COAXIAL

Precision Fixed Attenuator BW-N10W20+

50Ω 20 W 10 dB DC to 18 GHz N-Type Female to N-Type Male

FEATURES

- DC to 18 GHz
- Precision Attenuation
- Excellent VSWR, 1.30:1 Typ.
- Stainless Steel N-Type Male and Female Connectors



Generic photo used for illustration purposes only

Model No.	BW-N10W20+
Case Style	DC1645
Connectors	N-Type Female to N-Type Male

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

APPLICATIONS

- Impedance Matching
- Instrumentation
- Test Setups
- High Power Measurements

ELECTRICAL SPECIFICATIONS AT +25 °C

Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		18	GHz
Attenuation	DC–18	–	10	–	dB
	DC–12.4	9.25	–	10.75	
	12.4–18	9.0	–	11.0	
VSWR	DC–6	–	–	1.3	:1
	6–12.4	–	–	1.3	
	12.4–18	–	–	1.4	
Input Power[1]	DC–18	–	–	20	W

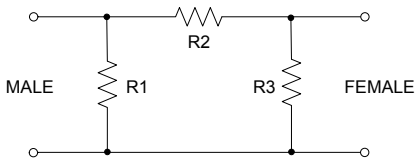
1. Max. Power at +25 °C ambient, derate linearly to 4 W +100 °C. Peak power 500 W max. 5 µsec. pulse width, 100 Hz PRF.

ABSOLUTE MAXIMUM RATINGS[2]

Parameter	Ratings
Operating Temperature[3]	-55 °C to +100 °C
Storage Temperature	-55 °C to +100 °C

2. Permanent damage may occur if any of these limits are exceeded.
3. +85 °C with output into open or short.

ELECTRICAL SCHEMATIC



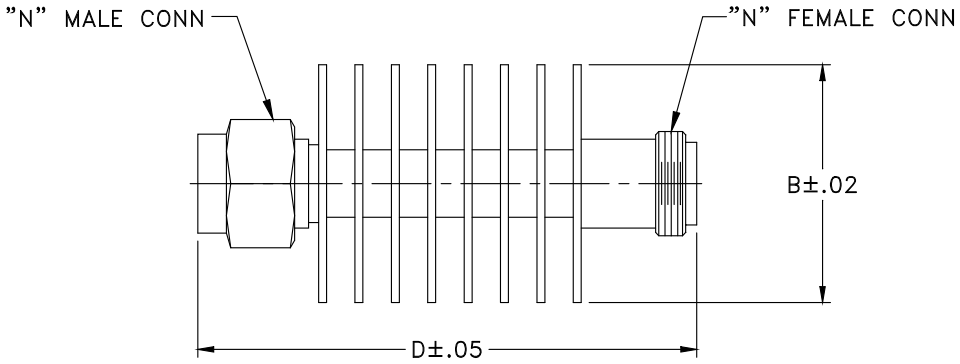
REV. D
ECO-024469
BW-N10W20+
MCL NY
260811

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OUTLINE DRAWING



OUTLINE DIMENSIONS (Inch / mm)

A	B	C	D	E	wt
--	1.50	--	3.04	--	grams
--	38.10	--	77.22	--	86.0

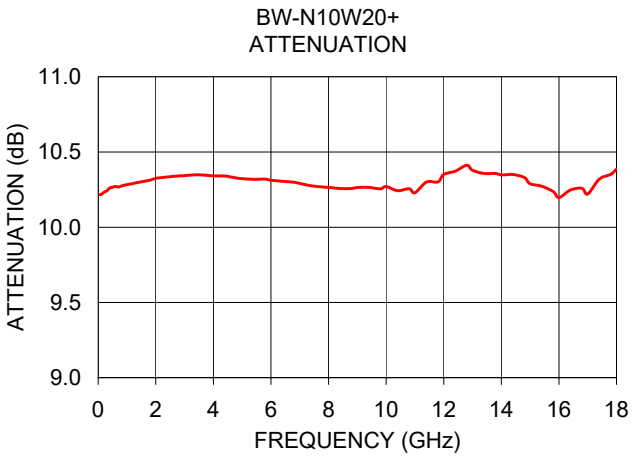
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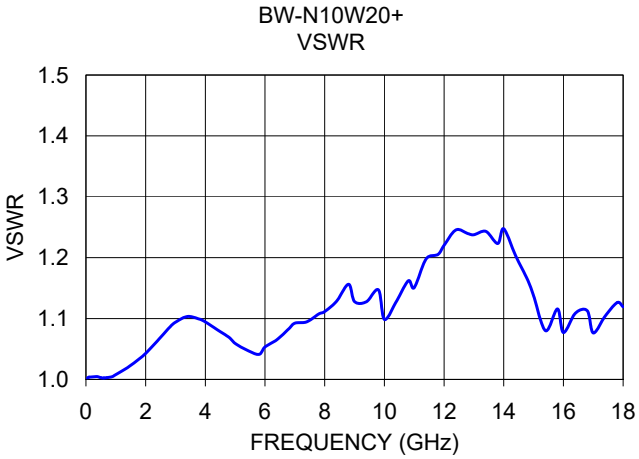
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TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (GHz)	Attenuation (dB)	VSWR (:1)
0.05	10.22	1.00
2.0	10.33	1.04
4.0	10.34	1.09
6.0	10.31	1.05
8.0	10.27	1.11
10.0	10.27	1.10
12.4	10.37	1.25
14.0	10.35	1.25
16.0	10.20	1.08
18.0	10.39	1.12





