ULTRA-WIDEBAND, MILLIMETER WAVE

Precision Fixed Attenuator BW-E20-1W653+

50Ω 1 W 20 dB DC to 65 GHz 1.85 mm Female to 1.85 mm Male

THE BIG DEAL

- Extremely Wideband, DC to 65 GHz
- 1.85 mm Female to 1.85 mm Male Connectors
- Good VSWR, 1.2 @ 26.5 GHz, 1.3 @ 65 GHz Typ.
- Outstanding Accuracy, ±1.5 dB Over Full Range



Generic photo used for illustration purposes only

Model No.	BW-E20-1W653+
Case Style	DJ2591
Connectors	1.85 mm Female to 1.85 mm Male

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

APPLICATIONS

- Impedance Matching
- Instrumentation
- Test Setups

PRODUCT OVERVIEW

Mini-Circuits' BW-Ex-1W653+ Series of precision fixed attenuators achieves extremely wide frequency range from DC up to 65 GHz. Available in a variety of attenuation values for different requirements, these units support a broad range of system and test applications. Excellent attenuation flatness, good VSWR (1.2:1 typ.) and rugged construction make these models ideal solutions for applications requiring precise attenuation across very wide frequency range.

KEY FEATURES

Feature	Advantages
Extremely Wideband, DC to 65 GHz	Ideal for an exceptionally wide variety of lab and system applications up to millimeter wave bands.
Excellent Attenuation Accuracy, ±1.5 dB or Better Across Full Range	Provides precise, consistent attenuation across the entire frequency band, ideal for broadband and multi-band usage.
Good VSWR • 1.2 dB @ 26.5 GHz Typ. • 1.3 dB @ 65 GHz Typ.	Efficient power utilization with minimal signal power reflected back to source.
1 W Power Handling	Provides precise attenuation for a range of input power levels.
Passivated Stainless Steel Connectors	Rugged construction withstands harsh environmental conditions for high reliability and long life of use.

REV. A
ECO-024509
BW-E20-1W653+
MCL NY
260811

Precision Fixed Attenuator BW-E20-1W653+

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ELECTRICAL SPECIFICATIONS AT +25 °C

Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		65	GHz
Attenuation	DC–26.5	19.0	20	21.0	dB
	26.5–40	18.75	19.8	21.25	
	40–60	18.0	19.5	22.0	
	60–65	17.5	19.0	22.5	
VSWR	DC–26.5	–	1.1	1.35	:1
	26.5–50	–	1.2	1.55	
	50–65	–	1.2	1.65	
Input Power[1]	DC–65	–	–	1	W

1. Max. Power at +25 °C ambient, derate linearly to 0.1 W +100 °C.

ABSOLUTE MAXIMUM RATINGS

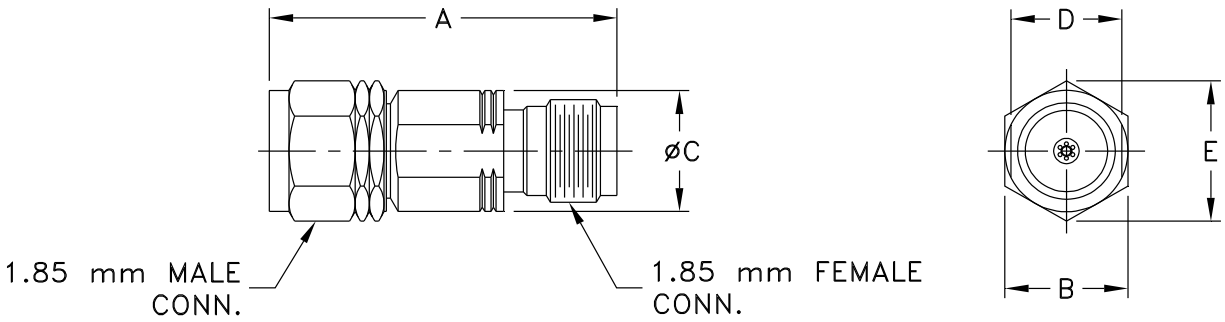
Parameter	Ratings
Operating Temperature	-55 °C to +100 °C
Storage Temperature	-55 °C to +100 °C

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

Precision Fixed Attenuator **BW-E20-1W653+**

50Ω 1 W 20 dB DC to 65 GHz 1.85 mm Female to 1.85 mm Male

OUTLINE DRAWING



OUTLINE DIMENSIONS (Inch / mm)

