



COAXIAL

Fixed Attenuator

BW-W20-0.5W114+

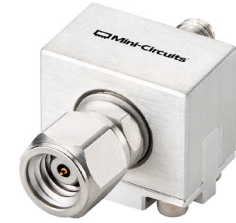
50Ω 0.5 W 20 dB DC to 110 GHz 1.0 mm Male to Female

KEY FEATURES

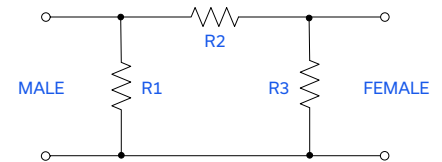
- Wideband, DC to 110 GHz
- 1.0 mm Male to Female Connectors
- Excellent VSWR, 1.3 typ.
- 0.5 W Power Handling

APPLICATIONS

- Optical communications
- Test & Measurement
- High-speed data systems
- Instrumentation
- Precision Measurements



FUNCTIONAL DIAGRAM



HANDLING INSTRUCTIONS

1.0 mm connectors require specific handling and torque values. See Mini-Circuits Application Note AN-71-001 for detail.

PRODUCT OVERVIEW

The Mini-Circuits catalog model BW-W20-0.5W114+ is a precision fixed 20 dB 0.5 W attenuator. BW-W20-0.5W114+ operates over an extremely wide frequency range with excellent VSWR and supports a broad range of system and testing applications. Precise performance, excellent VSWR and wide bandwidth make this model an ideal solution for systems requiring accurate attenuation across a very wide frequency range.

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC	-	110	GHz
Attenuation	DC-26.5	18.5	20.6	21.5	dB
	26.5-40	18.0	20.5	22.0	
	40-60	18.0	20.4	22.0	
	60-90	17.5	20.6	22.5	
	90-110	17.0	19.6	23.0	
VSWR	DC-26.5	-	1.1	1.4	:1
	26.5-40	-	1.2	1.6	
	40-60	-	1.1	1.7	
	60-90	-	1.5	2.1	
	90-110	-	1.7	2.7	

ABSOLUTE MAXIMUM RATINGS¹

Parameter	Ratings
Operating Case Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C

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





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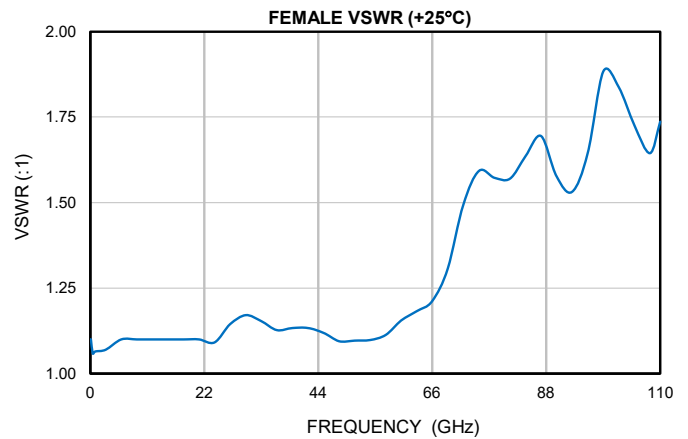
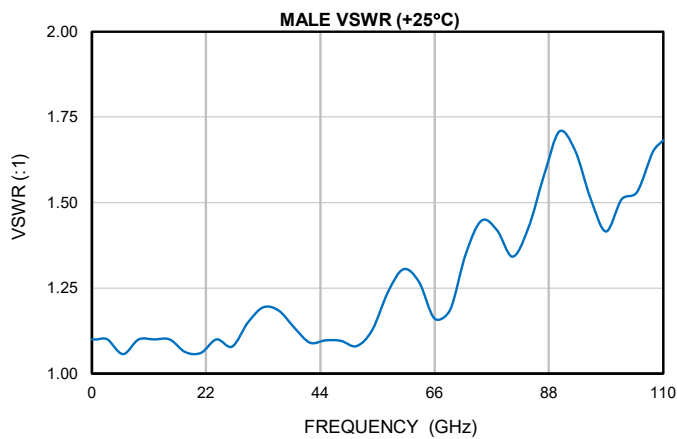
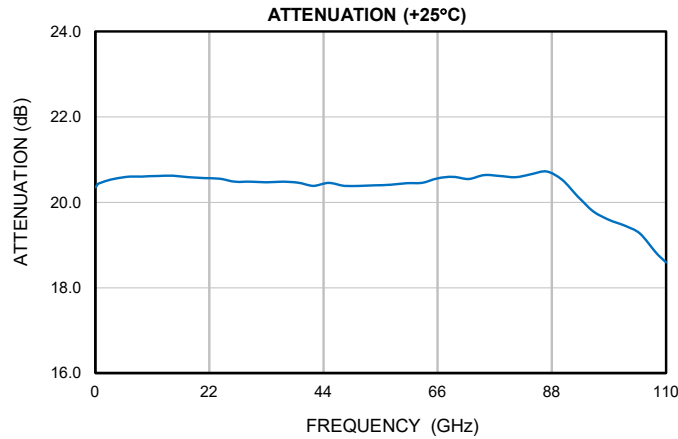
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Mini-Circuits