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-Circuits' 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-N10W20+

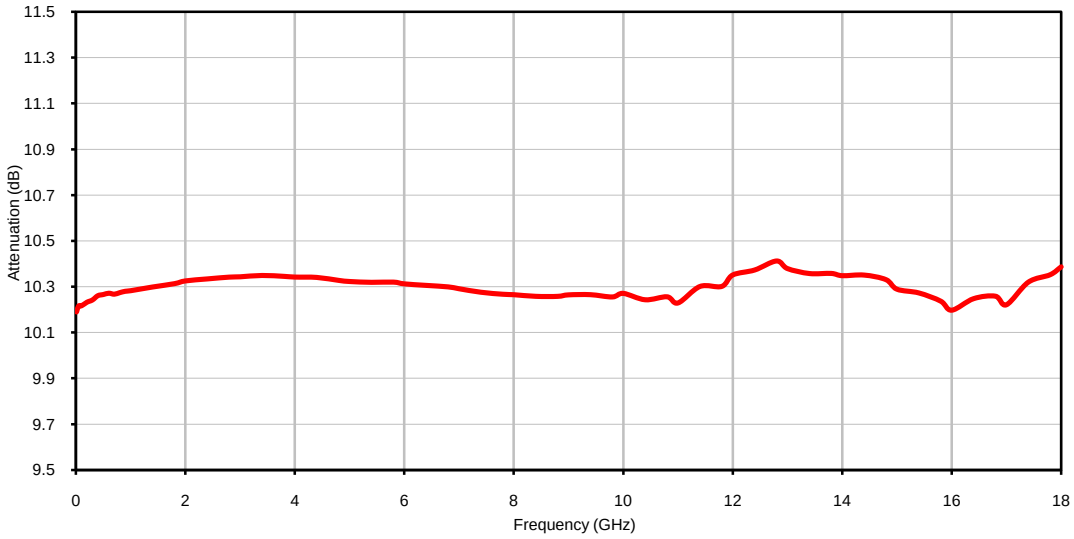
Typical Performance Data

FREQUENCY (GHz)	ATTENUATION (dB)	VSWR (:1)
0.01	10.19	1.00
0.05	10.22	1.00
0.1	10.22	1.00
0.2	10.23	1.00
0.3	10.24	1.00
0.4	10.26	1.00
0.5	10.27	1.00
0.6	10.27	1.00
0.7	10.27	1.00
0.8	10.27	1.00
0.9	10.28	1.00
1.0	10.28	1.01
1.4	10.30	1.02
1.8	10.31	1.03
2.0	10.33	1.04
2.4	10.33	1.06
2.8	10.34	1.09
3.0	10.34	1.09
3.4	10.35	1.10
3.8	10.35	1.10
4.0	10.34	1.09
4.4	10.34	1.08
4.8	10.33	1.07
5.0	10.32	1.06
5.4	10.32	1.05
5.8	10.32	1.04
6.0	10.31	1.05
6.4	10.31	1.07
6.8	10.30	1.08
7.0	10.29	1.09
7.4	10.28	1.09
7.8	10.27	1.11
8.0	10.27	1.11
8.4	10.26	1.13
8.8	10.26	1.16
9.0	10.26	1.13
9.4	10.27	1.13
9.8	10.26	1.15
10.0	10.27	1.10
10.4	10.24	1.13
10.8	10.26	1.16
11.0	10.23	1.15
11.4	10.30	1.20
11.8	10.30	1.21
12.0	10.35	1.22
12.4	10.37	1.25
12.8	10.41	1.24
13.0	10.38	1.24
13.4	10.36	1.24
13.8	10.36	1.22
14.0	10.35	1.25
14.4	10.35	1.20
14.8	10.33	1.16
15.0	10.29	1.14
15.4	10.27	1.08
15.8	10.24	1.12
16.0	10.20	1.08
16.4	10.25	1.11
16.8	10.26	1.11
17.0	10.22	1.08
17.4	10.32	1.10
17.8	10.35	1.13
18.0	10.39	1.12

