Introduction

Weinschel Associates has at its foundation a 40 year legacy as a supplier of high performance, high quality Broadband Passive Components to the RF and Microwave communities. WA builds on this foundation through the application of modern process and product technologies to continuously drive our product, price, and service performance.

At the core of our business is our proven Engineering and Manufacturing techniques. Refined methods of resistor manufacture produce better yields at higher accuracies with improved typical performance. This applies both to attenuation and VSWR versus frequency as well as low power and temperature coefficients. The process of deposition and ruggedness of our resistive films provide bilateral match for all units and bilateral high power input in many of our models.

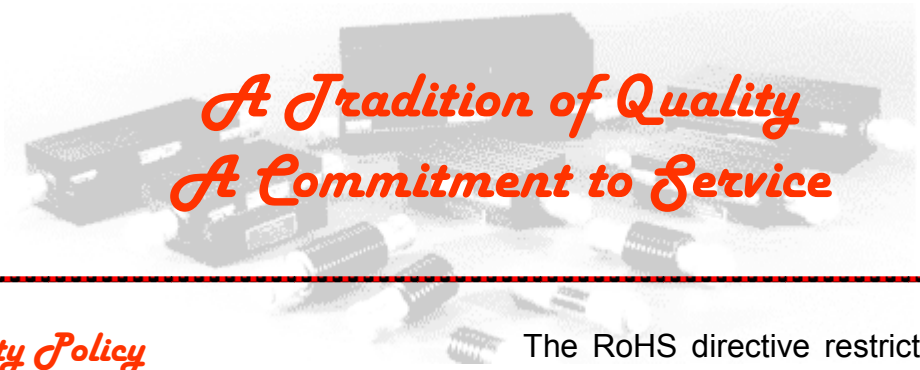
Wrapped around this core is an aggressive and customer-focused business model. WA understands modern consumers of RF and Microwave Passive Components are less likely to be Microwave experts than in decades past and we are dedicated to helping our customers identify and acquire the optimum products.

This catalogue provides a snapshot of our product offerings in our Fixed Attenuator, Termination, Variable Attenuator, and Coaxial Adapter lines. We hope you will find what you require. Keep in mind new products are always in development and we would be delighted to discuss your requirements to help you find the best product for your application.

Our goal is to serve you, the customer, with an ever increasing usefulness of product line.

Mission Statement

Weinschel Associates designs and manufactures high-quality RF and Microwave products for commercial and military markets both domestic and international. Core technologies originated by founder Bruno Weinschel are leveraged using modern design, production, delivery, and service techniques to provide the best product at the best price to our customers. Our path to success hinges upon a continuous focus on product quality, price performance, and service.



A Tradition of Quality
A Commitment to Service

Quality Policy

The Quality Policy of Weinschel Associates is as follows:

- To meet or exceed all requirements agreed to with our customers.
- To strive for continuous improvement in Product Quality, Price Performance, and Customer Service.

Quality Control

Our products are designed and tested to meet MIL-I-45208, MIL-Q-9858, MIL-C-45662 as they apply. Connector interface dimensions comply with MIL-C-39012, MIL-STD-348, and IEEE-STD-287. Attenuators are designed to meet MIL-DTL-3933. Terminations are designed to comply with MIL-M-39030.

RoHS Compliance

The RoHS directive (EU Directive 2002/95/EC) became valid on 1 July 2006 in the member states of the European Union. Its aim is to reduce a total of six substances from Electrical and Electronic Equipment (EEE), thereby contributing to the protection of human health and the environment.

Although RoHS is a European Union (EU) Directive, manufacturers of EEE outside Europe must also abide by this legislation if the equipment they produce is ultimately imported into an EU member state.

The RoHS directive restricts the use of certain hazardous substances commonly used in the manufacturing of electronic equipment and requires producers of electronic equipment to reduce the concentration of these hazardous materials, by July, 2006, to proscribed levels by weight.

Weinschel Associates aims to minimize environmental impacts due to our products and processes by systematically considering environmental issues during product design.

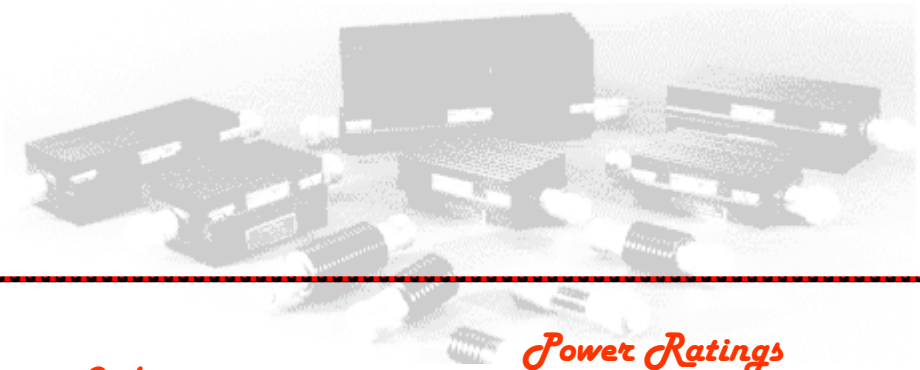
To the best of our knowledge, the products presented in this catalogue comply with the hazardous substance restrictions imposed by the RoHS directive and are suitable for use in RoHS-compliant systems and assemblies.

How to Order

When placing an order, please provide the model number, attenuation in decibels (dB) for an attenuator, and the desired connector configuration.

Examples					
Attenuator:	WA48	-	30	-	43
	Model		dB		*
Termination:	WA1424	-	5		
	Model		*		

* Connector Code



Connector Codes

Connector Code: Each digit represents a connector type per the following table:

Connector Type	Code
SMA Jack (f)	-1
SMA Plug (m)	-2
N-Type Jack (f)	-3
N-Type Plug (m)	-4
TNC Jack (f)	-5
TNC Plug (m)	-6
DIN 7/16 Jack (f)	-7
DIN 7/16 Plug (m)	-8
7 mm	-9

Connector codes may vary depending on model type as listed on the associated specification sheet. In the case of Uni-directional attenuators, the first digit of the connector code identifies the input connector (N-type Plug (m) in the example) and the second digit identifies the output connector (N-Type Jack (f) in the example).
Connector types not listed on the specification sheets may be available. We will make every effort to accommodate your request.

Power Ratings

Unless otherwise specified, all of our products will operate at their full power rating without the need for forced air cooling.
All of our products are dry and achieve their rated power handling without oils or other coolants.

Warranty

Weinschel Associates warrants each product it manufactures to be free from defects in material and workmanship. Defective product will be repaired or replaced at the discretion of WA at no charge to the customer for a period of two years after shipment to the original purchaser.
The above warranty is Weinschel Associates sole warranty and the extent of its liabilities and obligations with respect to its products unless otherwise explicitly agreed to in writing. WA makes no other warranty of any kind, express or implied, and disclaims any warranty of mechantability or fitness for a particular purpose. In no event shall WA be liable for any incidental, consequential, or special loss or damages, or for any sum greater than the purchase price of the product.
Weinschel Associates reserves the right to make changes in the design of its products at any time without incurring any obligation to make those changes on products it has previously sold.

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FIXED COAXIAL ATTENUATORS

DC – 40.0 GHz **2—1000 WATTS**

Low Power Fixed Attenuators: 2 Watts to 25 Watts						
Model Number	**Frequency Range DC - (GHz)**	**Average Power (W)**	**Peak Power (kW)**	**Standard* Attenuation Values (dB)**	**Connectors and Mounting Notes**	**Page No.**
210B	0.4-18	1-5	1-10	1 to 10, 20	N	66
WA50	3	2	0.5	1 to 50	N	47
WA1W/6	6	2	0.5	1 to 60	N	5
WA18	12.4	2	0.5	1 to 30	BNC	14
WA1W	12.4	2	0.5	1 to 60	N	5
WA3	12.4	2	0.5	1 to 60	SMA	8
WA3H	12.4	2	0.25	1 to 60	SMA	6
WA3M	12.4	2	0.5	1 to 60	SMA	7
WA12	18	2	0.25	1 to 12	SMA, Flange Mount	12
WA2W	18	2	0.5	1 to 60	N	5
WA32	18	2	0.5	3 to 40	SMA	24
WA4	18	2	0.5	1 to 60	SMA	8
WA4H	18	2	0.25	1 to 60	SMA	6
WA4M	18	2	0.5	1 to 60	SMA	7
WA9	26.5	2	0.25	1 to 40	SMA	11
WA54	40	2	0.25	3 to 30	2.92 mm	50
WA19/6	6	5	1	1 to 30	BNC	15
WA1	12.4	5	1	1 to 60	N	4
WA19	12.4	5	1	1 to 30	BNC	15
WA17	18	5	1	1 to 60	7 mm	13
WA2	18	5	1	1 to 60	N	4
WA44	18	5	1	1 to 60	N	40
WA7	18	5	1	1 to 60	SMA	9
WA75	40	5	0.25	3 to 30	2.92 mm	63
WA200271	3	10	1.8	3 to 30	SMA, Low-Profile	67
WA37	8.5	10	1	1 to 60	N	33
WA41	18	10	1	1 to 60	SMA	37
WA41T	18	10	1	1 to 60	TNC	38
WA8	18	10	1	1 to 60	N	10

* Other attenuation values and connector configurations are available

Custom solutions at "off-the-shelf" prices

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FIXED COAXIAL ATTENUATORS

DC – 40.0 GHz **2—1000 WATTS**

Low Power Fixed Attenuators: 2 Watts to 25 Watts—Continued						
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Standard* Attenuation Values (dB)	Connectors and Mounting Notes	Page No.
WA34L	4	20	5	3 to 40	N, SMA, 7/16 DIN	30
WA33L	8.5	20	5	3 to 40	N, SMA, 7/16 DIN	26
WA21	4	25	5	3 to 40	N, SMA, Low-Profile, Mountable	16
WA34	4	25	5	3 to 40	N, SMA, 7/16 DIN	28
WA34B	4	25	5	3 to 40	N, SMA, Square Body Mount	29
WA22	8.5	25	5	3 to 40	N, SMA, Low-Profile, Mountable	16
WA33	8.5	25	5	3 to 40	N, SMA, 7/16 DIN	27
WA33B	8.5	25	5	3 to 40	N, SMA, Square Body Mount	25
WA46	18	25	1	3 to 40	N, SMA, TNC	42

Medium Power Fixed Attenuators: 50 Watts to 150 Watts						
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Standard* Attenuation Values (dB)	Connectors and Mounting Notes	Page No.
WA23	4	50	5	3 to 40	N, SMA	17
WA23B	4	50	5	3 to 40	N, SMA, Square Body Mount	18
WA71	4	50	5	3 to 40	N, SMA, Low-Profile, Mountable	61
WA24	8.5	50	5	3 to 40	N, SMA	19
WA24B	8.5	50	5	3 to 40	N, SMA, Square Body Mount	20
WA72	8.5	50	5	3 to 40	N, SMA, Low-Profile, Mountable	62
WA47	18	50	1	6 to 40	N, SMA, TNC	43
WA90	18	50	1	3 to 40	N, SMA, TNC	64
WA29	8.5	75	5	3 to 40	N, SMA, 7/16 DIN	21
WA475	18	75	1	6 to 40	N, SMA, TNC	44

