



Precision Fixed Attenuator **BW-40N250W+**

50Ω 250W 40dB DC to 8000 MHz N-Male to N-Female

THE BIG DEAL

- Wideband Operation, DC to 8000 MHz
- High Power Handling, 250W
- Excellent VSWR, 1.11 Typ.
- Excellent flatness, ± 0.4 dB Typ.
- Uni-directional power rating

*Generic photo used for illustration purposes only*

APPLICATIONS

- Test and Measurement Equipment
- LTE & 5G MIMO Infrastructure
- Satellite Communications
- Radar, EW, and ECM Defense Systems

Model No.	BW-40N250W+
Case Style	GH3249
Connectors	N-Male to N-Female

+RoHS Compliant

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

PRODUCT OVERVIEW

Mini-Circuits' BW-40N250W+ is a 40 dB coaxial precision fixed unidirectional attenuator providing high power handling of up to 250W over the DC to 8 GHz frequency range. This model supports many of high-power applications requiring precise attenuation over a broad frequency range including high-power measurement, instrumentation, and more. It provides excellent VSWR (1.11 typ.), outstanding attenuation flatness (± 0.7 dB) and excellent thermal stability from -55 to 125 °C. It features rugged construction with N-male to N-female connectors and heat dissipation fins for efficient cooling.

KEY FEATURES

Features	Advantages
Wideband Operation, DC to 8000 MHz	Wide frequency range makes the BW-40N250W+ suitable for a wide variety of applications.
High power handling to 250W	Supports high-power test lab and system applications by protecting sensitive test equipment that is often damaged when exposed to high RF input power.
Excellent VSWR, 1.1:1 typ.	Well-matched for 50Ω systems; reduces effects of phase variation
Excellent flatness, ± 0.7 dB	Provides consistent attenuation performance across the entire frequency band.
Rugged construction	Excellent durability for a long lifetime of use
Wide operating temperature range, -55 to 125 °C	Designed with heat dissipation fins for efficient cooling, the BW-40N250W+ provides reliable performance over extreme operating conditions. Note: See max power derating at high temperature.



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ELECTRICAL SPECIFICATIONS AT 25°C

Parameter	Condition (MHz)	Min.	Typ.	Max.	Units
Frequency Range	-	DC	-	8000	MHz
Attenuation	DC-2000	38.75	40.33	41.25	dB
	2000-4000	38.75	40.38	41.25	
	4000-6000	38.5	40.07	41.5	
	6000-8000	38	39.46	42	
Attenuation Flatness (±)	DC-8000	-	0.4	-	dB
VSWR	DC-2000	-	1.04	1.20	:1
	2000-4000	-	1.10	1.35	
	4000-6000	-	1.16	1.40	
	6000-8000	-	1.08	1.50	
Input Power (N- Male Input) ¹	DC-8000	-	-	250	W
Input Power (N- Female Output)	DC-8000	-	-	15	W

1. Max. input power at 25°C ambient, derate to 25W at 125°C.

ABSOLUTE MAXIMUM RATINGS

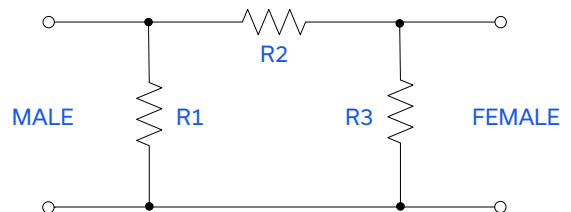
Parameter	Ratings
Operating Case Temperature	-55 °C to +125 °C
Storage Temperature	-55 °C to +125 °C
Input Power (N-Male Input)	250 Watt
Input Power (N-Female Output)	15 Watt
Input Peak Power ²	1000 Watt.

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

2. Peak power <5 μSEC. PW, /<0.1% duty cycle.

▲ This model is uni-directional relative to the specific power rating i.e the power rating at the N-Male port is not equal to the power rating for signals input to the N-Female port.

