

50Ω High Power 80W 20 to 1000 MHz

### The Big Deal

- Very high power handling, 80W
- High isolation (DC-RF), up to 70 dB
- Good VSWR, 1.2:1



CASE STYLE: AW1564

### Product Overview

Mini-Circuits' ZABT-80W-13-S+ is a coaxial bias-tee providing high power handling, low loss and high isolation across the 20 to 1000 MHz band. Capable of handling up to 5A DC current, this model is ideal for high power systems requiring DC feed on the RF line such as remote antennas and repeaters. The unit comes housed in a rugged aluminum alloy case (3.00 x 2.06 x 2.03") with SMA connectors and a heat sink for efficient cooling.

### Key Features

| Feature                                        | Advantages                                                                                                              |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| High RF power and DC current handling, 80W, 5A | ZABT-80W-13-S+ supports systems with high power requirements such as high power amplifiers, transmit antennas and more. |
| Low insertion loss, 0.6 dB                     | Preserves signal strength from input to output and minimizes overall system loss.                                       |
| Good VSWR, 1.2:1                               | Provides efficient power utilization with minimal power reflected back to source.                                       |
| High DC-RF isolation, up to 70 dB              | Minimizes RF signal leakage and interference with other system elements.                                                |
| Wideband, 20 to 1000 MHz                       | Supports a variety of high power wideband and multi-band applications.                                                  |

#### 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)

# Coaxial Bias-Tee

50Ω High Power 80W 20 to 1000 MHz

## Maximum Ratings

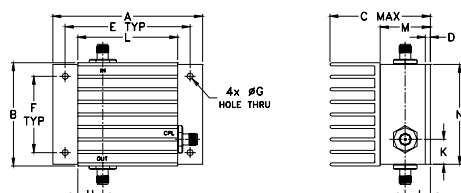
|                                     |                |
|-------------------------------------|----------------|
| Operating Temperature               | -55°C to 65°C  |
| Storage Temperature                 | -55°C to 100°C |
| RF Power                            | 49 dBm max.    |
| Voltage at DC port                  | 50 V max.      |
| Input Current                       | 5A             |
| DC resistance from DC to RF&DC port | 1.0 ohm typ.   |

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

## Coaxial Connections

|       |     |
|-------|-----|
| RF    | OUT |
| RF&DC | IN  |
| DC    | CPL |

## Outline Drawing



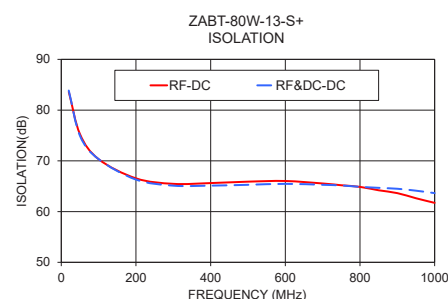
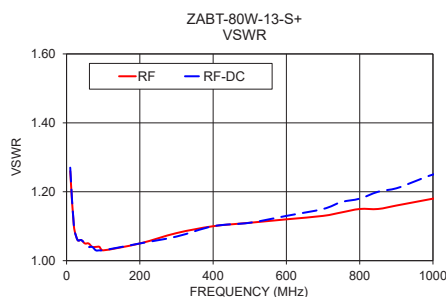
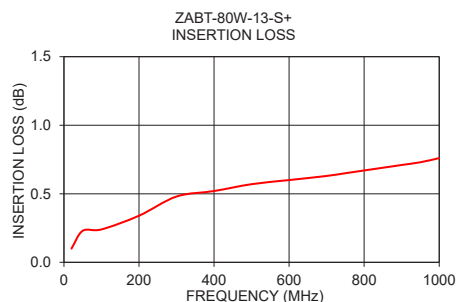
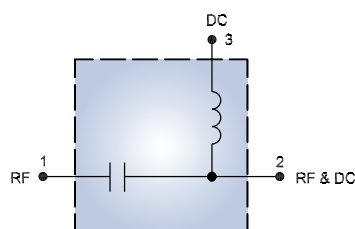
## Outline Dimensions (inch/mm)

| A     | B     | C     | D    | E     | F     | G    |
|-------|-------|-------|------|-------|-------|------|
| 3.00  | 2.06  | 2.03  | .10  | 2.500 | 1.525 | .125 |
| 76.20 | 52.32 | 51.56 | 2.54 | 63.50 | 38.74 | 3.18 |

| H     | J     | K     | L     | M     | N     | wt    |
|-------|-------|-------|-------|-------|-------|-------|
| .50   | .50   | .50   | 2.00  | 1.00  | 2.00  | grams |
| 12.70 | 12.70 | 12.70 | 50.80 | 25.40 | 50.80 | 230   |