* Other attenuation values and connector configurations are available

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FIXED COAXIAL ATTENUATORS

DC – 40.0 GHz **2—1000 WATTS**

Medium Power Fixed Attenuators: 50 Watts to 150 Watts—Continued						
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Standard* Attenuation Values (dB)	Connectors and Mounting Notes	Page No.
WA59	2.5	100	10	10 to 40	N, SMA, Low-Profile, Mountable	53
WA30	4	100	5	3 to 40	N, SMA, 7/16 DIN	22
WA68	4	100	5	3 to 40	N, SMA, 7/16 DIN	59
WA31	8.5	100	5	3 to 40	N, SMA, 7/16 DIN	23
WA48	18	100	1	10 to 40	N, SMA, TNC	45
WA91	18	100	1	10 to 40	N, SMA, TNC	65
WA40	2.5	150	5	3 to 40	N, SMA, 7/16 DIN	36
WA42	2.5	150	5	3 to 40	N, SMA, Low-Profile, Mountable	39
WA65	2.5	150	10	3 to 30	N, SMA, 7/16 DIN	56
WA39	4	150	5	3 to 40	N, SMA, 7/16 DIN	35
WA61	4	150	5	3 to 40	N, SMA	55
WA57	5	150	10	3 to 40	N, SMA, 7/16 DIN	51
WA49	8.5	150	5	3 to 40	N, SMA, 7/16 DIN	46
WA62	8.5	150	5	3 to 40	N, SMA	55
WA66	18	150	1	20 to 40	N	57

High Power Fixed Attenuators: 250 Watts to 1000 Watts						
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Standard* Attenuation Values (dB)	Connectors and Mounting Notes	Page No.
WA45	2.5	250	10	3 to 40	N, SMA, 7/16 DIN	41
WA58	5	250	10	3 to 40	N, SMA, 7/16 DIN	52
WA35	8.5	250	5	10 to 40	N, SMA, 7/16 DIN	31
WA38	5	300	5	3 to 40	N, SMA, 7/16 DIN	34
WA36	8.5	300	5	10 to 40	N, SMA, 7/16 DIN	32
WA67	12.4	350	1	20 to 40	N	58
WA53	2.5	500	10	3 to 40	N, SMA, 7/16 DIN	49
WA60	5	500	10	10 to 40	N, SMA, 7/16 DIN	54
WA51	8.5	500	5	10 to 40	N, SMA, 7/16 DIN	48
WA70	3	1000	10	10 to 40	N, 7/16 DIN	60

* Other attenuation values and connector configurations are available

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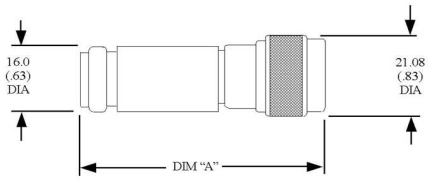
Fixed Coaxial Attenuator MODEL WA1 & WA2

DC – 12.4 GHz
DC – 18.0 GHz

5 WATTS

Model WA1

Model WA2



Features

Type N or 4.1/9.5 mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA1: 0-12.4 GHz
Model WA2: 0-18.0 GHz

Nominal dB Values: 1-60 dB

Power Sensitivity: < 0.005 dB/dB/W Bidirectional in power.

Power Rating: 5 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly. 1 kilowatt peak (5 µsec pulse width; 0.25% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and SWR performed at DC, 4.0, 8.0, 12.0 & 18.0 GHz. Option 890 or calibration test data available at additional cost: Model WA2 is also available in a calibrated attenuator set WAS-6 (3, 6, 10 and 20dB) with certificate of calibration.

Maximum VSWR

GHz	VSWR	
	WA1	WA2
0-4	1.15	1.15
4-8	1.20	1.20
8-12.4	1.25	1.25
12.4-18.0	N/A	1.40

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	WA1	WA2
1, 2	0.4	0.5
3-9	0.3	0.3
10, 20	0.5	0.5
30, 40	0.75	1.0
50	0.75	1.25
60	1.0	1.50

Weight (Both Models):

1-30 dB .07 kg/ 2.6 oz.
31-60 dB .10 kg/ 3.6 oz.

Physical Dimensions: N Type Connector

dB	Dim "A"
1 – 30	57.15 (2.25)
31-60	67.31 (2.7)

Physical Dimensions: 4.1/9.5 mm Type Connector

dB	Dim "A"
1 – 30	64.0 (2.5)
31-60	74.0 (2.9)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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Fixed Coaxial Attenuator MODEL WA1W & WA2W

DC – 6 GHz
DC – 12.4 GHz
DC – 18 GHz

2 WATTS

Features

Type N stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA1W/6: 0-6 GHz
Model WA1W/12: 0-12.4 GHz
Model WA2W: 0-18 GHz

Nominal dB Values: 1-60 dB

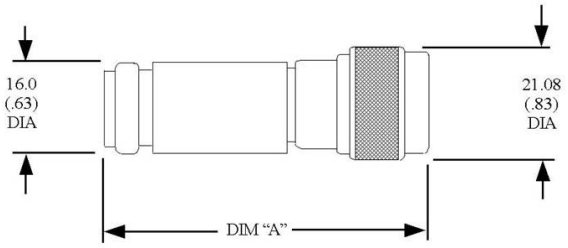
Power Sensitivity: < 0.005 dB/dB/W Bidirectional in power.

Power Rating: 2 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 0.5 watts @ 105 C. 250 watts peak (5 µsec pulse width; 0.4% duty cycle).

Temperature Range: -55°C to +125°C:

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB		
	WA1W/6	WA1W/12	WA2W/18
1, 2	0.4	0.4	0.5
3-9	0.3	0.3	0.3
10, 20	0.5	0.5	0.5
30, 40	0.75	0.75	1.00
50	0.75	0.75	1.25
60	1.0	1.0	1.50



Temperature Coefficient: < 0.0004 dB/dB/°C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper female contact, passivated stainless steel male contact..

Calibration: Insertion Loss and SWR performed at DC, 4.0, 6.0, or 8.0, 12.0 & 18.0 GHz. Option 890 or calibration test data available at additional cost:

Maximum SWR

GHz	VSWR		
	WA1W/6	WA1W/12	WA2W/18
DC-4	1.15	1.15	1.15
4.0 - 8.0	1.20	1.20	1.20
8.0 -12.4	N/A	1.25	1.25
12.4-18.0	N/A	N/A	1.40

Weight (All Models):

1-30 dB	.07 kg/ 2.6 oz.
31-60 dB	.10 kg/ 3.6 oz.

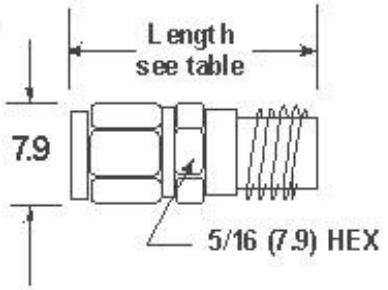
Physical Dimensions: N Type Connector

dB	Dim "A"
1 – 30	50.8 (2.00)
31-60	64.77 (2.55)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA3H & WA4H

DC – 12.4 GHz
DC – 18.0 GHz **2 WATTS**



Features

Type SMA; stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA3H: 0-12.4 GHz
Model WA4H: 0-18.0 GHz

Nominal dB Values: 1-60 dB

Power Sensitivity: < 0.005 dB/dB/W; Bidirectional in power.

Power Rating: 2 watts average to 25°C ambient temperature, de-rated linearly to 1.25 watts at 75°C and 0.5W at +125° C, 500 watts peak.

Temperature Range: -55°C to +125° C:

Standard Nominal Values and Deviations:

dB	Accuracy ± dB	
	WA3H	WA4H
3-6	0.3	0.3
1,2, 7-12	0.3	0.5
20	0.5	0.7
30, 40	0.75	1.0
50, 60	1.00	1.50

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper female contacts Stainless steel male contacts.

Calibration: Option 890 or calibration test data available at additional cost:

Maximum VSWR:

GHz	VSWR	
	WA3H	WA4H
DC-4.0	1.15	1.15
4.0-8.0	1.20	1.20
8.0-12.4	1.25	1.25
12.4-18.0	N/A	1.35

Weight (Both Models):

1-12 dB	3.9 gm/ 0.14 oz.
13-25 dB	4.3 gm/ 0.15 oz.
26-30 dB	4.9 gm/ 0.17 oz.
31-60 dB	6.5 gm/ 0.23 oz.

Physical Dimensions:

dB	Dim "A"
1 – 12	22.35 (0.88)
13 – 25	24.38 (0.96)
26 – 30	26.92 (1.06)
31 – 60	34.54 (1.36)

Note: Dimensions are given in mm (inches) and are ± 0.8 (0.03), unless otherwise specified.

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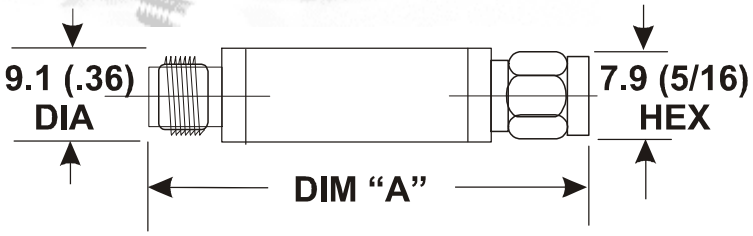
Fixed Coaxial Attenuator MODEL WA3M & WA4M

DC – 12.4 GHz
DC – 18.0 GHz **2 Watts**



Features

Type SMA; stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Usable to 22 GHz

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA3M: 0-12.4 GHz
Model WA4M: 0-18.0 GHz

Nominal dB Values: 1-60 dB

Power Sensitivity: < 0.005 dB/dB x W; Bidirectional in power.

Power Rating: 2 watts average to 25°C ambient temperature, de-rated linearly to 1.25 watts at 75°C and 0.5W at +125° C, 500 watts peak.

Temperature Range: -55°C to +125° C:

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	WA3M	WA4M
1-2	0.3	0.5
3-6	0.3	0.3
7-10	0.3	0.5
20	0.5	0.7
30, 40	0.75	1.0
50, 60	1.00	2.00

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper (female) contacts.

Calibration: Insertion Loss and SWR performed at DC, 4.0, 8.0, 12.0 & 18.0 GHz. Option 890 or calibration test data available at additional cost:

Maximum VSWR:

GHz	VSWR	
	WA3M	WA4M
DC-4	1.15	1.15
4.0-8.0	1.20	1.20
8.0-12.4	1.25	1.25
12.4-18.0	N/A	1.35

Weight (Both Models):

1-12 dB	3.9 gm/ 0.14 oz.
13-20 dB	4.3 gm/ 0.15 oz.
21-30 dB	4.9 gm/ 0.17 oz.
31-60 dB	6.5 gm/ 0.23 oz.

Physical Dimensions:

dB	Dim "A"
1 – 12	31.24 (1.23)
13 – 20	33.27 (1.31)
21 – 30	35.31 (1.41)
31 – 60	43.43 (1.71)

Note: Dimensions are given in mm (inches). Dimensions are maximum unless otherwise specified.

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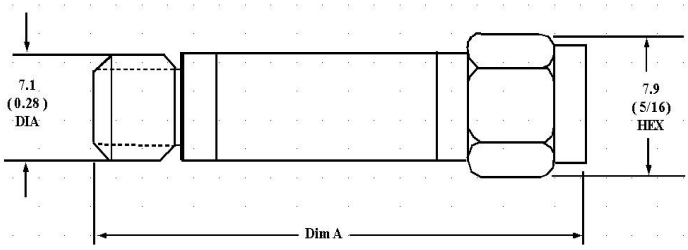
Fixed Coaxial Attenuator MODEL WA3 & WA4

DC – 12.4 GHz
DC – 18.0 GHz **2 WATTS**



Features

Type SMA; stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA3: 0-12.4 GHz
Model WA4: 0-18.0 GHz

Nominal dB Values: 1-60 dB

Power Sensitivity: < 0.005 dB/dB x W; Bidirectional in power.

Power Rating: 2 watts average to 25°C ambient temperature, de-rated linearly to 1.25 watts at 75° C and 0.5W at +125° C, 500 watts peak.

Temperature Range: -55°C to +125° C:

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	WA3	WA4
1-6	0.3	0.3
7-12	0.3	0.5
20	0.5	0.7
30, 40	0.75	1.0
50, 60	1.00	1.50

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and SWR performed at DC, 4.0, 8.0, 12.0 & 18.0 GHz. Option 890 or calibration test data available at additional cost:

Maximum VSWR:

GHz	VSWR	
	WA3	WA4
DC-4.0	1.15	1.15
4.0-8.0	1.20	1.20
8.0 -12.4	1.25	1.25
12.4-18.0	N/A	1.35

Weight (Both Models):

1-12 dB	3.9 gm/ 0.14 oz.
13-20 dB	4.3 gm/ 0.15 oz.
21-30 dB	4.9 gm/ 0.17 oz.
31-60 dB	6.5 gm/ 0.23 oz.