FUNCTIONAL DIAGRAM





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COAXIAL CONNECTIONS

Input	N-Male
Output	N-Female

CONNECTOR SPECIFICATIONS

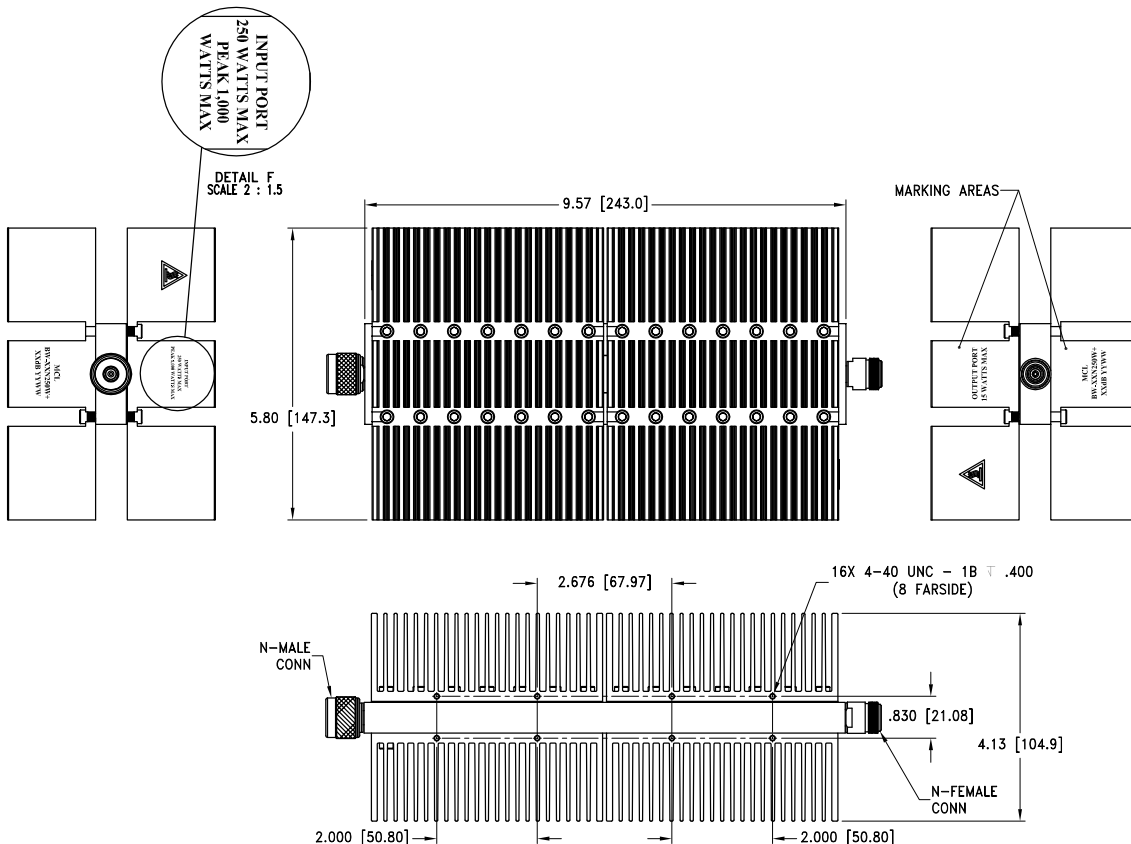
Description	Connector 1	Connector 2
Type	N-Male	N-Female
Orientation	Straight	
Mounting Type	Standard	
Impedance	50 Ω	
Coupling Nuts	Stainless Steel, Silver Plated	
Center Contacts	BeCu, Silver Plated	

MECHANICAL SPECIFICATIONS

Housing	Aluminum Alloy, Chemical Conversion Coat
Heat Sinks	Aluminum Alloy, Black Anodize Finish (0.5°C/Watt) ¹
Internal Resistive Elements	Beryllium Oxide Or Aluminum Nitride Ceramic With Thick Film And/Or Thin Film Resistor

1. Heat sink thermal rise (calculated)

OUTLINE DRAWING



Weight (MAX.): 3820 grams

Dimensions are in inches (mm). Tolerances: 2 PL \pm .05[1.27]; 3 PL \pm .030[.77]