## Electrical Schematic



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# ZABT-80W-13-S+



Generic photo used for illustration purposes only

CASE STYLE: AW1564

| Connectors | Model          |
|------------|----------------|
| SMA        | ZABT-80W-13-S+ |

**+RoHS Compliant**

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

## Electrical Specifications at 25°C

| Parameter       | Frequency (MHz) | Min. | Typ. | Max. | Unit |
|-----------------|-----------------|------|------|------|------|
| Frequency Range |                 | 20   |      | 1000 | MHz  |
| Insertion Loss* | 20-200          | —    | 0.15 | 0.6  | dB   |
|                 | 200-500         | —    | 0.6  | 0.8  |      |
|                 | 500-1000        | —    | 0.8  | 1.1  |      |
| Isolation       | 20-200          | 40   | 70   | —    | dB   |
|                 | 200-500         | 35   | 60   | —    |      |
|                 | 500-1000        | 30   | 50   | —    |      |
| VSWR**          | 20-200          | —    | 1.06 | 1.2  | :1   |
|                 | 200-500         | —    | 1.13 | 1.3  |      |
|                 | 500-1000        | —    | 1.25 | 1.5  |      |

\*Insertion Loss and Isolation are guaranteed up to 40 dBm-RF power and 3A DC current.

\*\*VSWR measured with open and short at DC port.