Physical Dimensions:

dB	Dim "A"
1 – 12	31.24 (1.23)
13 – 20	33.27 (1.31)
21 – 30	35.31 (1.41)
31 – 60	43.43 (1.71)

Note: Dimensions are given in mm (inches). Dimensions are maximum unless otherwise specified.

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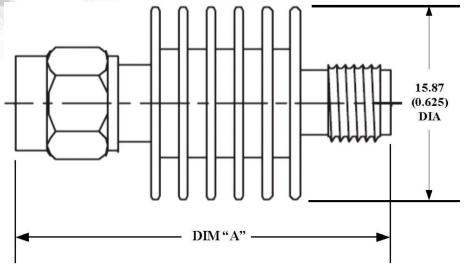
Fixed Coaxial Attenuator MODEL WA7

DC – 18.0 GHz 5 WATTS



Features

Stainless steel M/F, M/M, F/F SMA connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Compact design for one of the lowest size/power ratios available. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 1- 60 dB

Power Sensitivity: < 0.005 dB/dB/W Bidirectional

Power Rating: 5 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 0.5 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 0.05% duty cycle).

Temperature Range: -55°C to +125°C:

dB	Accuracy ± dB
1,2,10,20	0.5
3 - 9	0.3
30, 40	1.0
50	1.25
60	1.5

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed across frequency range. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC – 4.0	1.15
4.0 – 8.0	1.20
8.0 – 12.4	1.25
12.4 – 18.0	1.40

Weight:

1 – 30 dB 0.02 kg
31 – 60 dB 0.028 kg

Physical Dimensions:

dB	Length A
1 - 30	30.5 ± 1.3 (1.20 ± .05)
31 - 60	38.1 ± 1.3 (1.50 ± .05)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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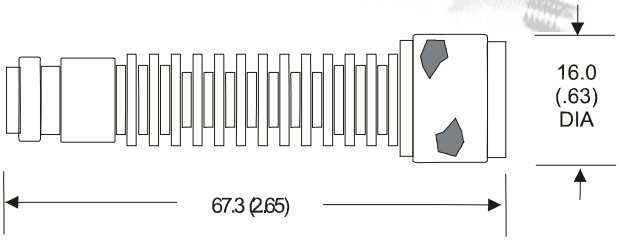
Fixed Coaxial Attenuator MODEL WA8

DC – 18 GHz 10 WATTS



Features

Type N stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18 GHz

Nominal dB Values: 1-60 dB

Power Sensitivity: < 0.005 dB/dB x W: Bidirectional in power.

Power Rating: 10 watts average, 1 KW peak. Full power from -55°C to +25°C: De-rated linearly to 0 W at +125° C

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB x °C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
1, 2, 10	0.5
3, 6	0.3
20	0.5
30	1.0
50	1.25
60	1.50

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 8.0, 12.4 and 18 GHz. Calibration test data available at additional cost.

Maximum VSWR

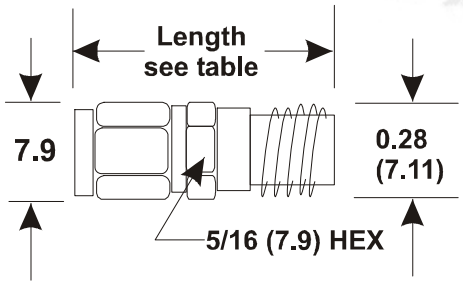
GHz	VSWR
0 - 8	1.20
8 – 12.4	1.30
12.4-18	1.35

Weight:
.085 kg/ 3 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA9

DC – 26.5 GHz 2 WATTS



Features

Type SMA; stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Usable to 30 GHz.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA9: 0-26.5 GHz

Nominal dB Values: 1-60 dB

Power Sensitivity: < 0.005 dB/dB/W; Bidirectional in power.

Power Rating: 2 watts average, 500 watts peak to 25°C ambient temperature, de-rated linearly to 1.25 watts at 75°C and 0.5W at +125° C.

Temperature Range: -55°C to +125° C:

Standard Nominal Values and Deviations:

dB	Deviation ± dB
3	0.50
6	0.60
10	0.80
20, 30	1.00
40, 50, 60	2.00

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper contacts.

Calibration: Option 890 or calibration test data available at additional cost:

Maximum VSWR:

Frequency GHz	VSWR
DC-4.0	1.15
4.0-8.0	1.20
8.0-12.4	1.25
12.4-18.0	1.35
18.0-26.5	1.60

Weight (Both Models):

1-12 dB	3.9 gm/ 0.14 oz.
13-25 dB	4.3 gm/ 0.15 oz.
26-30 dB	4.9 gm/ 0.17 oz.
31-60 dB	6.5 gm/ 0.23 oz.

Physical Dimensions:

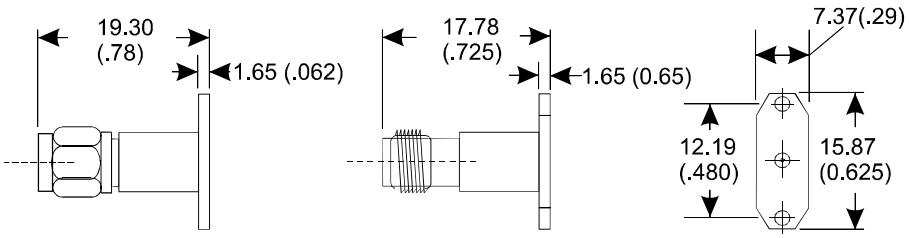
dB	Dim "A"
1 – 12	22.35 (0.88)
13 – 25	24.38 (0.96)
26 – 30	26.92 (1.06)
31 – 60	34.54 (1.36)

Calibrated Attenuator Set (WAS-19):
Model WA9 is also available in Calibrated Attenuator Set which includes four different attenuators (3, 6, 10, 20 dB). Refer to Attenuator Sets data sheet for specifications.

Note: Dimensions are given in mm (inches) and are ± 0.8 (0.03), unless otherwise specified.

ATTENUATOR MODEL WA12

DC – 18 GHz 2 WATTS



Features

2 hole flange mount

Specifications

Nominal Impedance: 50 ohms

Frequency Range: dc – 18 GHz

Nominal dB Values: 0 – 12 dB

Maximum VSWR:

DC – 4 GHz	1.15
4 – 12.4 GHz	1.25
12.4 – 18 GHz	1.50

Attenuation Accuracy:

0 – 9 dB	± 0.3 dB
10 – 12 dB	± 0.5 dB

Input Power: 2 Watts average @ +25°C de-rated linearly to 0.5 watts at + 125°C, (5µsec pulse width duty cycle).

Peak Power: 250W max

Temperature Range: -55°C to + 125°C

Weight: 1 oz.

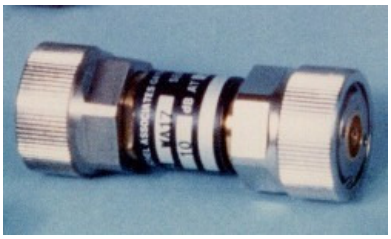
Connectors: SMA passivated stainless steel connectors per MIL-STD-348. Interface dimension mate nondestructively with MIL-C-39012 connectors.

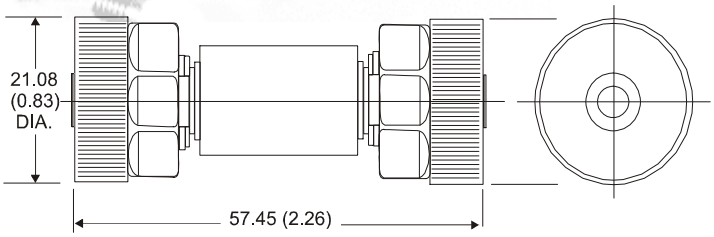
Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA17

DC – 18.0 GHz 5 WATTS





Features

Precision 7mm, meets or exceeds requirements of IEEE STD 287 and mates with all connectors conforming to design 2 of that standard.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 1- 60 dB

Power Sensitivity: < 0.005 dB/dB/W Bidirectional in power.

Power Rating: 5 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 0.5 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 0.05% duty cycle).

Temperature Range: Full power form -50°C to +25°C

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
1 - 9	0.3
10 – 20	0.5
30, 40, 50	0.75
60	1.0

Calibration: Insertion Loss and VSWR performed across frequency range. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC – 4.0	1.10
4.0 – 12.4	1.15
12.4 – 18	1.20

Weight:

1 – 30 dB 0.07 kg / 2.5 oz.
31 – 60 dB 0.10 kg / 6 oz.

Physical Dimensions:

Length:

dB	Length A
1 – 30	50.8 (2.0)
31 – 60	57.5 (2.3)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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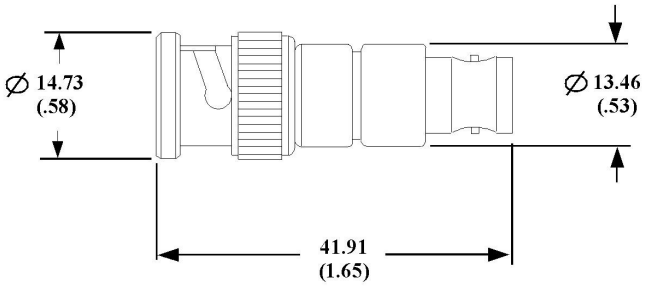
Fixed Coaxial Attenuator MODEL WA18

DC – 12.4 GHz 2 WATTS



Features

Available attenuation values from 1 – 60dB. BNC Connectors mate nondestructively with MIL-C-39012 connectors. Optimized for broadband wireless applications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA18: 0-12.4 GHz

Nominal dB Values: 1-30 dB

Power Sensitivity: < 0.005 dB/dB x W
Bidirectional in power.

Power Rating: 2 watts average, 1kilowatt peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 0 watts at 125°C.

Temperature Range: -55°C to +125°C:

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
	WA18
1 - 6	0.4
7 - 30	0.9

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body with Nickel plated brass connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Calibration: Insertion Loss and SWR performed at DC, 4.0, 8.0, 12.0 GHz. Option 890 or calibration test data available at additional cost.

Maximum SWR

GHz	SWR
	WA18
DC - 4.0	1.25
4.0 - 8.0	1.30
8.0 -12.4	1.35

Weight (Both Models):

1-30 dB	.10 kg/ 3.6 oz
31-60 dB	.13 kg/ 4.0 oz.

Physical Dimensions:

dB	Dim "A"
1 – 30	41.91(1.65)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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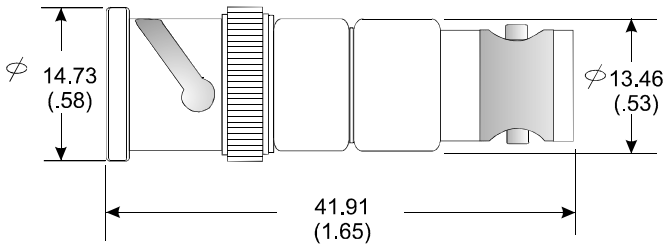
Fixed Coaxial Attenuator

Model WA19
Model WA19/6

DC – 12.4 GHz **5 WATTS**



Features

Available attenuation values from 1—60dB. BNC connectors mate nondestructively with MIL-C-39012 connectors. Optimized for broad-band wireless applications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC—12.4 GHz

Nominal dB values: 1-30 dB

Power Sensitivity: <0.005 dB/dB x W Bidirectional in power.

Power Rating: 5 watts average, 1 kilowatt peak. Maximum rated average power to 25° C ambient temperature de-rated linearly to 0 watts at 125° C.

