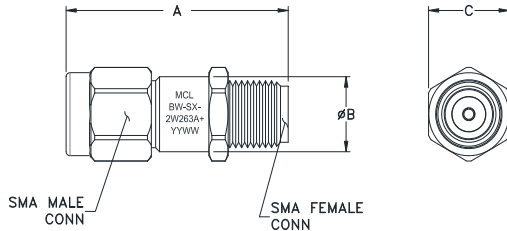
## MAXIMUM RATINGS

|                       |                  |
|-----------------------|------------------|
| Operating Temperature | -55°C to 100°C   |
| Storage Temperature   | -55°C to 100°C** |

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

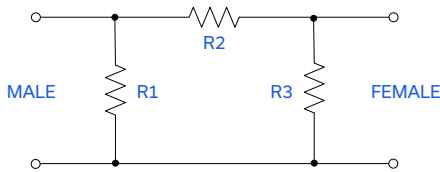
\*\* With mated connectors.

## OUTLINE DRAWING

OUTLINE DIMENSIONS (Inches)  
mm

| dB Value | A               | B     | C      | Wt Grams (Max.) |
|----------|-----------------|-------|--------|-----------------|
| 0-10     | .86<br>(21.84)  | .28   | .312   | 6.0             |
| 15,20,30 | 1.02<br>(25.91) | (7.1) | (7.92) |                 |

## ELECTRICAL SCHEMATIC



## ELECTRICAL SPECIFICATIONS AT 25°C

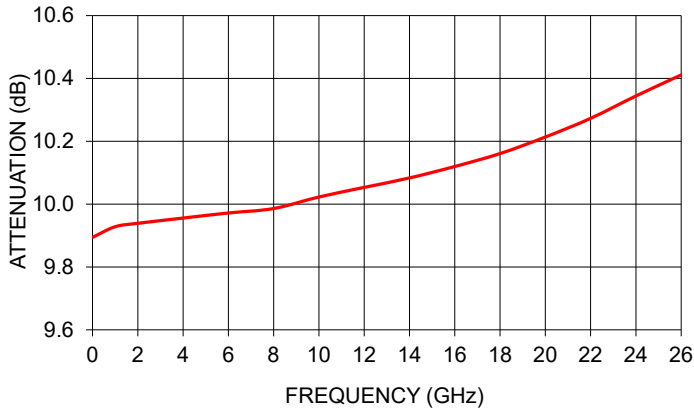
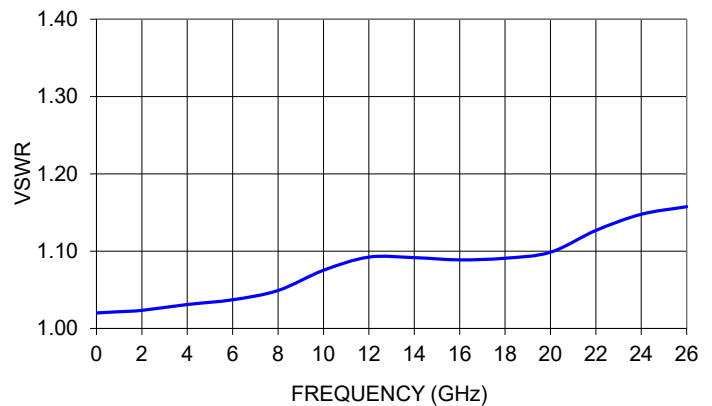
| Parameter                | Condition (GHz) | Min. | Typ. | Max.  | Units |
|--------------------------|-----------------|------|------|-------|-------|
| Frequency Range          |                 | DC   |      | 26    | GHz   |
| Attenuation <sup>1</sup> | DC-26           | 9.25 | 10.1 | 10.75 | dB    |
| VSWR                     | DC-6            | —    | 1.03 | 1.17  | :1    |
|                          | 6 - 18          | —    | 1.1  | 1.34  |       |
|                          | 18 - 26         | —    | 1.2  | 1.46  |       |
| Input Power <sup>2</sup> | DC - 26         | —    | —    | 2     | W     |

1. At 25°C, accuracy includes frequency and power variations.

2. Max. Power at 25°C ambient, derate linearly to 0.5W at 125°C. Peak power 250W max. 5μsec. pulse width, 10% duty cycle.