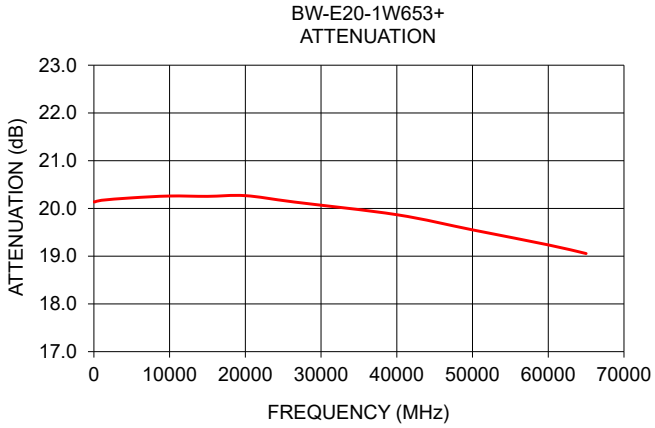
A	B	C	D	E	wt
0.88	0.31	0.310	0.284	.36	grams
22.2	8.0	7.90	7.21	9.14	5.6

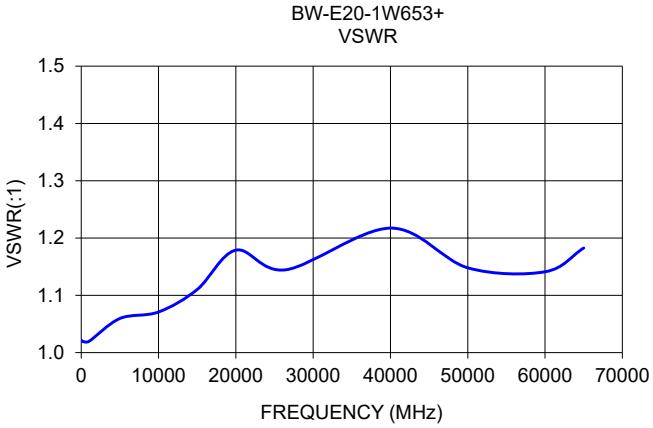
Precision Fixed Attenuator BW-E20-1W653+

50Ω 1 W 20 dB DC to 65 GHz 1.85 mm Female to 1.85 mm Male

TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10	20.14	1.02
100	20.14	1.02
1000	20.17	1.02
5000	20.22	1.06
10000	20.26	1.07
15000	20.25	1.11
20000	20.27	1.18
26500	20.13	1.14
40000	19.87	1.22
50000	19.55	1.15
60000	19.24	1.14
65000	19.05	1.18