Temperature Range: -55° C to +125° C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
	WA19
1—6	0.4
7—30	0.9

Temperature Coefficient: <0.0004 dB/dB x °C

Construction: Passivated stainless steel body with Nickel plated brass connectors. Gold plated beryllium female contact, stainless steel male contact.

Calibration: Insertion Loss and SWR performed at DC, 1.0, 8.0, 12.0 GHz. Option 890 or calibration test data available at additional cost.

Maximum SWR:

GHz	SWR
	WA19
DC-4	1.25
4-8	1.30
8/12.4	1.35

Weight:

1-30 dB	.10 kg/ 3.6 oz.
31-60 dB	.13 kg/ 4.0 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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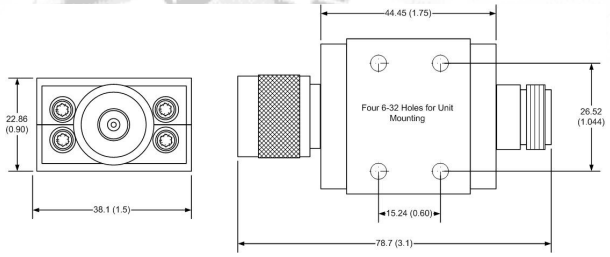
Low-Profile Mountable Fixed Coaxial Attenuator
Model WA21 & WA22

DC—4.0 GHz WA21 **25 Watts**
DC—8.5 GHz WA22 **25 Watts**



Features

Designed to meet environmental requirements of MIL-A-3933. Conductive Cooling. Flat base with mounting holes

Specifications

Nominal Impedance: 50 ohms

Frequency Range:

WA21 DC—4.0 GHz
WA22 DC—8.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB x W; Bidirectional in power.

Power Rating: 25 watts average, 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held to +100°C maximum using conductive heat sink.

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. Option 890, or custom calibration test data available at additional cost.

Standard Nominal Values and Deviations:

dB	Accuracy ± dB			
	0 - 4 GHz		4 - 8.5 GHz	
	WA21	WA22	WA21	WA22
3,6	0.3	0.3	--	0.60
10,20	0.3	0.3	--	0.60
30	0.6	0.6	--	1.00
40	0.8	0.8	--	1.50

Construction: Gold Iridite aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.2
4.0 – 8.5	1.3

Connectors: Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Add –LIM after connector option for Low Intermodulation option. Example: WA21-XX-XX-LIM

Weight:

Type N .17 kg/ 6 oz.

Physical Dimensions:

Length:

Connector Type	DIM "A"
Type N	78.7 (3.1)
DIN 7/16	131.8 (5.1)
SMA 4.1/9.5	71.1 (2.8) 81.0 (3.1)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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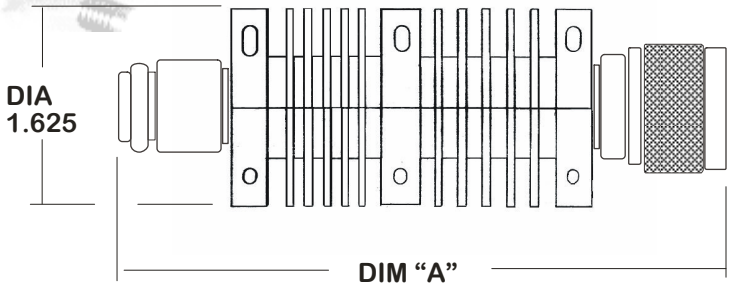
Fixed Coaxial Attenuator MODEL WA23

DC – 4.0 GHz **50 WATTS**

Bi-directional



Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet environmental requirements of MIL-A3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0005 dB/dB x W; Bidirectional in power.

Power Rating: 50 watts average to 25°C ambient temperature, de-rated linearly to 2.5 watts at 125° C. 5 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	DC – 4.0 GHz
3,6,10,20,30	0.4
40	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0 and 4.0 GHz. Option 890, or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20

Weight: .28 kg/ 10 oz.

Physical Dimensions:

Length:

Connector Type	DIM "A"
Type N	101.09 (3.98)
SMA	111.76 (4.37)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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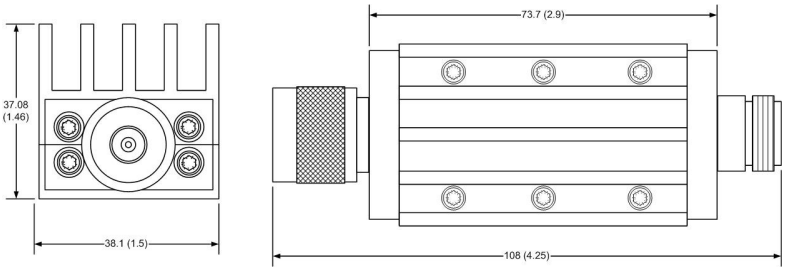
Fixed Coaxial Attenuator MODEL WA23B

DC – 4.0 GHz **50 WATTS**
Bi-directional



Features

Designed to comply with Mil-A-3933.

Bidirectional in power.

Natural Convection Cooling

Flat base with mounting holes

Connectors: Type N / SMA: stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 4.0 GHZ

Nominal dB Value: 3 – 40 dB

Deviation (± dB)	
dB	DC – 4.0 GHz
3 - 40	0.40

Maximum VSWR	
GHz	VSWR
DC – 4.0	1.2

Power: 50W CW average bi-directional to 25°C; de-rated linearly to 2.5 W at 125°C. Peak power of 5Kw; 5 µsec pulse width; 0.5% duty cycle.

Power Sensitivity: < 0.005 dB/dB x W

Temperature Range: -55°C to 125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, and 4.0 GHz. All calibration data is available at additional cost.

Weight: .28 kg/10 oz.

Dimensions		
Model	**dB**	**Dim "A"**
WA23B -XX-12	1 - 40	114.3 (4.50)
WA23B-XX-34	1 - 40	112.5 (4.43)
Note: Dimension are given in mm (inches) and are Maximum, unless otherwise specified.		

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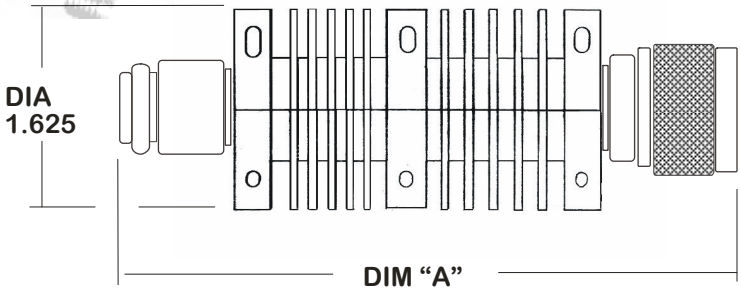
Fixed Coaxial Attenuator MODEL WA24

DC – 8.5 GHz **50 WATTS**

Bi-directional



Features

Designed to comply with Mil-A-3933.

Bidirectional in power.

Natural Convection Cooling

Connectors: Type N / SMA: stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 0 – 8.5 GHZ

Nominal dB Value: 3 – 40 dB

Deviation (± dB)		
dB	0 – 4 GHz	4 – 8.5 GHz
3 - 40	0.4	0.75

Maximum VSWR	
GHz	VSWR
0 – 4.0 4 – 8.5	1.2 1.3

Power: 50W CW average bi-directional to 25°C; de-rated linearly to 2.5 W at 125°C. Peak power of 5Kw; 5 µsec pulse width; 0.5% duty cycle.

Power Sensitivity: < 0.005 dB/dB x W

Temperature Range: -55°C to 125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Weight: .28 kg/10 oz.

Dimensions		
Model	dB	Dim "A"
WA24 -XX-12	1 - 40	111.76 (4.370)
WA24-XX-34	1 - 40	101.09 (3.98)
Note: Dimension are given in mm (inches) and are Maximum, unless otherwise specified.		

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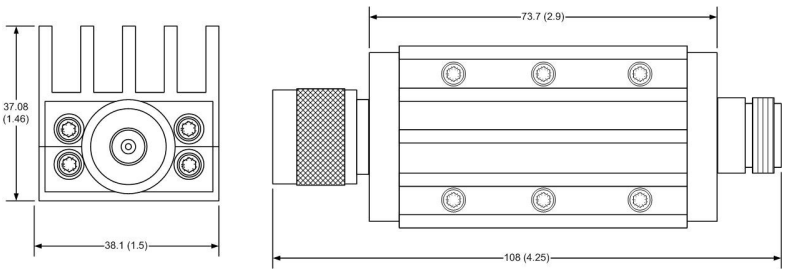
Fixed Coaxial Attenuator MODEL WA24B

DC – 8.5 GHz **50 WATTS**
Bi-directional



Features

Designed to comply with Mil-A-3933.

Bidirectional in power.

Natural Convection Cooling

Flat base with mounting holes

Connectors: Type N / SMA: stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 0 – 8.5 GHZ

Nominal dB Value: 3 – 40 dB

Deviation (± dB)		
dB	0 – 4 GHz	4 – 8.5 GHz
3 - 40	0.4	0.75

Maximum VSWR	
GHz	VSWR
0 – 4.0 4 – 8.5	1.2 1.3

Power: 50W CW average bi-directional to 25°C; de-rated linearly to 2.5 W at 125°C. Peak power of 5Kw; 5 µsec pulse width; 0.5% duty cycle.

Power Sensitivity: < 0.005 dB/dB x W

Temperature Range: -55°C to 125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Weight: .28 kg/10 oz.

Dimensions		
Model	dB	Dim "A"
WA24B -XX-12	1 - 40	114.3 (4.50)
WA24B-XX-34	1 - 40	112.5 (4.43)
Note: Dimension are given in mm (inches) and are Maximum, unless otherwise specified.		

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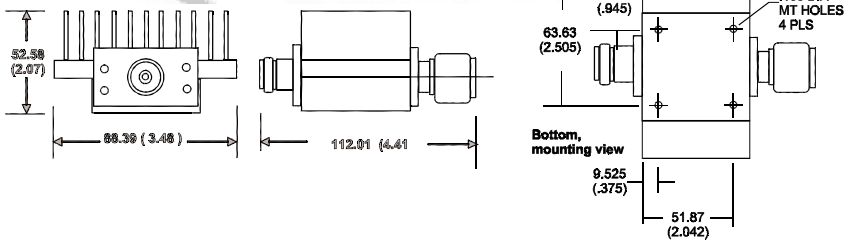
Fixed Coaxial Attenuator MODEL WA29

DC – 8.5 GHz 75 WATTS



Features

Type N, SMA or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 75 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB / dB x °C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB	
	0 - 4 GHz	4 - 8.5 GHz
3,6,10,10,30	0.4	0.75
40	0.5	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, 2.0, 3.0, 4.0 and 8.5 GHz. Calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
0 - 4	1.2
4 – 8.5	1.3

Weight:

Type N	1.5 kg/ 3.3 lb.
SMA	1.3 kg/ 3.0 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:

Length:

Connector	Length
Type N	112.01 (4.41)
4.1/9.5	97.41(3.84)
SMA	97.41 (3.84)

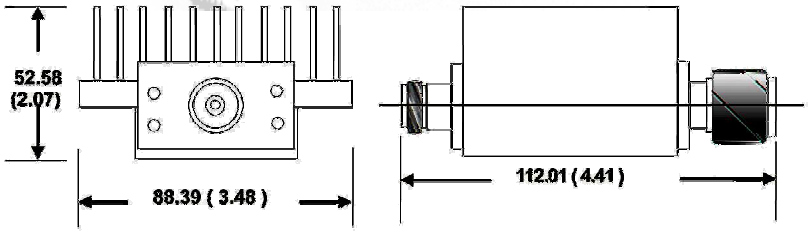
Width: **89.0 (3.5)**

Height: **54.0 (2.1)**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA30

DC – 4.0 GHz 100 WATTS



Features

Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-9012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 100 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	0 – 4.0 GHz
3,6,10,20	0.4
30, 40	0.5

