Coaxial

Fixed Attenuator

HAT-10+

50Ω 1W 10dB DC to 2000 MHz



Generic photo used for illustration purposes only

CASE STYLE: FF747

Connectors	Model
BNC Male-BNC Female	HAT-10+

+RoHS Compliant

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

Maximum Ratings

Operating Temperature	-45°C to 100°C
Storage Temperature	-55°C to 100°C

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

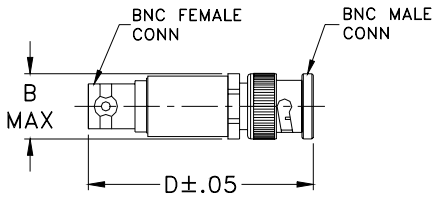
Features

- excellent VSWR, 1.05:1 typ.
- excellent flatness, 0.10 dB typ. to 2000 MHz
- usable to 4000 MHz

Applications

- PCS
- instrumentation
- cellular

Outline Drawing



Outline Dimensions (inch / mm)

B	D	wt
.62	1.94	grams
15.75	49.28	30.0

Electrical Specifications

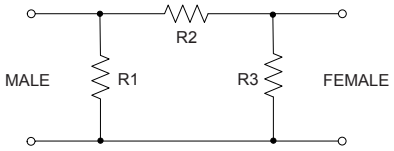
FREQ. RANGE (MHz)	ATTENUATION (dB) Flatness*					VSWR (:1)			MAX. INPUT POWER (W)
		DC-0.5 GHz	DC-1 GHz	DC-2 GHz	Total Band Typ.	DC-0.5 GHz	DC-1 GHz	DC-2 GHz	
f_L-f_U	Nom.	Typ.	Typ.	Typ.		Typ.	Typ.	Typ.	
DC-2000	10±0.2	0.05	0.10	0.10	0.25	1.05	1.10	1.10	1.0

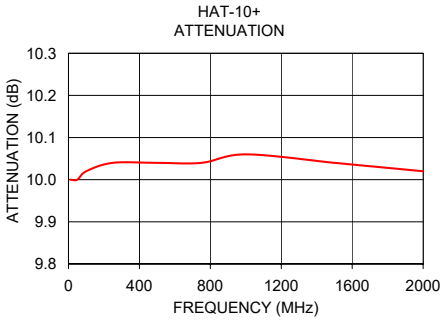
* Flatness = variation over band divided by 2.

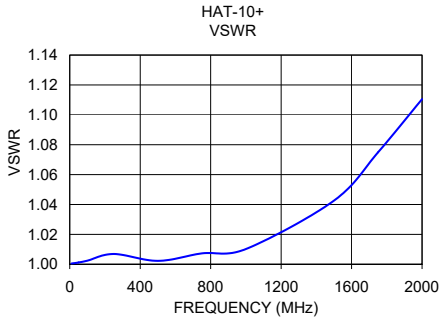
Typical Performance Data

Frequency (MHz)	Attenuation (dB)	VSWR (:1)
10.00	10.00	1.00
50.00	10.00	1.00
100.00	10.02	1.00
250.00	10.04	1.01
500.00	10.04	1.00
750.00	10.04	1.01
1000.00	10.06	1.01
1500.00	10.04	1.04
1750.00	10.03	1.07
2000.00	10.02	1.11

Electrical Schematic







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

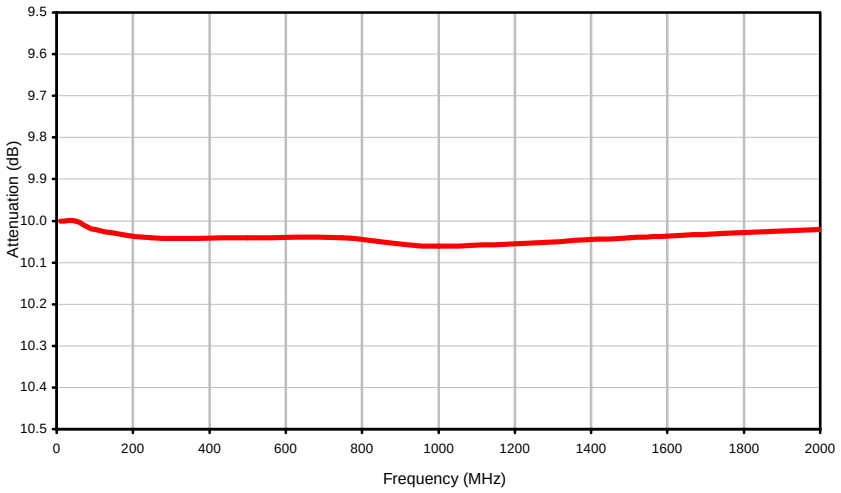
Typical Performance Data

FREQUENCY (MHz)	ATTENUATION (dB)	RETURN LOSS (dB)
10.00	10.00	72.30
50.00	10.00	64.46
100.00	10.02	58.42
250.00	10.04	49.31
500.00	10.04	58.90
750.00	10.04	48.82
1000.00	10.06	45.89
1500.00	10.04	33.61
1750.00	10.03	28.85
2000.00	10.02	25.62