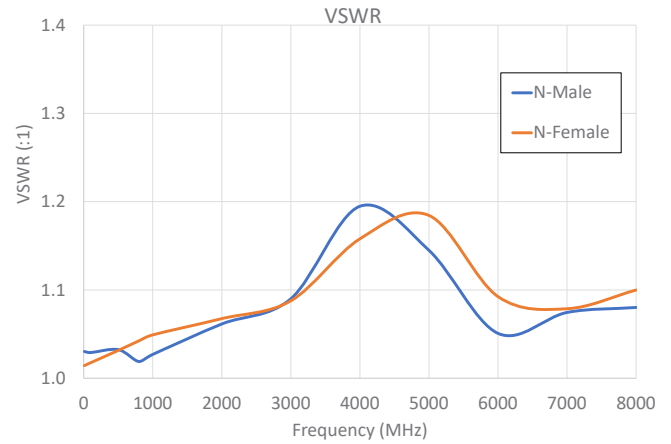
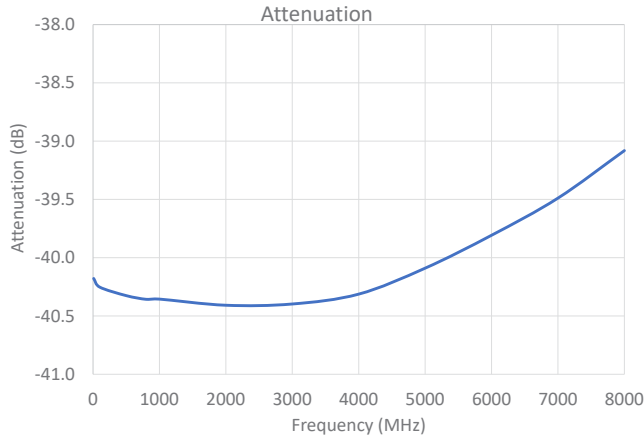
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TYPICAL PERFORMANCE CURVES



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



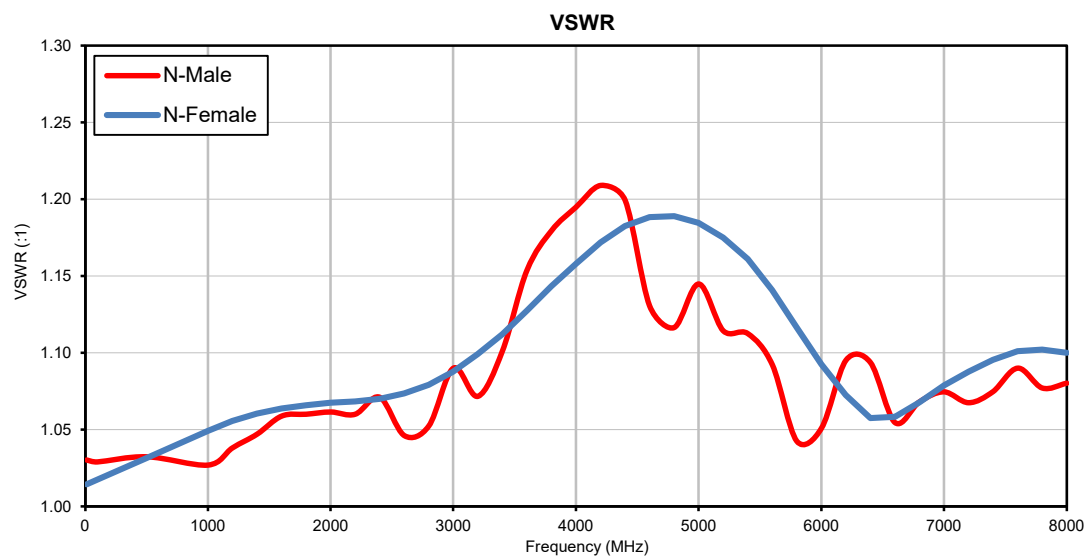
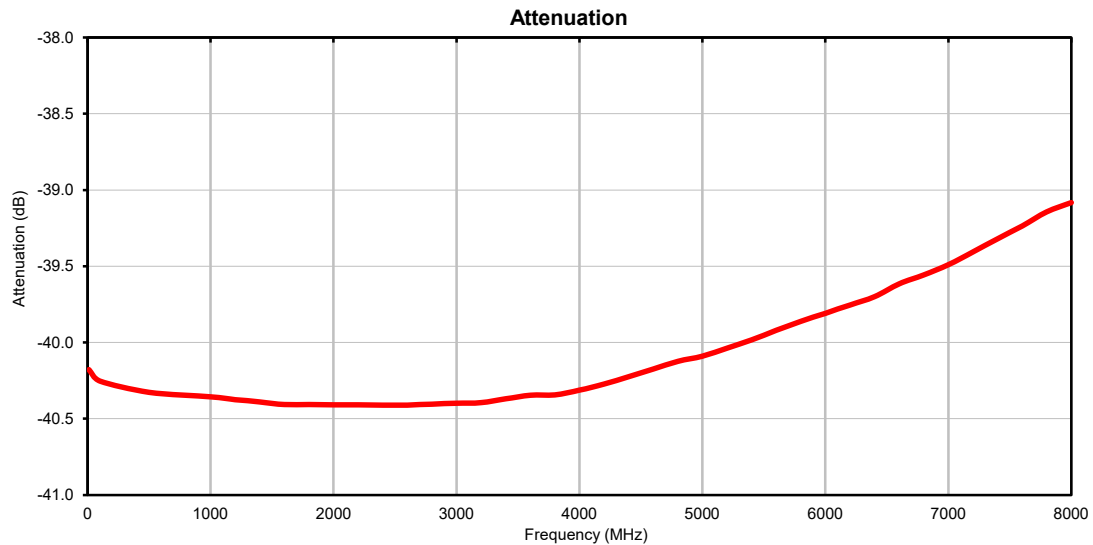
Fixed Attenuator