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, 2.0, 3.0 and 4.0 GHz. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC – 4.0	1.20

Weight:

Type N	1.5 kg/ 3.3 lb.
7/16	1.7 kg/ 3.7 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:
Length:

Connector	Length
Type N	112.01 (4.41)
DIN 7/16	97.41 (3.84)
4.1/9.5	97.41 (3.84)

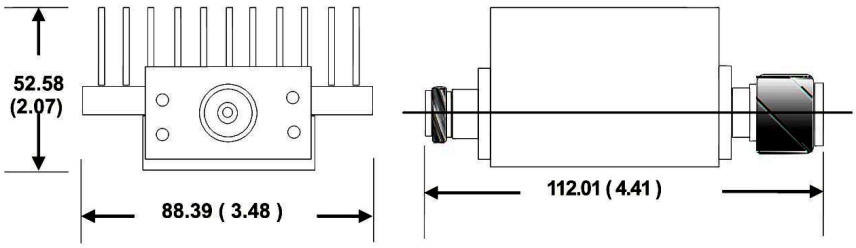
Width: **89.0 (3.5)**

Height: **54.0 (2.1)**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA31

DC – 8.5 GHz 100 WATTS



Features

Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-9012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 100 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	0 - 4 GHz	4 - 8.5 GHz
3,6,10,20	0.4	0.75
30, 40	0.5	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, 2.0, 3.0, 4.0 and 8.5GHz. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.2
4.0 – 8.5	1.3

Weight:

Type N	1.5 kg/ 3.3 lb.
7/16	1.7 kg/ 3.7 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:

Length:

Connector	Length
Type N	112.01 (4.41)
DIN 7/16	97.41 (3.84)
4.1/9.5	97.41 (3.84)

Width: **89.0 (3.5)**

Height: **54.0 (2.1)**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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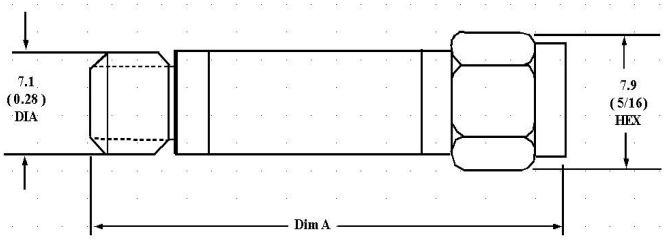
Fixed Coaxial Attenuator MODEL WA32
High Reliability

18.0 GHz **2 WATTS**



Features

Type SMA; stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Suitable for space & airborne applications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 0-18.0 GHz

Nominal dB Values: 1-20 dB

Power Sensitivity: < 0.005 dB/dB x W; Bidirectional in power.

Power Rating: 2 watts average power to 25°C ambient temperature, derated linearly to 1.25 watts at 75°C and 0.5 Watts at +125° C; 500 watts peak (5 µsec pulse width; 0.2% duty cycle).

Temperature Range: -55°C to +125° C:

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	WA32
0	0.3
0.5-6	0.3
7-12	0.5
20	0.7

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper contacts.

Test & Calibration: These units are screened and tested according to the following procedure:

Thermal Shock Test: 10 cycles, ½ hour each, -55° C to +125° C. Attenuation is taken before and after thermal shock.

Peak Power: 500 watts, 6000 cycles, 5µsec pulse width; 0.2% duty cycle at each end. There is an allowable change of 0.05 dB to 10 dB. 0.005 dB/dB to 20 dB. If necessary, the unit may be subjected to additional peak power test to stabilize the resistive element.

Final Test: Attenuation and VSWR are performed for final electrical test. Test data is available at additional cost.

Maximum VSWR:

GHz	VSWR
	WA32
DC-4.0	1.15
4.0-8.0	1.20
8.0-12.4	1.25
12.4-18.0	1.35

Weight (Both Models):

0-12 dB	3.9 gm/ 0.14 oz.
13-20 dB	4.3 gm/ 0.15 oz.

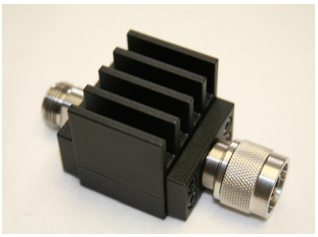
Physical Dimensions:

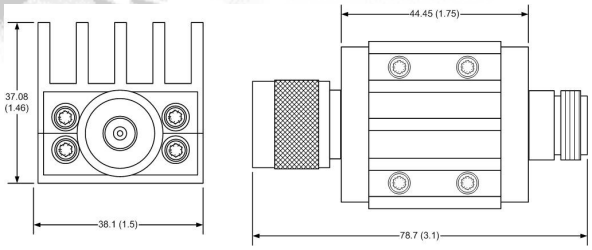
dB	Dim "A"
0 – 12	31.24 (1.23)
13 – 20	33.27 (1.31)

Note: Dimensions are given in mm (inches). Dimensions are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA33B

DC – 8.5 GHz 25 WATTS





Features

Designed to meet environmental requirements of MIL-A3933

* Low Intermodulation option available on 10, 20, 30, and 40dB.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB x W; Bidirectional in power.

Power Rating: 25 watts average to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. Option 890, or custom calibration test data available at additional cost.

Standard Nominal Values and Deviations:

dB	Accuracy ± dB			
	0 - 4 GHz		4 - 8.5 GHz	
	WA33	WA33-LIM	WA33	WA33-LIM
3,6	0.3	--	0.6	--
10,20	0.3	0.4	0.6	0.7
30	0.6	0.7	1.0	1.20
40	0.8	1.0	1.5	1.30

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.2
4.0 – 8.0	1.3

Connectors: Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Add –LIM after connector option for Low Intermodulation option. Example: WA33-XX-XX-LIM

Weight:

Type N	.17 kg/ 6 oz.
7/16	kg/ lb.
4.1/9.5	kg/ lb.

Physical Dimensions:

Connector Type	DIM "A"
Type N	81.53 (3.21)
DIN 7/16	106.68 (4.80)
SMA	71.12 (2.80)
4.1/9.5	81.03 (3.19)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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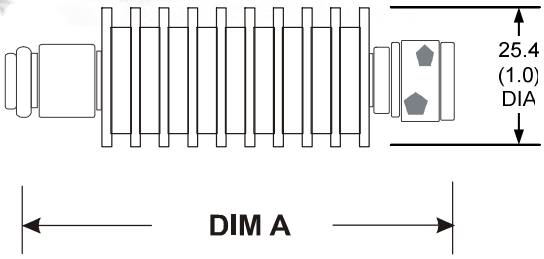
Fixed Coaxial Attenuator MODEL WA33L

DC – 8.5 GHz 20 WATTS



Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –8.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0005 dB/dB x W; Bidirectional in power.

Power Rating: 20 watts average to 25°C ambient temperature, derated linearly to 2.5 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	DC – 8.5 GHz
3,6,10,20,30	0.6
40	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0 and 4.0 GHz. Option 890, or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20
4.0 - 8.0	1.30

Weight:

Type N	.17 kg/ 6 oz.
7/16	.18 kg / 7 oz.
4.1/9.5	.17 kg / 6 oz.

Physical Dimensions:

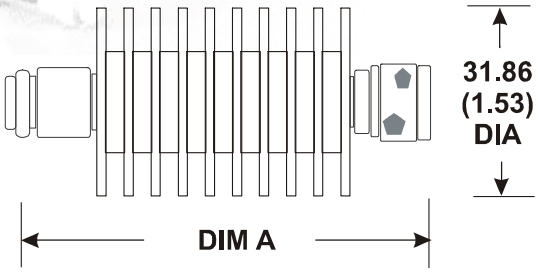
Length:

Connector Type	DIM "A"
Type N	78.23 (3.08)
DIN 7/16	106.68 (4.80)
SMA 4.1/9.5	71.12 (2.80) 81.03 (3.19)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA33

DC – 8.5 GHz 25 WATTS



Features

Designed to meet environmental requirements of MIL-A3933.

- Low Intermodulation option available on 10, 20, 30, and 40dB.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB x W; Bidirectional in power.

Power Rating: 25 watts average to 25°C ambient temperature, derated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. Option 890, or custom calibration test data available at additional cost.

Standard Nominal Values and Deviations:

dB	Accuracy ± dB			
	DC - 4.0 GHz		4.0 - 8.5 GHz	
	WA33	WA33-LIM	WA33	WA33-LIM
3,6	0.3	--	0.6	--
10,20	0.3	0.4	0.6	0.7
30	0.6	0.7	1.0	1.20
40	0.8	1.0	1.5	1.30

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20
4.0 – 8.5	1.30

Connectors: Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Add –LIM after connector option for Low Intermodulation option. Example: WA33-XX-XX-LIM

Weight:

Type N	.17 kg/ 6 oz.
7/16	kg/ lb.
4.1/9.5	kg/ lb.

Physical Dimensions:

Length:

Connector Type	DIM "A"
Type N	81.03 (3.19)
DIN 7/16	106.68 (4.80)
SMA 4.1/9.5	71.12 (2.80) 81.03 (3.19)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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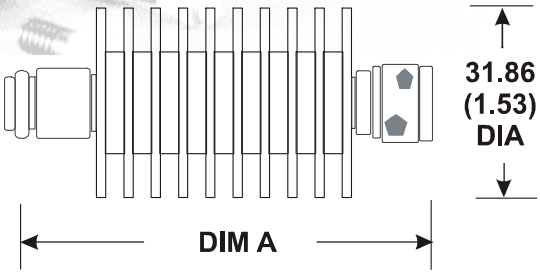
Fixed Coaxial Attenuator MODEL WA34

DC – 4.0 GHz 25 WATTS



Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet environmental requirements of MIL-A3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0005 dB/dB x W; Bidirectional in power.

Power Rating: 25 watts average to 25°C ambient temperature, derated linearly to 2.5 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	DC – 4.0 GHz
3,6,10,20,30	0.6
40	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0 and 4.0 GHz. Option 890, or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 2.0	1.10
2.0 - 4.0	1.20

Weight:

Type N	.17 kg/ 6 oz.
7/16	.18 kg / 7 oz.
4.1/9.5	.17 kg / 6 oz.

Physical Dimensions:

Length:

Connector Type	DIM "A"
Type N	81.03 (3.19)
DIN 7/16	106.68 (4.80)
SMA 4.1/9.5	71.12 (2.80) 81.03 (3.19)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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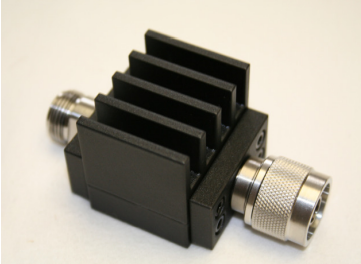
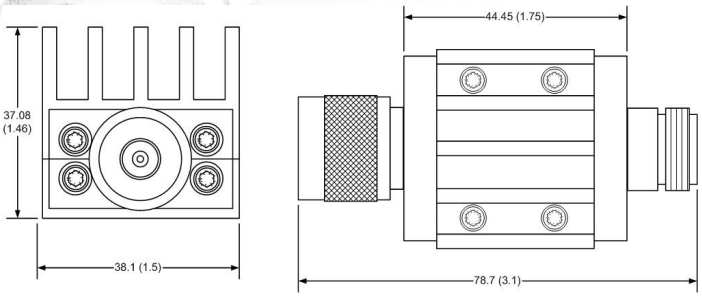
Fixed Coaxial Attenuator MODEL WA34B

DC – 4.0 GHz 25 WATTS





Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0005 dB/dB x W; Bidirectional in power.

Power Rating: 25 watts average to 25°C ambient temperature, derated linearly to 2.5 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
	DC – 4.0 GHz
3,6,10,20,30	0.6
40	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0 and 4.0 GHz. Option 890, or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 2.0	1.10
2.0 - 4.0	1.20

Weight:

Type N	.17 kg/ 6 oz.
7/16	.18 kg / 7 oz.
4.1/9.5	.17 kg / 6 oz.

