

Coaxial

# N-Type Fixed Attenuator

**BW-20N100W+**

50Ω 100W 20dB DC to 6000 MHz

## The Big Deal

- Wideband operation, DC to 6 GHz
- High power handling, 100W
- Good flatness,  $\pm 0.65$  dB typ.



CASE STYLE: GH986

## Product Overview

Mini-Circuits' BW-20N100W+ is a 20 dB coaxial precision fixed attenuator providing high power handling of up to 100W over the DC to 6 GHz frequency range. This model supports many of high-power applications requiring precise attenuation over a broad frequency range including high-power measurement, matching, instrumentation, and more. It provides good VSWR (1.25 typ.), outstanding attenuation flatness ( $\pm 0.65$  dB) and excellent thermal stability from  $-55$  to  $100^{\circ}\text{C}$ . It features rugged construction with N-male to N-female connectors and heat dissipation fins for efficient cooling.

## Key Features

Feature	Advantages
Wideband operation, DC to 6 GHz	Wide frequency range makes the BW-20N100W+ suitable for a wide variety of applications.
High power handling to 100W	Supports high-power test lab and system applications including high-power measurement, matching, instrumentation, and more.
Good VSWR, 1.25:1 typ.	Well-matched for 50Ω systems; reduces effects of phase variation.
Good flatness, $\pm 0.65$ dB	Provides consistent attenuation performance across the entire frequency band.
Rugged construction	Excellent durability for a long lifetime of use.
Excellent thermal stability, $-55$ to $100^{\circ}\text{C}$	Designed with heat dissipation fins for efficient cooling, the BW-20N100W+ provides reliable performance without the need for external cooling equipment.
Compact size (3.46 x 3.46 x 6.36")	Outstanding performance capability and power handling with minimal space requirements.

### 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)



# N-Type Fixed Attenuator

50Ω 100W 20dB DC to 6000 MHz

## BW-20N100W+



CASE STYLE: GH986

Connectors	Model
N-Male-N-Fem	BW-20N100W+

**+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 125°C
Peak Power*	1K Watt

\* 5μ second pulse 0.05% duty cycle.

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

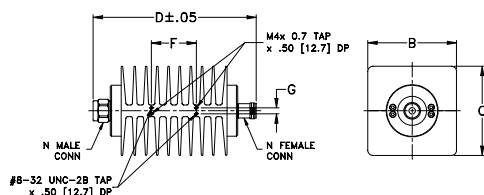
### Features

- wideband, DC to 6000 MHz
- excellent VSWR, 1.25:1
- N-Male and N-Female connectors

### Applications

- matching
- instrumentation
- test set-ups

### Outline Drawing



### Outline Dimensions (inch/mm)

B	C	D	E	F	G	wt.
3.46	3.46	6.36	--	1.75	.23	grams
87.88	87.88	161.54	--	44.45	5.84	1100.0

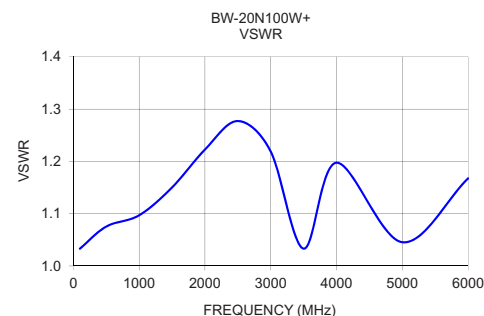
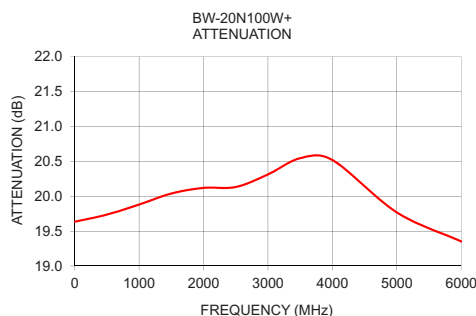
### Electrical Specifications at 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC	—	6000	MHz
Attenuation	DC - 6000	18.5	20	21.5	dB
VSWR	DC - 2500	—	1.15	1.35	:1
	2500 - 6000	—	1.30	1.45	
Input Power (Male) <sup>1</sup>	DC - 6000	—	—	100	W
Input Power (Female)	DC - 6000	—	—	20	W