## TYPICAL PERFORMANCE DATA

| Frequency (GHz) | Attenuation (dB) | VSWR (:1) |
|-----------------|------------------|-----------|
| 0.01            | 9.89             | 1.02      |
| 1.00            | 9.93             | 1.02      |
| 2.00            | 9.94             | 1.02      |
| 4.00            | 9.96             | 1.03      |
| 6.00            | 9.97             | 1.04      |
| 8.00            | 9.99             | 1.05      |
| 10.00           | 10.02            | 1.08      |
| 12.00           | 10.05            | 1.09      |
| 14.00           | 10.08            | 1.09      |
| 16.00           | 10.12            | 1.09      |
| 18.00           | 10.16            | 1.09      |
| 20.00           | 10.21            | 1.10      |
| 22.00           | 10.27            | 1.13      |
| 24.00           | 10.34            | 1.15      |
| 26.00           | 10.41            | 1.16      |

BW-S10-2W263A+  
ATTENUATIONBW-S10-2W263A+  
VSWR

## NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

# Fixed Attenuator

# BW-S10-2W263A+

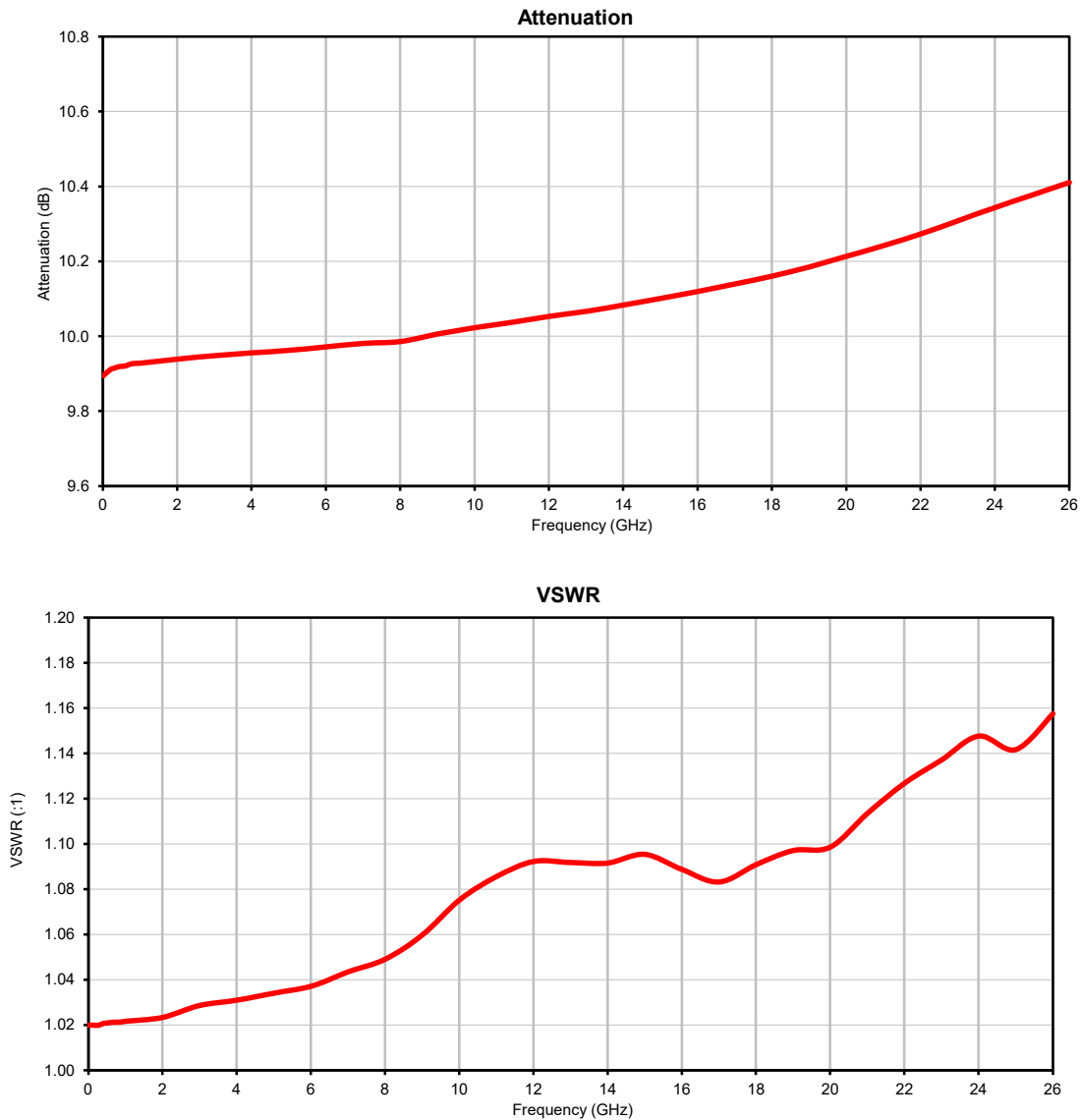
## Typical Performance Data

| FREQUENCY<br>(GHz) | ATTENUATION<br>(dB) | VSWR<br>(:1) |
|--------------------|---------------------|--------------|
| 0.01               | 9.89                | 1.02         |
| 0.2                | 9.91                | 1.02         |
| 0.3                | 9.92                | 1.02         |
| 0.4                | 9.92                | 1.02         |
| 0.5                | 9.92                | 1.02         |
| 0.6                | 9.92                | 1.02         |
| 0.7                | 9.92                | 1.02         |
| 0.8                | 9.93                | 1.02         |
| 0.9                | 9.93                | 1.02         |
| 1.0                | 9.93                | 1.02         |
| 2.0                | 9.94                | 1.02         |
| 3.0                | 9.95                | 1.03         |
| 4.0                | 9.96                | 1.03         |
| 5.0                | 9.96                | 1.03         |
| 6.0                | 9.97                | 1.04         |
| 7.0                | 9.98                | 1.04         |
| 8.0                | 9.99                | 1.05         |
| 9.0                | 10.01               | 1.06         |
| 10.0               | 10.02               | 1.08         |
| 11.0               | 10.04               | 1.09         |
| 12.0               | 10.05               | 1.09         |