Physical Dimensions:

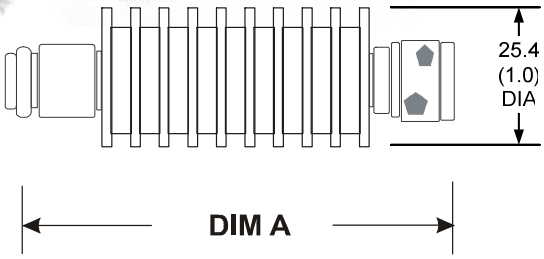
Length:

Connector Type	Length
Type N	81.53 (3.21)
DIN 7/16	106.68 (4.80)
SMA 4.1/9.5	71.12 (2.80) 81.03 (3.19)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA34L

DC – 4.0 GHz 20 WATTS



Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0005 dB/dB x W; Bidirectional in power.

Power Rating: 20 watts average to 25°C ambient temperature, derated linearly to 2.5 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	DC – 4.0 GHz
3,6,10,20,30	0.6
40	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0 and 4.0 GHz. Option 890, or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 2.0	1.10
2.0 - 4.0	1.20

Weight:

Type N	.17 kg/ 6 oz.
7/16	.18 kg / 7 oz.
4.1/9.5	.17 kg / 6 oz.

Physical Dimensions:

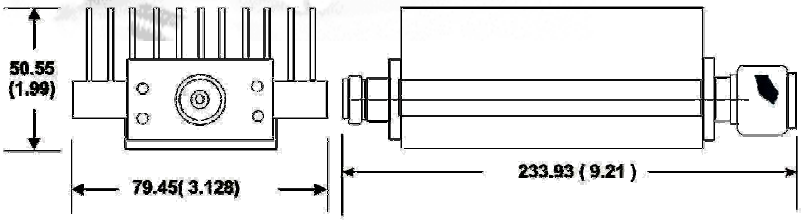
Length:

Connector Type	DIM "A"
Type N	78.23 (3.08)
DIN 7/16	106.68 (4.80)
SMA 4.1/9.5	71.12 (2.80) 81.03 (3.19)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA35

DC – 8.5 GHz 250 WATTS



Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 10-40 dB

Power Sensitivity: < 0.0001 dB/dBxW Unidirectional in power.

Power Rating: 250 watt CW/ 5KW peak. Maximum rated average power to 25°C ambient temperature, derated linearly to 25 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dBx°C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB	
	0 - 4 GHz	4 - 8.5 GHz
10,20,30	0.4	0.75
40	0.5	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.30
4.0 – 8.5	1.45

Weight: **1.28 kg/ 2.75 lbs.**

Length: **233.93 (9.21)**

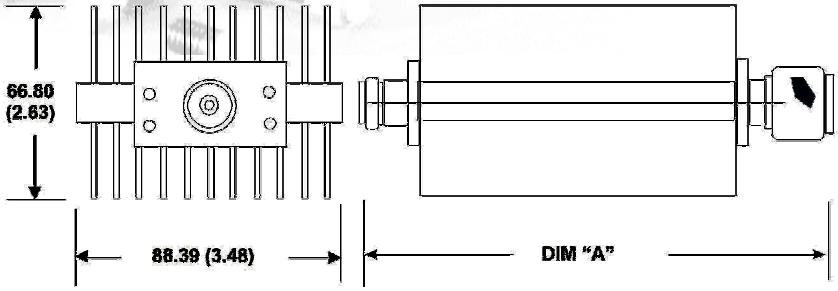
Width: **79.45 (3.128)**

Height: **50.55 (1.99)**

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA36

DC – 8.5 GHz 300 WATTS



Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 8.5 GHz

Nominal dB Values: 10-40 dB

Power Sensitivity: < 0.0001 dB/dBxW Unidirectional in power.

Power Rating: 300 watt CW/ 5KW peak. Maximum rated average power to 25°C ambient temperature, derated linearly to 25 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dBx°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	DC - 4.0 GHz	4.0 - 8.5 GHz
10,20,30	0.4	0.75
40	0.5	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Maximum VSWR:

Frequency (GHz)	VSWR
DC – 4.0	1.30
4.0 – 8.5	1.45

Weight: 1.28 kg/ 2.75 lbs.

Length: 233.93 (9.21)

Width: 79.45 (3.13)

Height: 50.55 (1.99)

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

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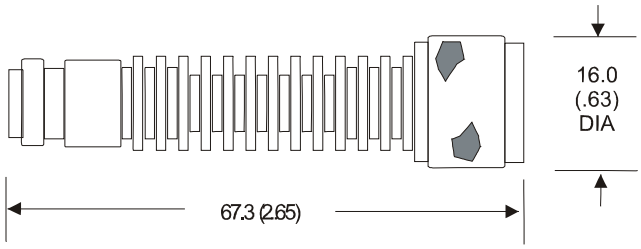
Fixed Coaxial Attenuator MODEL WA37

DC – 8.5 GHz 10 WATTS



Features

Type N stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 1– 30 dB

Power Sensitivity: < 0.005 dB/dB x W: Bidirectional in power.

Power Rating: 10 watts average, 1 KW peak. Full power from -55°C to +25°C ambient, derated linearly to 1 Watt at +125° C. Peak power rated for 5 µsec pulse width; 0.5% duty cycle.

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB x °C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
1, 2, 10	0.5
3, 6	0.3
20	0.7
30	0.8

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC to 8.5 GHz. Calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
0 - 4.0	1.15
4.0 – 8.5	1.20

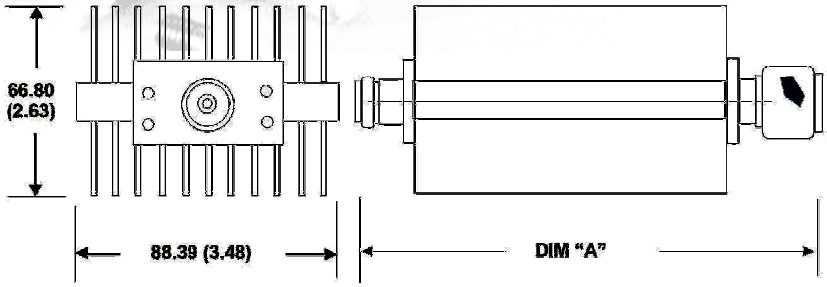
Length: 67.3 (2.65)

Weight: .085 kg/ 3 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA38

DC – 5.0 GHz 300 WATTS



Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 5.0 GHz

Nominal dB Values: 10-40 dB

Power Sensitivity: < 0.0001 dB/dBxW Unidirectional in power.

Power Rating: 300 watt CW/ 10KW peak. Maximum rated average power to 25°C ambient temperature, derated linearly to 25 watts at 125° C. 10 kilowatt peak (5 µsec pulse width; 1.5% duty
cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dBx°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	0 - 2.0 GHz	2.0 - 5.0 GHz
10,20,30	0.4	0.75
40	0.5	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 5.0 GHz. All calibration data is available at additional cost.

Maximum VSWR:

Frequency (GHz)	VSWR
DC – 2.0	1.25
2.0 – 5.0	1.45

Weight: 1.28 kg/ 2.75 lbs.

Length: 233.93 (9.21)

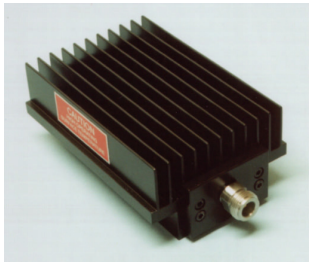
Width: 79.45 (3.13)

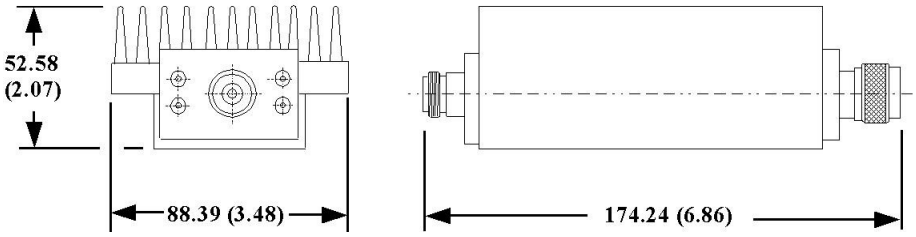
Height: 50.55 (1.99)

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA39

DC – 4.0 GHz 150 WATTS





Features

Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 150 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Value & Deviation:

dB	Accuracy ± dB 0 – 4.0 GHz
3,6,10,10,30	0.4
40	0.5

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male.

Calibration: Insertion Loss and VSWR performed at DC to 4.0 GHz. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.25

Weight:

Type N	1.5 kg/ 3.3 lb.
7/16	1.7 kg/ 3.7 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:

Length:

Connector	Length
Type N	174.24 (6.86)
DIN 7/16	226 (8.5)
4.1/9.5	183 (7.2)

Width: **89.0 (3.5) MAX**

Height: **54.0 (2.1) MAX**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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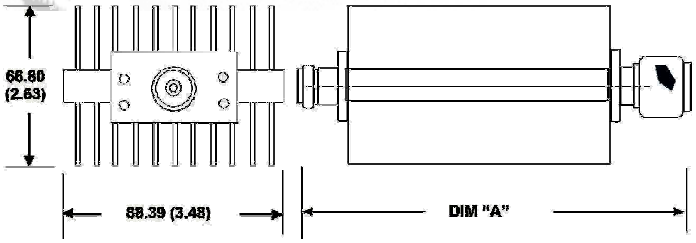
Fixed Coaxial Attenuator MODEL WA40

DC – 2.0 GHz 150 WATTS



Shown with 7/16mm connectors

Features

Type N, SMA, 4.9 stainless steel M/F connectors and 7/16mm connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 2.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB x W.

Power Rating: 150W CW / 10 KW peak; Unidirectional. Full power from -55°C to +25°C. derated linearly to 15 watts at 125°C. 10 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Deviation: (± dB): 0.5 dB

MAX VSWR: 1.10

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, and 2.0 GHz. Calibration test data available at additional charge.

PHYSICAL DIMENSIONS/ Standard Nominal Values and Deviations from Nominal:

Connector Type	Dim "A"	Weight kg/oz
4.9/9.5	175 (6.9)	.88/31
N WA40-34	174.24 (8.86)	.85/30
SMA WA40-12	189.89 (7.47)	.79/28
7/16 WA40-89	265.68 (10.46)	1.02/36

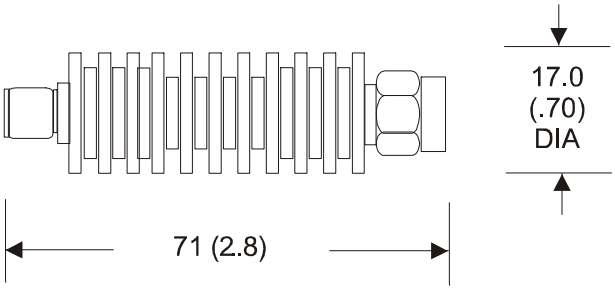
dB	Accuracy ± dB
3 – 40	0.5

Weight:
.85 kg/ 30 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA41

DC – 18.0 GHz 10 WATTS



Features

SMA stainless steel M/F SMA connectors per MIL-STD-348A, interface dimensions mate non-destructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 1-30 dB

Power Sensitivity: < 0.005 dB/dB x W: Bidirectional in power.

Power Rating: 10W CW / 1 KW peak. Full power from -55°C to +25°C.

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB x °C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
1, 2, 10	0.5
3, 6	0.3
20	0.7
30	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 8.0, 12.4 and 18 GHz. Calibration test data available at additional cost.