BW-40N250W+

Typical Performance Data

FREQUENCY (MHz)	ATTENUATION (dB)	VSWR (:1)	
		N-Male	N-Female
10	40.18	1.03	1.01
100	40.25	1.03	1.02
500	40.33	1.03	1.03
1000	40.36	1.03	1.05
1200	40.37	1.04	1.06
1400	40.39	1.05	1.06
1600	40.41	1.06	1.06
1800	40.41	1.06	1.07
2000	40.41	1.06	1.07
2200	40.41	1.06	1.07
2400	40.41	1.07	1.07
2600	40.41	1.05	1.07
2800	40.40	1.05	1.08
3000	40.40	1.09	1.09
3200	40.39	1.07	1.10
3400	40.37	1.10	1.11
3600	40.35	1.15	1.13
3800	40.34	1.18	1.14
4000	40.31	1.19	1.16
4200	40.27	1.21	1.17
4400	40.22	1.20	1.18
4600	40.17	1.13	1.19
4800	40.12	1.12	1.19
5000	40.09	1.14	1.18
5200	40.04	1.11	1.18
5400	39.98	1.11	1.16
5600	39.92	1.09	1.14
5800	39.86	1.04	1.12
6000	39.81	1.05	1.09
6200	39.75	1.10	1.07
6400	39.70	1.09	1.06
6600	39.61	1.05	1.06
6800	39.56	1.07	1.07
7000	39.49	1.07	1.08
7200	39.41	1.07	1.09
7400	39.32	1.07	1.10
7600	39.24	1.09	1.10
7800	39.14	1.08	1.10
8000	39.08	1.08	1.10