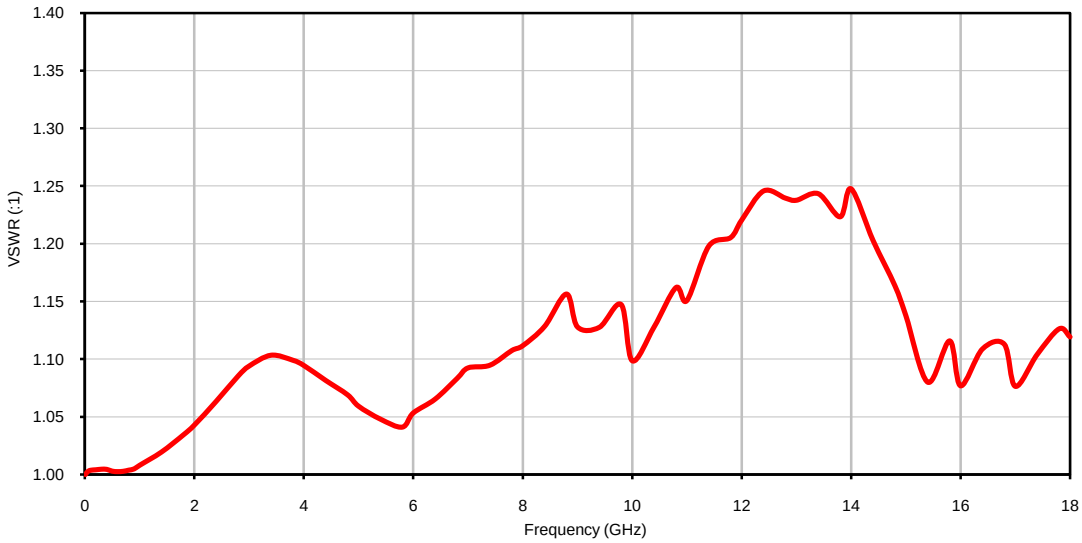
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Typical Performance Curves

Attenuation



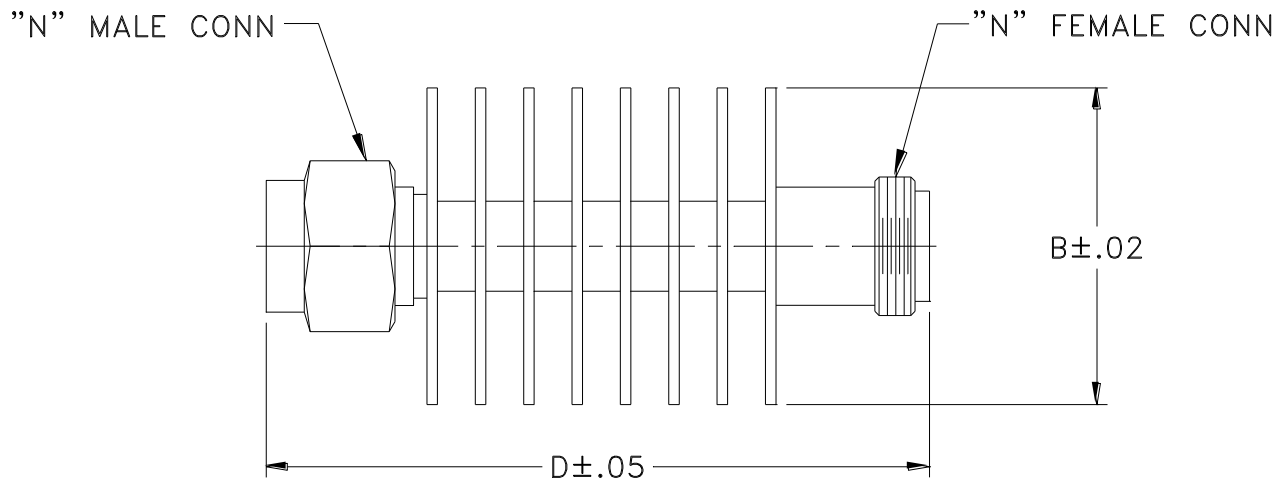
VSWR



Case Style DC

Outline Dimensions

DC1645



CASE#	A	B	C	D	E	WT. GRAMS
DC1645	-- --	1.50 (38.10)	-- --	3.04 (77.20)	-- --	86.00

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

Notes:

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

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Mini-Circuits

Environmental Specifications ENV28

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
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

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