Maximum VSWR

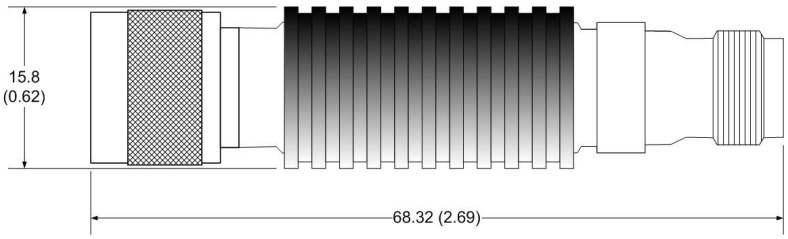
GHz	VSWR
DC - 8.0	1.20
8.0 – 12.4	1.30
12.4-18.0	1.35

Weight:
.028 kg/ 1 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA41T

DC – 18.0 GHz 10 WATTS



Features

TNC stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 1-30 dB

Power Sensitivity: < 0.005 dB/dB x W: Bidirectional in power.

Power Rating: 10W CW / 1 KW peak. Full power from -55°C to +25°C.

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
1, 2, 10	0.5
3, 6	0.3
20	0.7
30	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 8.0, 12.4 and 18.0 GHz. Calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 8.0	1.20
8.0 – 12.4	1.35
12.4-18.0	1.45

Weight:
.056 kg/ 2 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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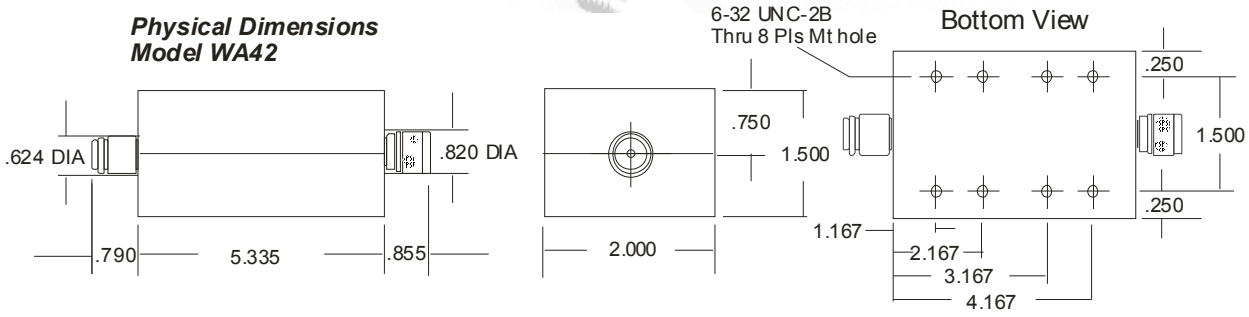
Mountable Coaxial Attenuator Model WA42

DC—2.5 GHz 150 Watts



Features

Type N, SMA, 4.9 stainless steel M/F connectors and 7/16mm connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 2.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB x W.

Power Rating: 150W CW / 10 KW peak; Unidirectional. Peak power of 5Kw; 5 µsec pulse width; 0.5% duty cycle, with case temperature held to +100° C maximum using conductive heat sink.

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB x °C

Standard Nominal Values and Deviations:

dB Value	Accuracy ± dB
3 – 40	0.5

Construction: Aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, and 2.0 GHz. Calibration test data available at additional charge.

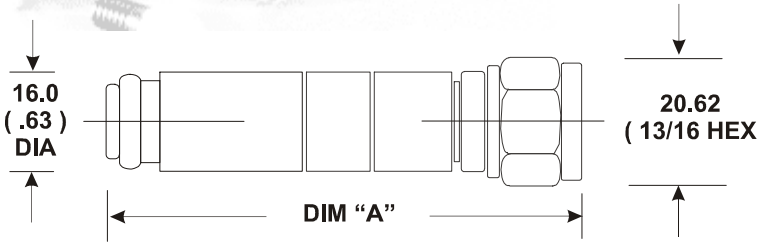
Physical Dimensions:

Connector Type	Dim "A"	Weight kg/oz
N Type	174.24 (8.86)	.85/30
SMA	189.89 (7.47)	.79/28
7/16	265.68 (10.46)	1.02/36

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Fixed Coaxial Attenuator MODEL WA44

DC –18.0 GHz 5 WATTS



Features

Precision N-Type stainless steel connectors with hex coupling nut per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency: DC to 18.0 GHz

Power: 5W CW / 1kW peak. Full power from -55°C to +25°C

Power Sensitivity: <0.005 dB /dB x W: Bidirectional

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
1-9 10, 20 30, 40 50, 60	0.3 0.5 1.0 1.5

Physical Dimensions:

dB Value	Dim "A"
1 – 30 31 – 60	74.42 (2.93) 84.58 (3.33)

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB /dB x °C.

Maximum VSWR:

GHz	VSWR
DC - 4.0 4.0 - 12.4 12.4 - 18.0	1.15 1.20 1.25

Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4 and 18.0 GHz. Option 890 or custom calibration data available at a additional charge.

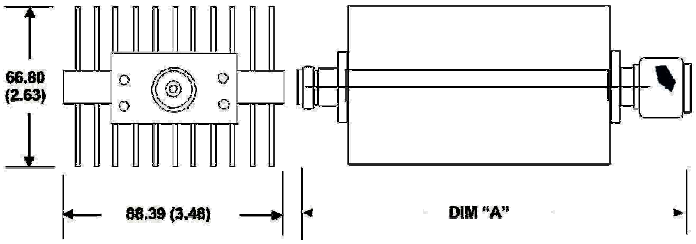
Construction: Stainless steel barrels. Type N stainless steel male and female connectors to mate nondestructively with connectors per MIL-C-39012 and MIL-STD-348A.

Weight:
1 to 30 dB: Net 0.10 kg (3.5 oz.)
31 to 60 dB: Net 0.13 kg (4.5 oz.)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA45

DC – 2.5 GHz 250 WATTS



Features

Type N stainless steel M/F connectors and 7/16mm per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 2.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB x W.

Power Rating: 250W CW / 10 Kw peak; Unidirectional. Full power from -55°C to +25°C

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Deviation: (± dB): 0.5 dB

Maximum VSWR: 1.10

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, and 2.0 GHz. Calibration test data available at additional cost.

Physical Dimensions/ Standard Nominal Values and Deviations from Nominal:

Connector Type	Dim "A"	Weight kg/oz
N WA45-34 7/16 WA45-89	235.71 (9.28) 276.35 (10.88)	1.54 kg/ 3.4 lbs 1.72 kg/ 3.8 lbs

dB	Accuracy ± dB
3 – 40	0.5

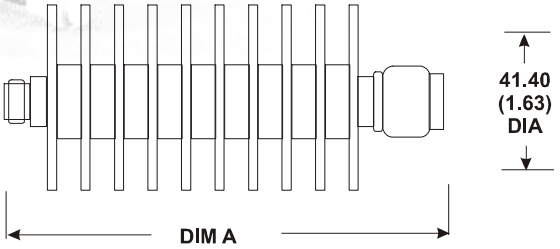
Weight: 1.81 kg/ 4 lbs

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

High Power Fixed Attenuator MODEL WA46

DC –18.0 GHz 25 WATTS

Models WA48, WA47 and WA46 shown top to bottom.



Features

Designed to meet environmental requirements of MIL-A-3933. Low Intermodulation option available on 10, 20, 30, and 40 dB.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 3 - 40 dB

Power Sensitivity: < 0.005 dB/dB x W 3, 6, 10 and 20 dB units are Bidirectional in power.

Power Rating: 25W CW / 1kw peak. Maximum rated average power to 25°C ambient temperature, derated linearly to 2.5 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 1.25% duty cycle).

Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4, and 18.0 GHz. Option 890 or custom calibration test data available at additional cost.

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB		
	WA46	WA46-LIM	
	DC – 18.0 GHz	DC-8.0 GHz	8.0–18.0 GHz
3, 6	0.50	--	--
10	0.50	0.5	+1.0/-0.0
20	0.75	0.5	+1.0/-0.0
30, 40	1.00	0.5	+1.0/-0.0

Note: Dimensions are given in mm (inches) and are maximum unless otherwise specified.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. High power input is unidirectional: Input connector optional; Female if not specified.

* Add –LIM after connector option for Low Intermodulation option.

Temperature Range: -55°C to +125°C; derated linearly to 10% at +125°C.

Temperature Coefficient: < 0.0004 dB/dBx°C

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Maximum VSWR

GHz	VSWR
DC – 8.0	1.20
8.0 – 12.4	1.25
12.4 – 18.0	1.35

Weight:

Type N	0.11 kg/ 4 oz.
SMA	0.06 kg/ 2 oz.

Physical Dimensions:
Length: "A" Dimension

Connector	Length
Type N	105.41 (4.15)
SMA	112.52 (4.44)

Diameter: **41.40 (1.63)**

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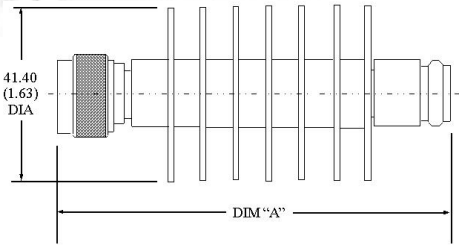
High Power Fixed Attenuator MODEL WA47

DC – 18.0 GHz
Bi-Directional

50 WATTS

Models WA48, WA47 and WA46 shown top to bottom.



Features

Designed to meet MIL-A-3933 environmental specification. Low Intermodulation option in 10, 20, 30, and 40dB models.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 6 - 40 dB

Power Sensitivity: < 0.005 dB/dBxW Unidirectional in power.

Power Rating: 50W CW/ 1 KW peak to 25°C ambient temperature, derated linearly to 10 watts at 125°C, 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

dB	Accuracy ± dB		
	WA47	WA47-LIM	
	DC – 18.0 GHz	DC-8 GHz	8–18 GHz
6	0.75	--	--
10	0.50	0.75	+1.5/-0.5
20	0.75	0.75	+1.5/0.5
30, 40	1.00	0.75	+1.5/-0.5

Standard Nominal Values and Deviations:
Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4, and 18.0 GHz. Option 890 or custom calibration test data available at additional charge.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Temperature Range: -55°C to +25°C:

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. High power input is unidirectional: Input connector optional; Female if not specified.

*Add –LIM for Low Intermodulation option after connector option. Example: WA47-dB-XX-LIM

Maximum VSWR

GHz	VSWR 6 dB	VSWR 10, 20,30,40 dB
DC – 8.0	1.25	1.20
8.0 – 12.4	1.35	1.25
12.4 – 18.0	1.45	1.35

Weight:

Type N	0.18 kg/ 6 oz.
SMA	0.12 kg/ 4 oz.

Physical Dimensions:

Length: "A" Dimension

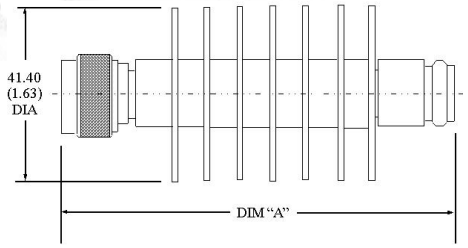
Connector	Length
Type N (-3, -4)	171.20 (6.74)
SMA (-1, -2)	178.05 (7.01)

Diameter: 41.40 (1.63)

High Power Fixed Attenuator MODEL WA475

DC –18.0 GHz

75 WATTS
50 WATTS Bi-Directional



Features

Designed to meet MIL-A-3933 environmental specification. Low Intermodulation option in 10, 20, 30, and 40dB models.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 6 - 40 dB

Power Sensitivity: < 0.005 dB/dBxW Unidirectional in power for 75 watt unit. Bidirectional for 50 watts.

Power Rating: Unidirectional 75W/Bidirectional 50W CW/ 1 KW peak to 25°C ambient temperature, derated linearly to 10 watts at 125°C, 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Standard Nominal Values and Deviations:

dB	Accuracy ± dB		
	WA475	WA475-LIM	
	0 – 18.0 GHz	0-8 GHz	8–18 GHz
6	0.75	--	--
10	0.50	0.75	+1.5/-0.5
20	0.75	0.75	+1.5/0.5
30, 40	1.00	0.75	+1.5/-0.5

Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4, and 18.0 GHz. Option 890 or custom calibration test data available at additional charge.