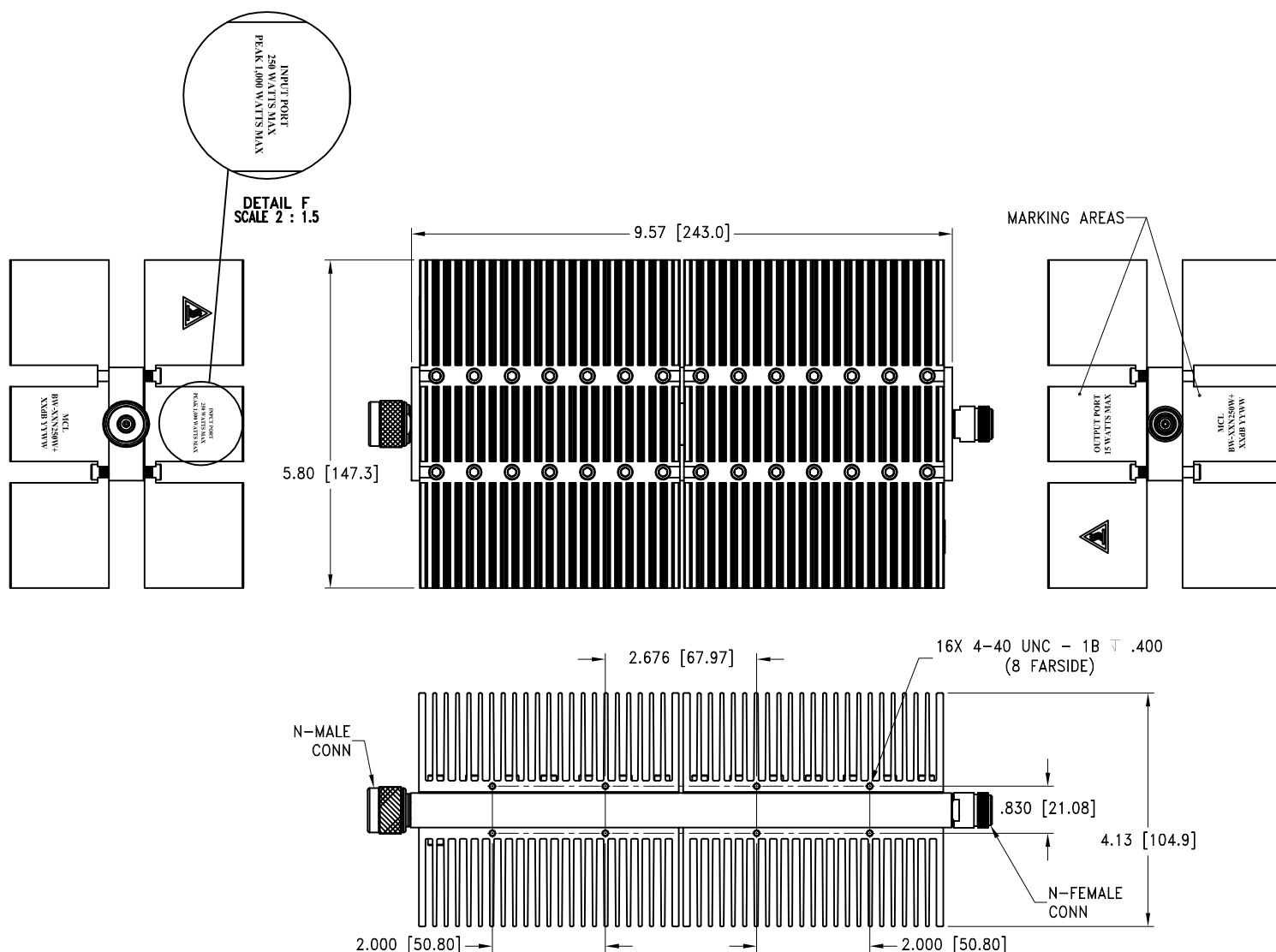
Typical Performance Curves



Case Style

Outline Dimensions

GH
GH3249



Weight (MAX.): 3820 grams

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .05$ [1.27]; 3 Pl. $\pm .030$ [.77]

Notes:

1. Case material: Aluminum alloy
2. Case Finish: Chemical conversion coat
3. Heat sinks material: Aluminum alloy
4. Heat sinks 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.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 125°C, 5 cycles	MIL-STD-202, Method 107
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
Connector Durability	500 mating/unmating cycles	MIL-PRF-39012E, PARAGRAPH 4.6.12