| 13.0               | 10.07               | 1.09         |
| 14.0               | 10.08               | 1.09         |
| 15.0               | 10.10               | 1.10         |
| 16.0               | 10.12               | 1.09         |
| 17.0               | 10.14               | 1.08         |
| 18.0               | 10.16               | 1.09         |
| 19.0               | 10.19               | 1.10         |
| 20.0               | 10.21               | 1.10         |
| 21.0               | 10.24               | 1.11         |
| 22.0               | 10.27               | 1.13         |
| 23.0               | 10.31               | 1.14         |
| 24.0               | 10.34               | 1.15         |
| 25.0               | 10.38               | 1.14         |
| 26.0               | 10.41               | 1.16         |

# Fixed Attenuator

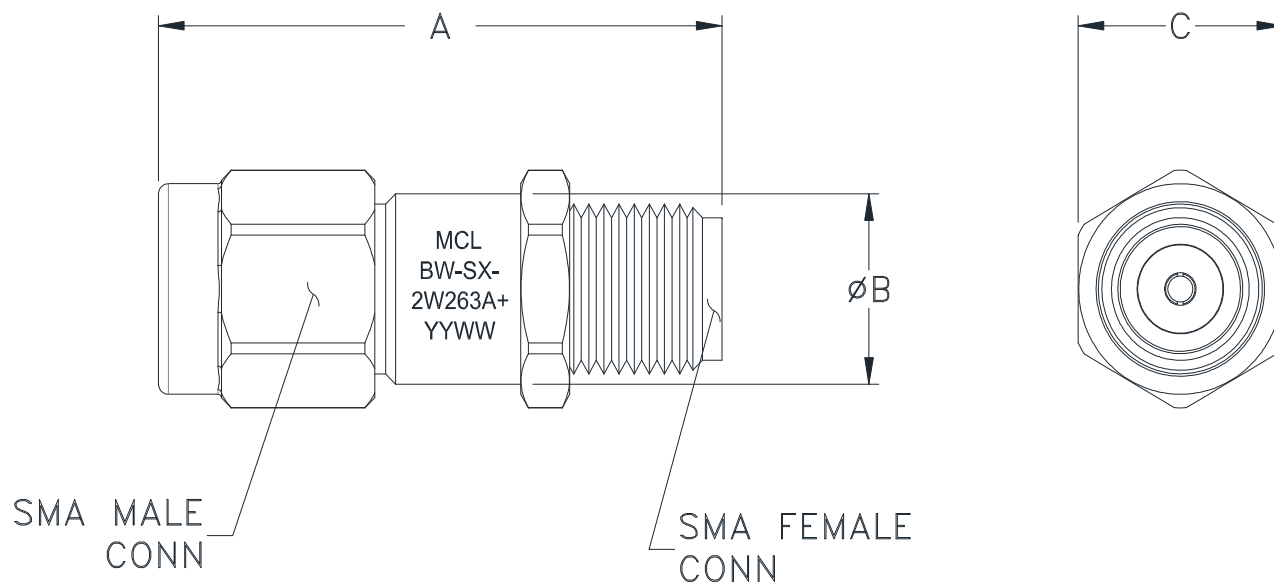
# BW-S10-2W263A+

## Typical Performance Curves



## Outline Dimensions

FF3336



| dB VALUE | A               | B            | C              | WT GRAMS (MAX) |
|----------|-----------------|--------------|----------------|----------------|
| 0-10     | .86<br>(21.84)  | .28<br>(7.1) | .312<br>(7.92) | 6.0            |
| 15,20,30 | 1.02<br>(25.91) |              |                |                |

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

### Notes:

1. Case material: Stainless steel.
2. Case finish: Passivated.



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                                                                       | Individual Model Data Sheet          |
| Storage Temperature   | -55° to +100 °C                                                                       | Individual Model Data Sheet          |
| Burn-in               | 16Hrs<br>Ambient Environment                                                          |                                      |
| Thermal Shock         | -55°C to +100°C, 100 cycles,<br>15 mins dwell at extreme temperatures                 | MIL-STD-202, Method 107              |
| Vibration             | 20g peak, 10-2000 Hz<br>12 times in each of three perpendicular directions (total 36) | MIL-STD-202, Method 204, Condition D |
| Mechanical Shock      | 50g, 11ms half-sine, 3 shocks each direction 3 axes (total 18)                        | MIL-STD-202, Method 213, Condition A |
| Drop Test             | 1.0m drops onto concrete of packed box in 6 orientations                              |                                      |