## Typical Performance Data

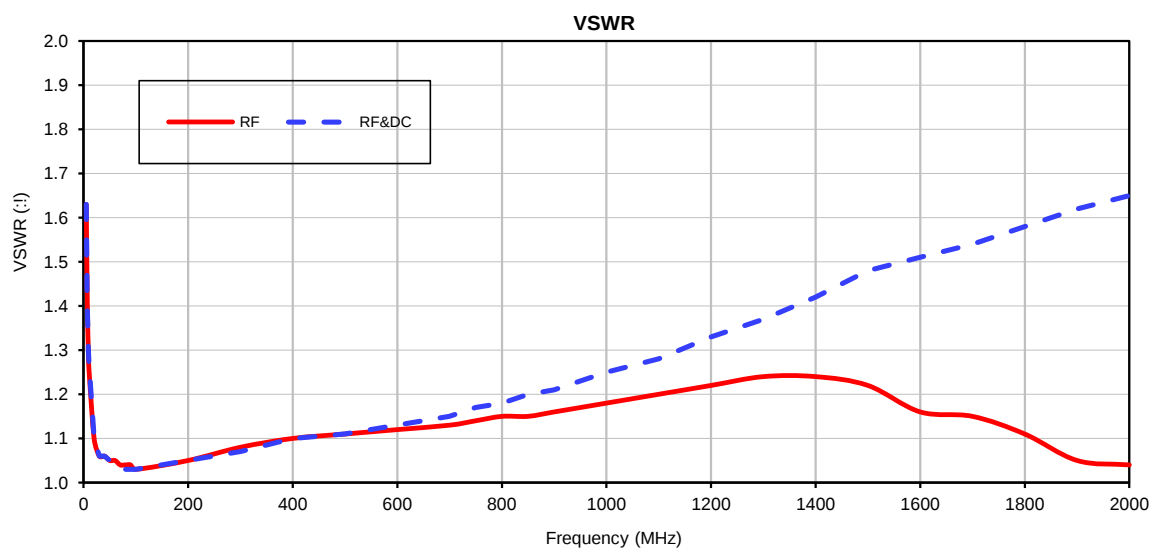
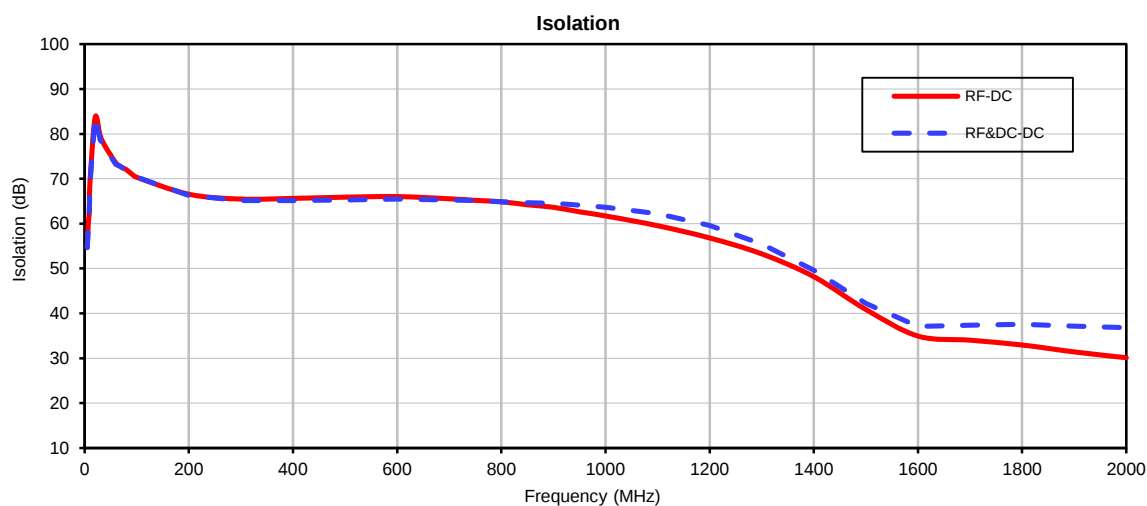
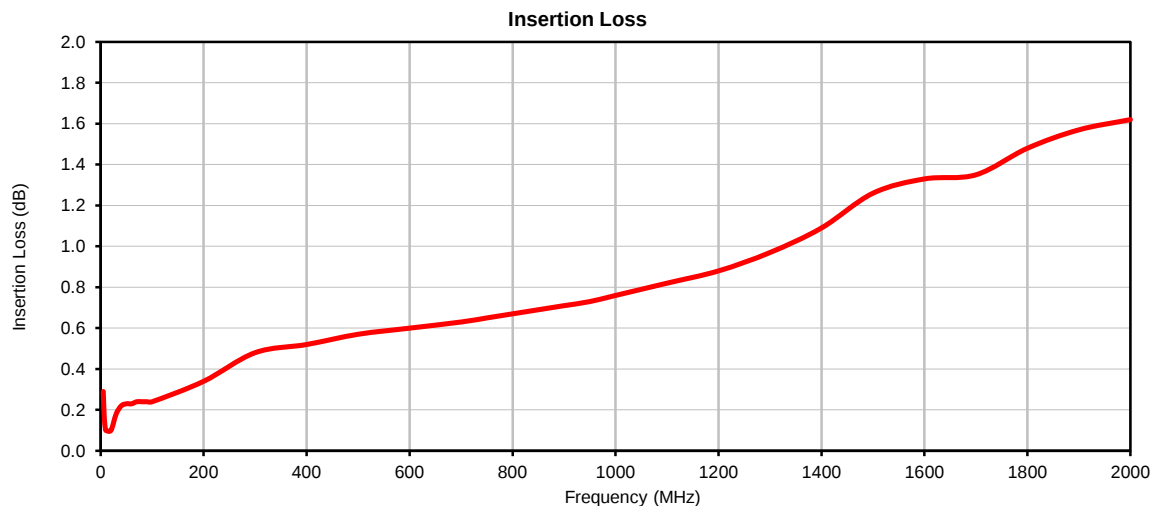
| Freq.<br>(MHz) | INSERTION LOSS<br>(dB) | VSWR(:1) |       | ISOLATION<br>(dB) |          |
|----------------|------------------------|----------|-------|-------------------|----------|
|                |                        | RF       | RF&DC | RF-DC             | RF&DC-DC |
| 20.00          | 0.10                   | 1.10     | 1.10  | 83.62             | 83.86    |
| 50.00          | 0.23                   | 1.05     | 1.05  | 75.27             | 74.94    |
| 100.00         | 0.24                   | 1.03     | 1.03  | 70.33             | 70.33    |
| 200.00         | 0.34                   | 1.05     | 1.05  | 66.55             | 66.31    |
| 300.00         | 0.48                   | 1.08     | 1.07  | 65.47             | 65.11    |
| 400.00         | 0.52                   | 1.10     | 1.10  | 65.62             | 65.12    |
| 500.00         | 0.57                   | 1.11     | 1.11  | 65.90             | 65.28    |
| 600.00         | 0.60                   | 1.12     | 1.13  | 66.03             | 65.47    |
| 700.00         | 0.63                   | 1.13     | 1.15  | 65.54             | 65.28    |
| 750.00         | 0.65                   | 1.14     | 1.17  | 65.19             | 65.15    |
| 800.00         | 0.67                   | 1.15     | 1.18  | 64.87             | 64.88    |
| 850.00         | 0.69                   | 1.15     | 1.20  | 64.20             | 64.68    |
| 900.00         | 0.71                   | 1.16     | 1.21  | 63.64             | 64.50    |
| 950.00         | 0.73                   | 1.17     | 1.23  | 62.63             | 64.12    |
| 1000.00        | 0.76                   | 1.18     | 1.25  | 61.72             | 63.64    |