50 Ω 0.5 W 20 dB DC to 110 GHz 1.0 mm Male to Female

TYPICAL PERFORMANCE GRAPHS





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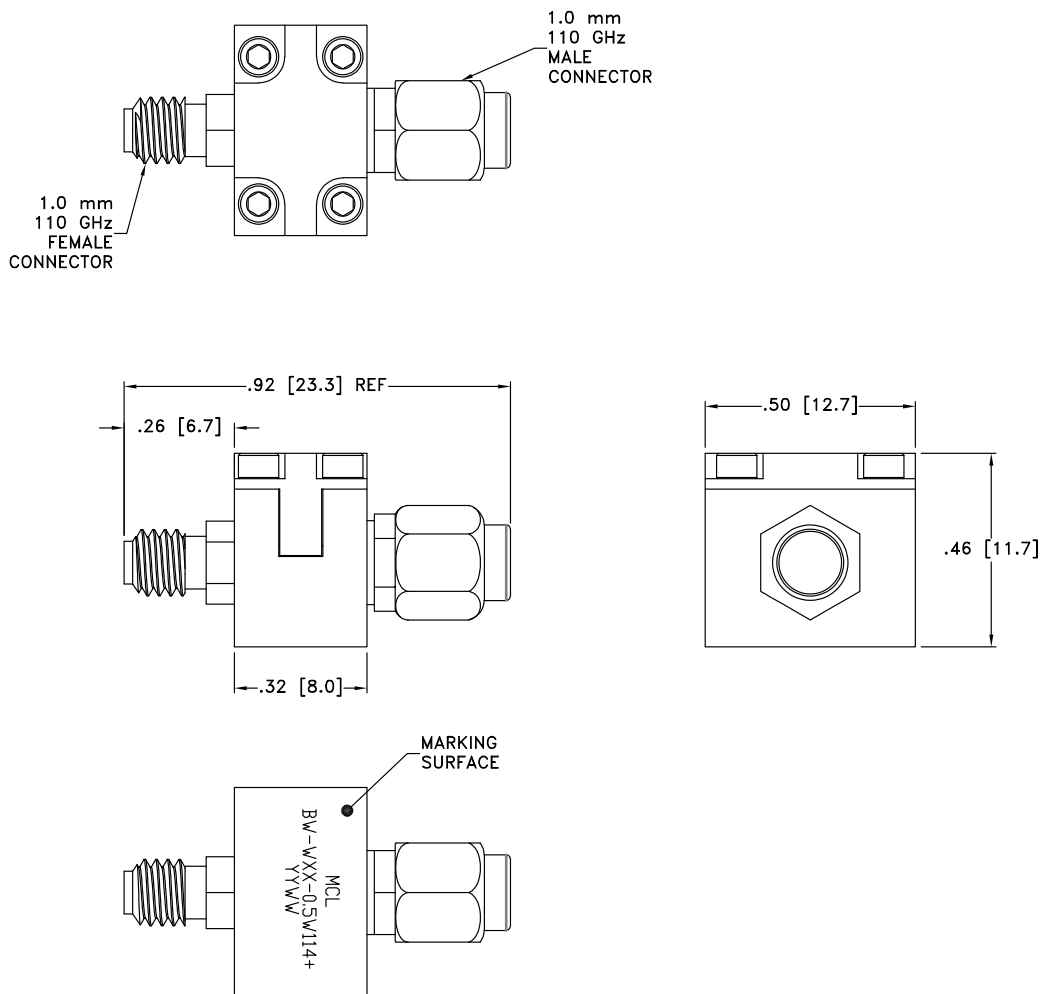
Mini-Circuits