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-E20-1W653+

1.85mm-Female/1.85mm-Male

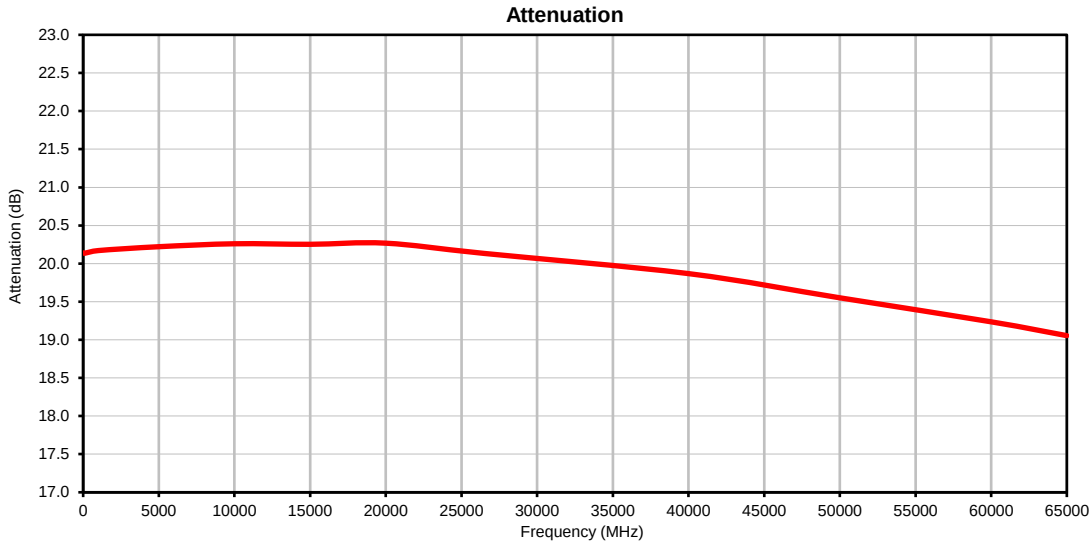
Typical Performance Data

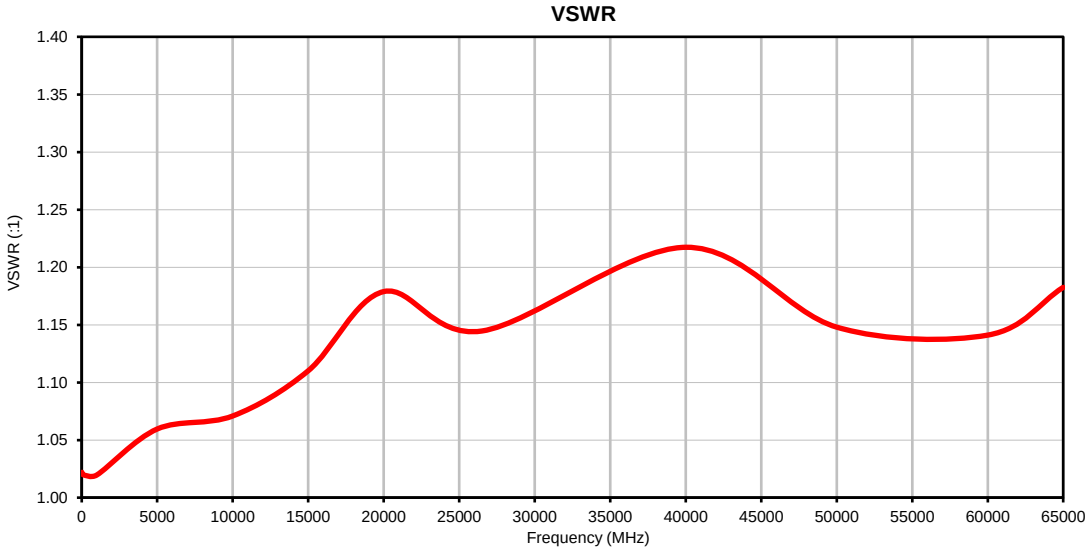
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60000	19.24	1.14
65000	19.05	1.18

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1.85mm-Female/1.85mm-Male

Typical Performance Curves

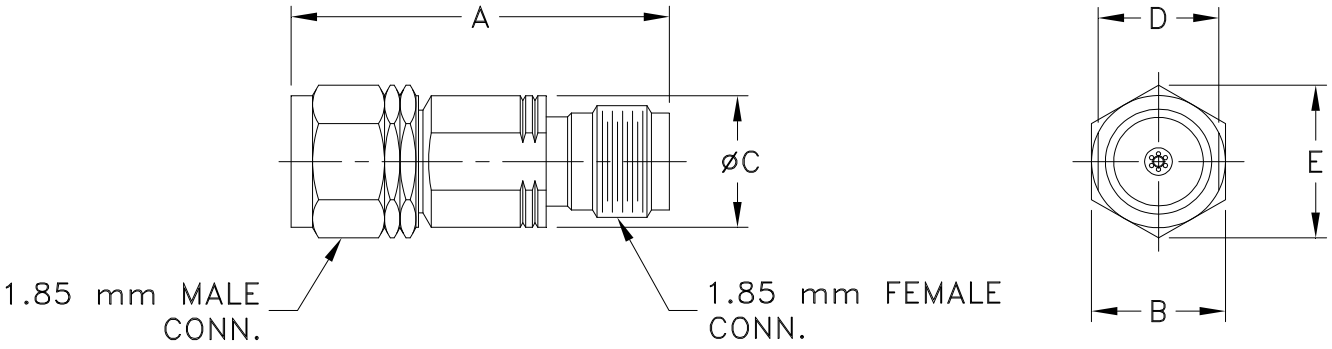




Case Style DJ

DJ2591

Outline Dimensions



CASE#	A	B	C	D	E	WT. GRAM
DJ2591	.88 (22.2)	.312 (8.00)	.31 (7.9)	.284 (7.21)	.36 (9.14)	5.6

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

Notes:

1. Case material: Stainless steel.
2. Finish: Passivation.

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Environmental Specifications ENV89

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 or -55° to 85° C or -45° 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 B except over -55° to 100°C
Connector Durability	500 mating/unmating cycles	MIL-PRF-39012E, PARAGRAPH 4.6.12
Drop Test	1 meter height, 5 times	

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