REV. A  
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ZABT-80W-13-S+  
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Page 2 of 2

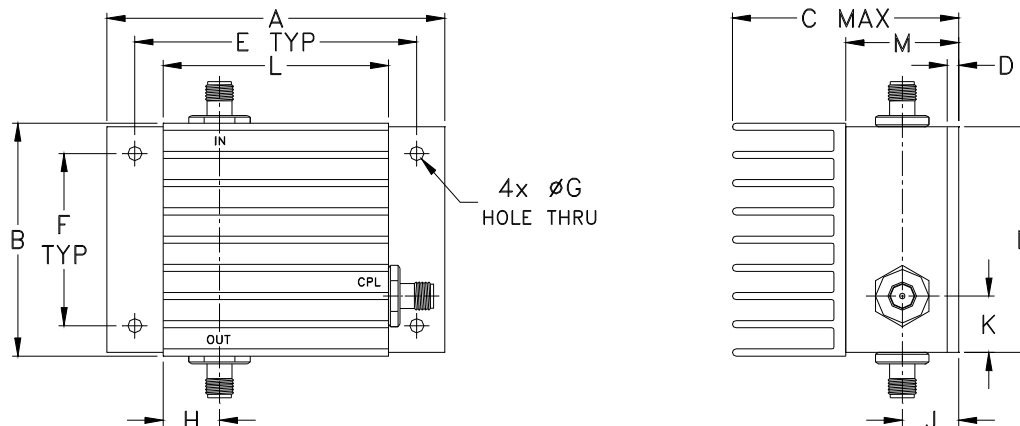
## Typical Performance Data

| FREQUENCY<br>(MHz) | INSERTION LOSS<br>(dB) | ISOLATION (dB) |          | VSWR (:1) |       |
|--------------------|------------------------|----------------|----------|-----------|-------|
|                    |                        | RF-DC          | RF&DC-DC | RF        | RF&DC |
| 5                  | 0.29                   | 54.70          | 54.64    | 1.63      | 1.63  |
| 7                  | 0.16                   | 60.08          | 60.08    | 1.41      | 1.41  |
| 9                  | 0.11                   | 62.99          | 62.96    | 1.30      | 1.30  |
| 10                 | 0.10                   | 68.81          | 68.80    | 1.26      | 1.27  |
| 20                 | 0.10                   | 83.62          | 83.86    | 1.10      | 1.10  |
| 30                 | 0.18                   | 79.47          | 78.63    | 1.06      | 1.06  |
| 40                 | 0.22                   | 77.11          | 77.04    | 1.06      | 1.06  |
| 50                 | 0.23                   | 75.27          | 74.94    | 1.05      | 1.05  |
| 60                 | 0.23                   | 73.52          | 73.17    | 1.05      | 1.04  |
| 70                 | 0.24                   | 72.62          | 72.64    | 1.04      | 1.04  |
| 80                 | 0.24                   | 72.04          | 71.79    | 1.04      | 1.03  |
| 90                 | 0.24                   | 71.08          | 71.03    | 1.04      | 1.03  |
| 100                | 0.24                   | 70.33          | 70.33    | 1.03      | 1.03  |
| 200                | 0.34                   | 66.55          | 66.31    | 1.05      | 1.05  |
| 300                | 0.48                   | 65.47          | 65.11    | 1.08      | 1.07  |
| 400                | 0.52                   | 65.62          | 65.12    | 1.10      | 1.10  |
| 500                | 0.57                   | 65.90          | 65.28    | 1.11      | 1.11  |
| 600                | 0.60                   | 66.03          | 65.47    | 1.12      | 1.13  |
| 700                | 0.63                   | 65.54          | 65.28    | 1.13      | 1.15  |
| 750                | 0.65                   | 65.19          | 65.15    | 1.14      | 1.17  |
| 800                | 0.67                   | 64.87          | 64.88    | 1.15      | 1.18  |
| 850                | 0.69                   | 64.20          | 64.68    | 1.15      | 1.20  |
| 900                | 0.71                   | 63.64          | 64.50    | 1.16      | 1.21  |
| 950                | 0.73                   | 62.63          | 64.12    | 1.17      | 1.23  |
| 1000               | 0.76                   | 61.72          | 63.64    | 1.18      | 1.25  |
| 1100               | 0.82                   | 59.54          | 62.21    | 1.20      | 1.28  |
| 1200               | 0.88                   | 56.81          | 59.60    | 1.22      | 1.33  |
| 1300               | 0.97                   | 53.26          | 55.47    | 1.24      | 1.37  |
| 1400               | 1.09                   | 48.19          | 49.63    | 1.24      | 1.42  |
| 1500               | 1.26                   | 40.87          | 42.21    | 1.22      | 1.48  |
| 1600               | 1.33                   | 34.95          | 37.09    | 1.16      | 1.51  |
| 1700               | 1.35                   | 34.03          | 37.39    | 1.15      | 1.54  |
| 1800               | 1.48                   | 32.96          | 37.58    | 1.11      | 1.58  |
| 1900               | 1.57                   | 31.42          | 37.18    | 1.05      | 1.62  |
| 2000               | 1.62                   | 30.12          | 36.82    | 1.04      | 1.65  |

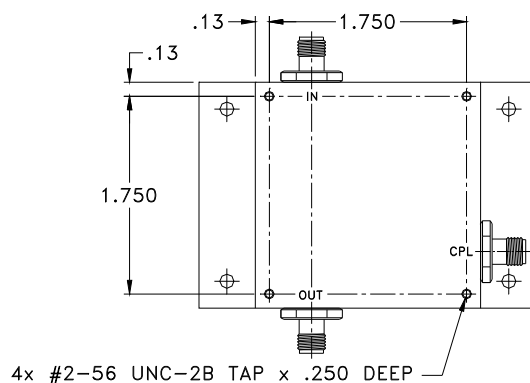
## Typical Performance Curves



### Outline Dimensions



MOUNTING INFORMATION FOR MODELS WITHOUT HEATSINK



| CASE # | A               | B               | C               | D             | E                | F                | G              | H              | J              | K              | L               |
|--------|-----------------|-----------------|-----------------|---------------|------------------|------------------|----------------|----------------|----------------|----------------|-----------------|
| AW1564 | 3.00<br>(76.20) | 2.06<br>(52.32) | 2.03<br>(51.56) | .10<br>(2.54) | 2.500<br>(63.50) | 1.525<br>(38.74) | .125<br>(3.18) | .50<br>(12.70) | .50<br>(12.70) | .50<br>(12.70) | 2.00<br>(50.80) |

| CASE # | M               | N               | WT, GRAMS | WT WITHOUT HEATSINK, GRAMS |
|--------|-----------------|-----------------|-----------|----------------------------|
| AW1564 | 1.00<br>(25.40) | 2.00<br>(50.80) | 230       | 165                        |

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

#### Notes:

- Case material: Aluminum alloy.
- Finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
- Heat sink finish: Black anodize.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

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 75°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 |