50Ω 0.5 W 20 dB DC to 110 GHz 1.0 mm Male to Female

COAXIAL CONNECTIONS

Description	RF1 PORT	RF2 PORT
Connector Type	1.0 mm Male	1.0 mm Female
Orientation	Straight	Straight

CASE STYLE DRAWING



Weight: 7.0 grams MAX

Dimensions are in inches [mm]. Tolerances: 2 PL±.03[.76]; 3 PL±.015[.38] inches[mm]

PRODUCT MARKING*: BW-W20-0.5W114+

*Marking may contain other features or characters for internal lot control.





Mini-Circuits

COAXIAL

Fixed Attenuator

BW-W20-0.5W114+

50Ω 0.5 W 20 dB DC to 110 GHz 1.0 mm Male to Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	FF3501
RoHS Status	Compliant
Environmental Ratings	ENV142

NOTES

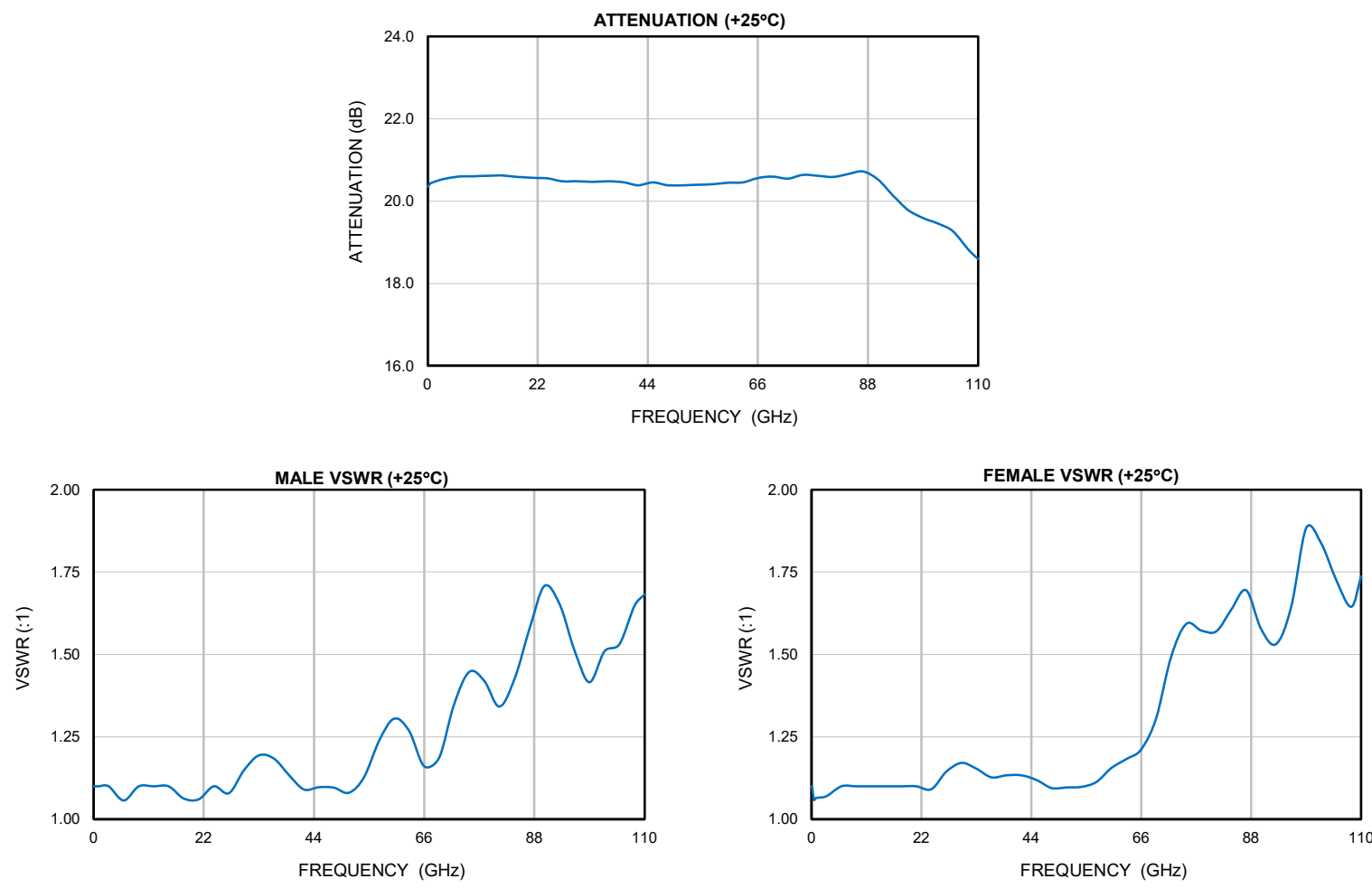
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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/terms/viewterm.html