1. Derate linearly to 20 Watt at 100°C.

### Typical Performance Data

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
0.3	19.57	1.03
500.0	19.74	1.08
1000.0	19.88	1.10
1500.0	20.04	1.15
2000.0	20.12	1.22
2500.0	20.13	1.28
3000.0	20.31	1.22
3500.0	20.55	1.03
4000.0	20.52	1.20
5000.0	19.77	1.05
6000.0	19.35	1.17



### Notes

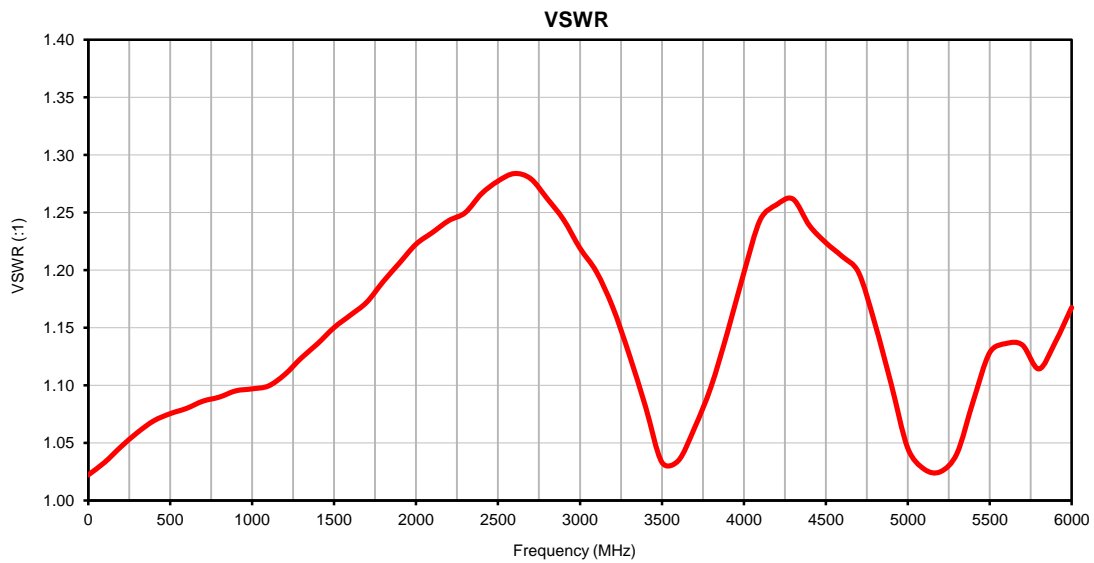
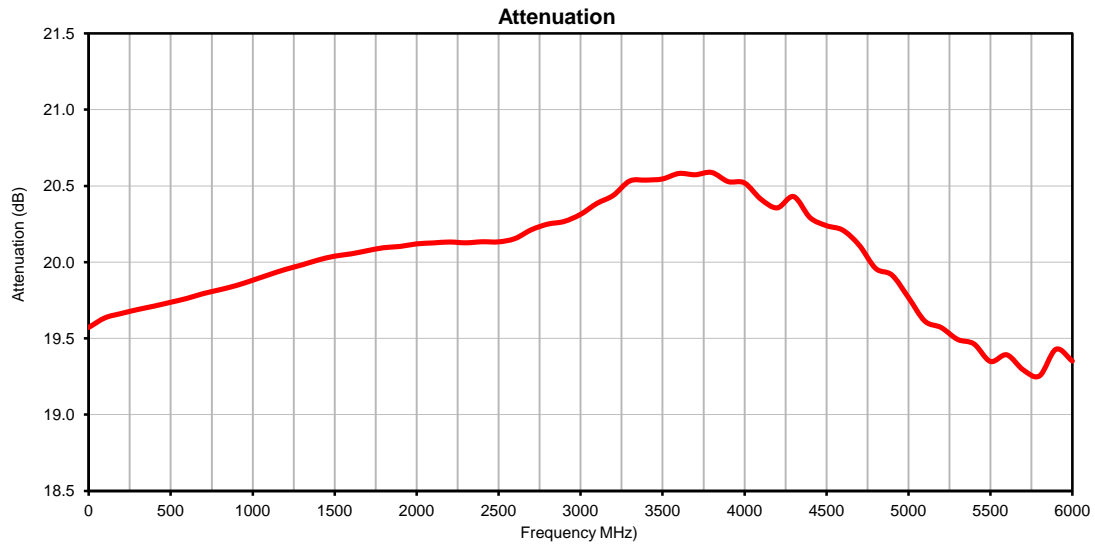
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## Typical Performance Data