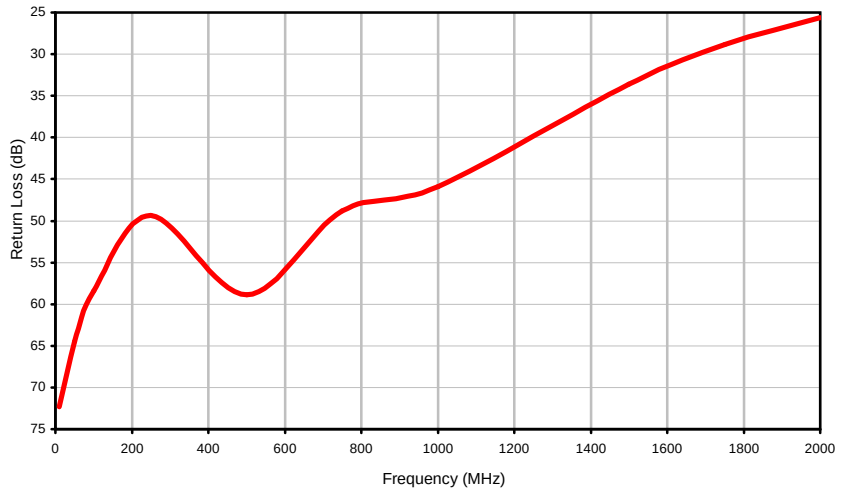
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Typical Performance Curves

Attenuation



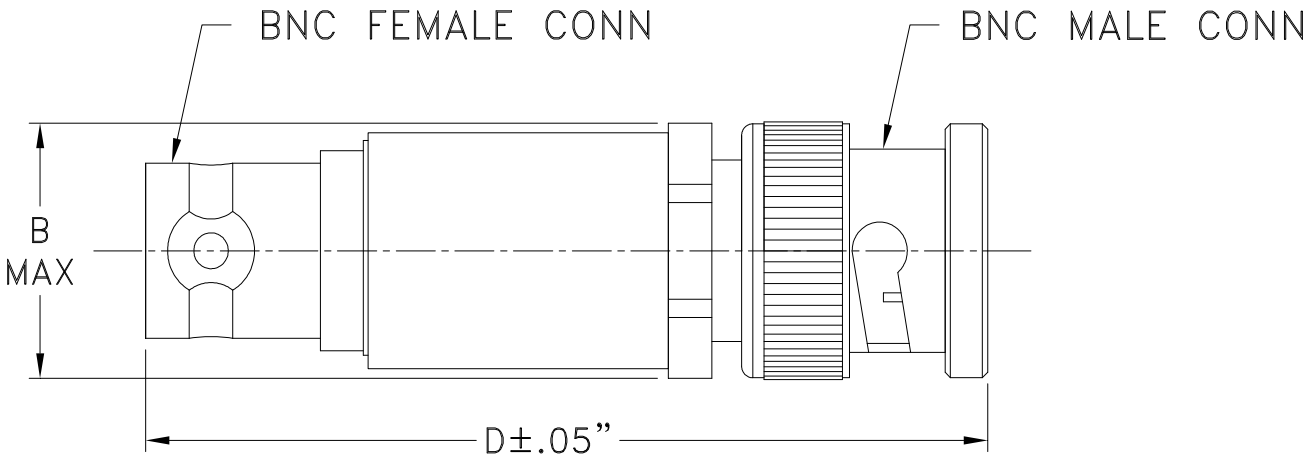
Return Loss



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Case Style FF

Outline Dimensions FF747



CASE #.	A	B	C	D	E	WT GRAMS
FF747	-- --	.62 (15.75)	-- --	1.94 (49.28)	-- --	30.0

Dimensions are in inches (mm). Tolerances: 2Pl. ± .04; 3Pl. ± .030

Notes:

1. Case material: Brass.
2. Case finish: Nickel plate.

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Mini-Circuits

Environmental Specifications **ENV28T6**

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	-45° 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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