Fixed Attenuator**BW-W20-0.5W114+****Typical Performance Data (+25°C)**

FREQ.	ATTENUATION	MALE VSWR	FEMALE VSWR
(GHz)	(dB)	(:1)	(:1)
0.01	20.4	1.1	1.1
0.1	20.4	1.1	1.1
0.5	20.4	1.1	1.1
1.0	20.5	1.1	1.1
3.0	20.5	1.1	1.1
6.0	20.6	1.1	1.1
9.0	20.6	1.1	1.1
12.0	20.6	1.1	1.1
15.0	20.6	1.1	1.1
18.0	20.6	1.1	1.1
21.0	20.6	1.1	1.1
24.0	20.6	1.1	1.1
27.0	20.5	1.1	1.1
30.0	20.5	1.1	1.2
33.0	20.5	1.2	1.2
36.0	20.5	1.2	1.1
39.0	20.5	1.1	1.1
42.0	20.4	1.1	1.1
45.0	20.5	1.1	1.1
48.0	20.4	1.1	1.1
51.0	20.4	1.1	1.1
54.0	20.4	1.1	1.1
57.0	20.4	1.2	1.1
60.0	20.4	1.3	1.2
63.0	20.5	1.3	1.2
66.0	20.6	1.2	1.2
69.0	20.6	1.2	1.3
72.0	20.5	1.4	1.5
75.0	20.6	1.4	1.6
78.0	20.6	1.4	1.6
81.0	20.6	1.3	1.6
84.0	20.7	1.4	1.6
87.0	20.7	1.6	1.7
90.0	20.5	1.7	1.6
93.0	20.1	1.7	1.5
96.0	19.8	1.5	1.6
99.0	19.6	1.4	1.9
102.0	19.5	1.5	1.8
105.0	19.3	1.5	1.7
108.0	18.8	1.6	1.6
110.0	18.6	1.7	1.7