FREQUENCY (MHz)	ATTENUATION (dB)	VSWR (:1)
0.3	19.57	1.02
100	19.63	1.03
200	19.66	1.05
300	19.69	1.06
400	19.71	1.07
500	19.74	1.08
600	19.76	1.08
700	19.79	1.09
800	19.82	1.09
900	19.85	1.10
1000	19.88	1.10
1100	19.92	1.10
1200	19.95	1.11
1300	19.98	1.12
1400	20.01	1.14
1500	20.04	1.15
1600	20.05	1.16
1700	20.08	1.17
1800	20.09	1.19
1900	20.10	1.21
2000	20.12	1.22
2100	20.13	1.23
2200	20.13	1.24
2300	20.13	1.25
2400	20.13	1.27
2500	20.13	1.28
2600	20.15	1.28
2700	20.21	1.28
2800	20.25	1.26
2900	20.27	1.24
3000	20.31	1.22
3100	20.39	1.20
3200	20.44	1.17
3300	20.53	1.13
3400	20.54	1.08
3500	20.55	1.03
3600	20.58	1.03
3700	20.57	1.06
3800	20.59	1.10
3900	20.53	1.15
4000	20.52	1.20
4100	20.41	1.24
4200	20.36	1.26
4300	20.43	1.26
4400	20.29	1.24
4500	20.24	1.22
4600	20.21	1.21
4700	20.11	1.20
4800	19.96	1.15
4900	19.91	1.10
5000	19.77	1.05
5100	19.61	1.03
5200	19.57	1.02
5300	19.49	1.04
5400	19.46	1.09
5500	19.35	1.13
5600	19.39	1.14
5700	19.29	1.13
5800	19.25	1.11
5900	19.43	1.14
6000	19.35	1.17

## Typical Performance Curves

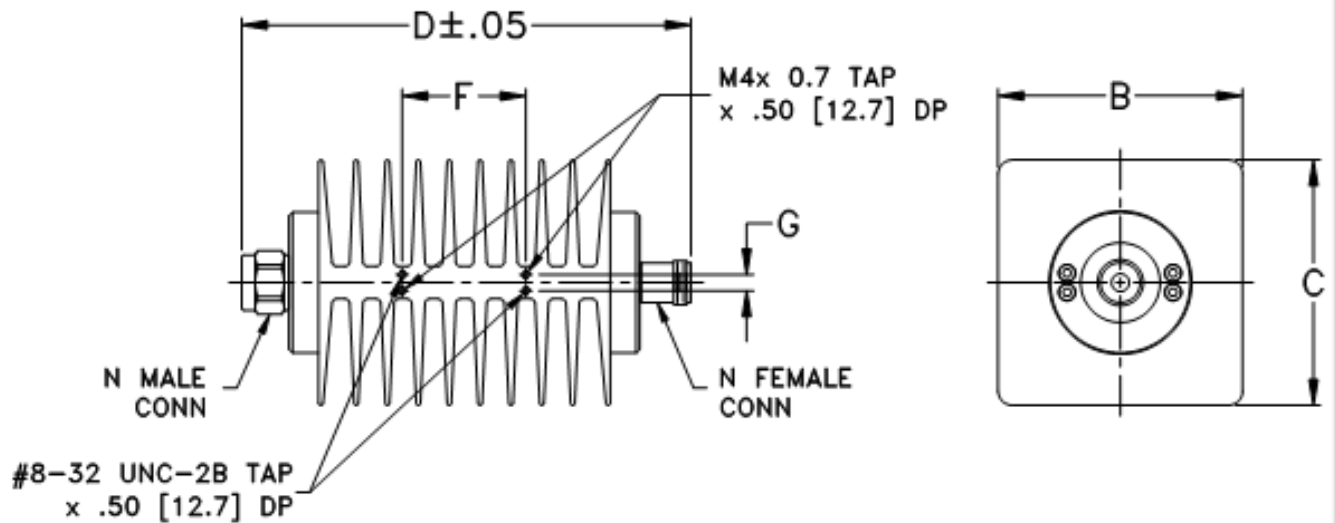


# Case Style

# GH

## Outline Dimensions

## GH986



CASE #.	A	B	C	D	E	F	G	H	J	WT. GRAM
GH986	--	3.46 (87.88)	3.46 (87.88)	6.36 (161.54)	--	1.75 (44.45)	.23 (5.84)	--	--	1100

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

### Notes:

1. Case Material: Aluminum alloy.
2. Case finish: Black anodize.

 **Mini-Circuits®**

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Mini-Circuits ISO 9001 & ISO 14001 Certified

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.

<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C 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