Typical Performance Curves

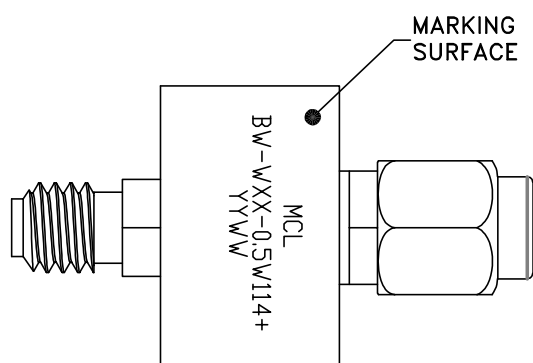
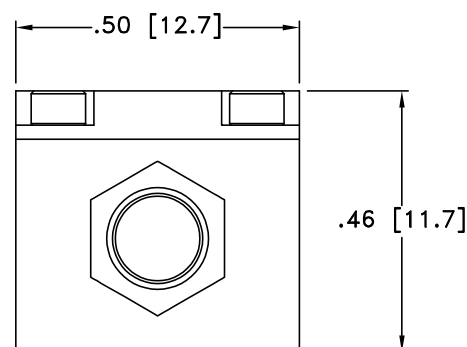
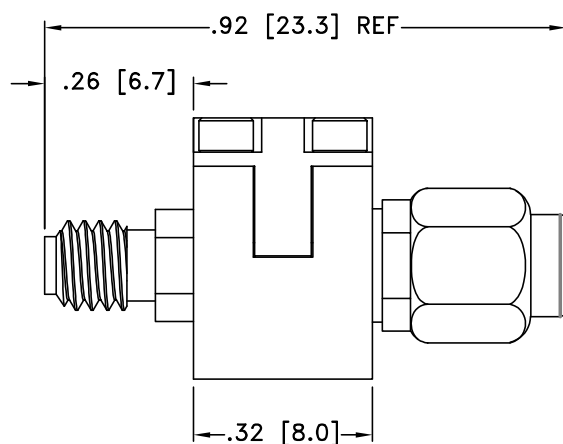
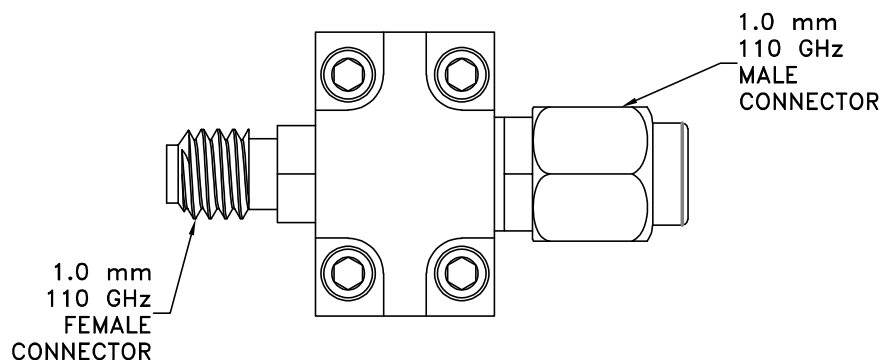


Case Style

FF

Outline Dimensions

FF3501



Weight: 7.0 grams MAX

Dimensions are in inches [mm]. Tolerances: 2 Pl. $\pm .03$ [.76]; 3 Pl. $\pm .015$ [.38] inches [mm]

Notes:

1. Case material: Aluminum Alloy.
2. Finish: Chemical conversion per MIL-STD-5541.

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ISO 9001 ISO 14001 CERTIFIED

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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 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 5 cycles	MIL-STD-202, Method 107, Condition A except +100°C instead of 85°C
Connector Durability	100 Mating / Unmating Cycles	MIL-PRF-39012E, PARAGRAPH 4.6.12
Burn-In	0.5W for 16 hours	Individual Model Data Sheet