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. High power input is unidirectional: Input connector optional; Female if not specified. Add –LIM for Low Intermodulation option after connector option. Example: WA475-dB-XX-LIM.

Maximum VSWR

GHz	VSWR 6 dB	VSWR 10, 20,30,40 dB
0 – 8.0	1.25	1.20
8.0 – 12.4	1.35	1.25
12.4 – 18.0	1.45	1.35

Weight:

Type N	0.18 kg/ 6 oz.
SMA	0.12 kg/ 4 oz.

Physical Dimensions: "A" Dimension.

Connector	Length
Type N (-3, -4)	234.95 (9.25)
SMA (-1, -2)	241.55 (9.51)

Diameter: **41.40 (1.63)**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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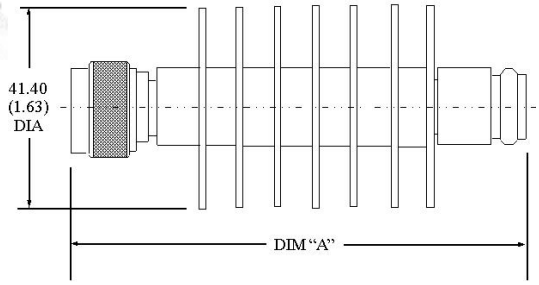
High Power Fixed Attenuator MODEL WA48

DC –18.0 GHz 100 WATTS

Models WA48, WA47 and WA46 shown top to bottom.



Features

Designed to meet MIL-A-3933 environmental specification.
Low Intermodulation option

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 10 - 40 dB

Power Sensitivity: < 0.00015 dB/dB/W Unidirectional in power.

Power Rating: 100 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 10 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4, and 18.0 GHz. Option 890 or custom calibration test data available at additional cost.

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB		
	WA48	WA48-LIM	
	DC – 18.0 GHz	DC-8.0 GHz	8.0–18.0 GHz
10	1.25	1.00	+3.0/-0.0
20	0.75	1.00	+3.0/-0.0
30, 40	1.00	1.00	+3.0/-0.0

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, St. St. male.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. High power input is unidirectional: Input connector optional; Female if not specified.

* Add –LIM for Low Intermodulation option after connector option.Example: WA48-dB-XX-LIM

Maximum VSWR

GHz	VSWR 10 dB	VSWR 20,30,40 dB	WA48-LIM
DC – 8.0	1.40	1.25	1.40
8.0 – 12.4	1.40	1.35	1.45
12.4 – 18.0	1.55	1.45	1.45

Weight:

Type N 0.32 kg/ 11 oz.
SMA 0.26 kg/ 9 oz.

Physical Dimensions:

Length: "A" Dimension

Connector	Length
Type N	302.0 (11.9)
SMA	310.0 (12.2)

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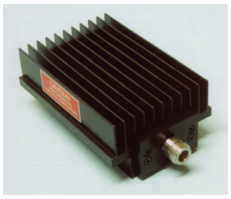
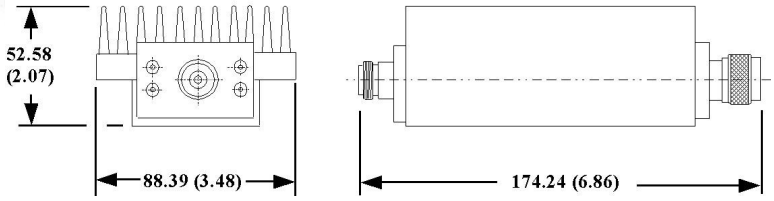
Fixed Coaxial Attenuator MODEL WA49

DC – 8.5 GHz 150 WATTS





Features

Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position. Low Intermodulation option available.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 150 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. Option 890 or custom calibration data available at additional cost.

Standard Nominal Values/ Deviations:

dB	Accuracy ± dB			
	0 - 4 GHz		4 - 8.5 GHz	
	WA49	WA49 -LIM	WA49	WA49 -LIM
3,6 10,20 30	0.4 0.4 0.4	---------- 0.7 0.7	0.75 0.75 0.75	---------- 1.25 1.75
40	0.5	0.7	1.0	1.75

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts.

Connectors: Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate non-destructively with MIL-C-39012.

Add –LIM for Low Intermodulation option after connector option.
Example: WA49-dB-XX-LIM

Maximum VSWR

GHz	VSWR
0 - 4	1.2
4 – 8.5	1.35

Weight:

Type N	1.5 kg/ 3.3 lb.
7/16	1.7 kg/ 3.7 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:

Length:

Connector	Length
Type N	174.24 (6.86)
DIN 7/16	226 (8.5)
4.1/9.5	183 (7.2)

Width: **89.0 (3.5) MAX**
Height: **54.0 (2.1) MAX**

Note: Dimensions are given in mm (inches) unliess otherwise specified.

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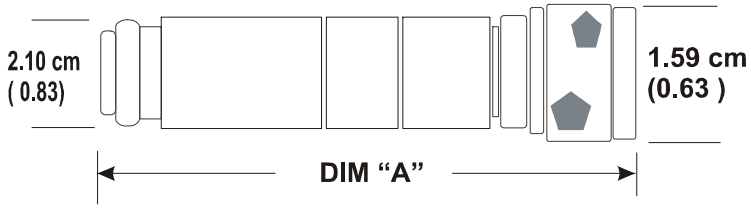
Fixed Coaxial Attenuator MODEL WA50

DC – 3 GHz **1 - 2 WATTS Average**



Specifications

Nominal Impedance: 50 ohms

Frequency: DC to 3.0 GHz

Standard Nominal Values and Deviations:

Stan-dard Nominal Value (dB	Deviation		
	From Nomi-nal At DC (± dB)	From DC	
		2 GHz (± dB)	3 GHz (± dB)
1 thru 5	0.02	0.1	0.2
6 thru 10	0.05	0.1	0.2
20 thru 50	0.10	0.15	0.3

Maximum VSWR:

DC: 50 ± 1 ohms
GHz: 1.15
3.0 GHz 1.20

Power Rating:

1 to 6 dB: 2 watts average, 1kW peak
7 to 10 dB: 1 watt average, 1 kW peak
20, 30, 40, 50 dB: 1 watt average, 1 kW peak

Physical Dimensions:

dB Value	Dim "A" Max
1 – 30	76.2mm (3.00)
31 – 50	88.9 mm (3.50)

Temperature Range: -30°C to +70°C (no derating)

Calibration: Insertion loss in 50 ohm system at DC, 30 MHz, 1.0, 2.0, and 3.0 GHz.

Accuracy of Calibration:

Fre-quency	VSWR	Insertion Loss	
		1 40 dB	50 dB
DC	1%	005 db/ 10 dB	0.02 dB
1 GHz	2%	dB or 0.1 dB/ 10 dB, whichever is greater.	
2 & 3 GHz	4%		

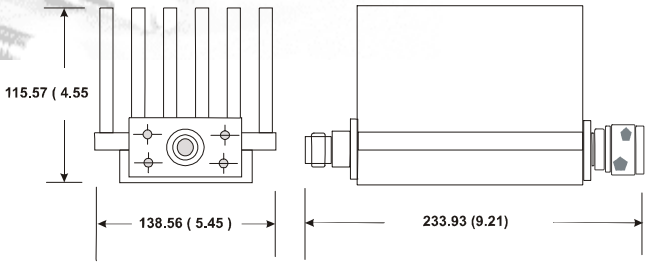
Construction: Stainless steel barrels. Type N stainless steel male and female connectors to mate nondestructively with connectors per MIL-C-39012 and MIL-STD-348A.

Weight:
1 to 30 dB: Net 0.102 kg (3.6 oz.)
31 to 50 dB: Net 0.102 kg (3.6 oz.)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA51

DC – 8.5 GHz 500 WATTS



Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 10-40 dB

Power Sensitivity: < 0.0001 dB/dBxW Unidirectional in power.

Power Rating: 500 watt CW/ 5KW peak. Maximum rated average power to 25°C ambient temperature, derated linearly to 25 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dBx°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB	
	DC - 4.0 GHz	4.0 - 8.5 GHz
10,20,30	0.4	0.75
40	0.5	1.0

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.25
4.0 – 8.5	1.45

Weight: **1.28 kg/ 2.75 lbs.**

Length: **233.93 (9.21)**

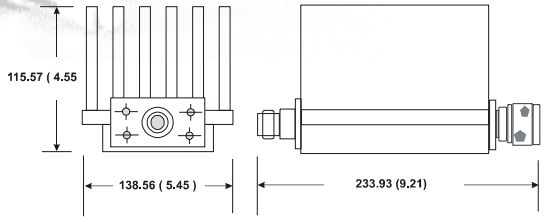
Width: **79.45 (3.128)**

Height: **50.55 (1.99)**

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

High Power Fixed Attenuator MODEL WA53

DC – 2.5 GHz 500 WATTS



Features

Designed to meet MIL-A-3933 environmental specifications.

Unit may be mounted in a horizontal or vertical position. Convection cooled, full power rating without forced air cooling.

Low Intermodulation option; 10,20,30,and 40dB models.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -2.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB/W Unidirectional in power.

Power Rating: 500 watts average. Maximum rated average power to from –55°C to 35°C ambient temperature, de-rated linearly to 50 watts at 125°C. 10-kilowatt peak (5 µsec pulse width; 2.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB 0-2.5GHz	
	WA53	WA53 LIM
3 6 10	± 0.50 ± 1.00 ± 1.00	N/A N/A ± 1.20
20,30,40	± 0.50	± 1.20

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Connectors: Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate non-destructively with MIL-C-39012.

Calibration: Insertion Loss and VSWR performed at DC through 2.5 GHz. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

Frequency	VSWR	
GHz	WA53	WA53-LIM
DC – 2.5 GHz	1.10	1.15

Weight:

Type N	3.7 kg/ 8.2 lb.
7/16	3.9 kg/ 8.6 lb.
4.1/9.5	3.7 kg/ 8.2 lb.

Physical Dimensions:

Length:

Connector	Length
Type N	297 (11.7)
DIN 7/16	338 (13.3)
4.1/9.5	375 (12.0)

Note: Dimensions are given in mm (inches) unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA54

DC – 40 GHz **2 WATTS**

Features

Connectors: Type 2.92 mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012 connectors. Designed to meet MIL-A-3933 environmental specifications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: Model WA54: 0-40.0 GHz

Nominal dB Values: 3-30 dB

Power Sensitivity: < 0.001 dB/dB/W; Bidirectional in power.

Power Rating: 2 watts average, 200 watts peak to 25°C ambient temperature, derated linearly to 0.1 watts at 100°C.

Temperature Range: -55°C to +100° C:

Standard Nominal Values and Deviations from Nominal:

Standard Nominal dB Value	Deviation ± dB	
	Dc—26.5	26.5—40
3, 6	0.50	1.00
10, 20	1.00	1.00
30	2.00	2.00

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper female contacts.

Calibration: Option 890 or calibration test data available at additional cost:

Maximum VSWR:

Frequency (GHz)	VSWR
DC - 26.5	1.25
26.5 - 40	1.45

Physical Dimensions:

Model/dB/Connector	Dim "A"
54-XX-12 (F/M)	36.07 (1.42)
54-XX-11 (F/F)	34.80 (1.37)
54-XX-22 (M/M)	37.34 (1.47)

Note: Dimensions are given in mm (inches) and are maximum unless otherwise specified.

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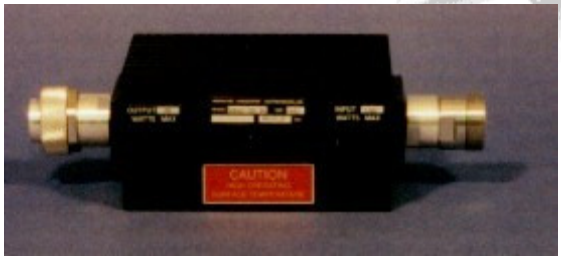
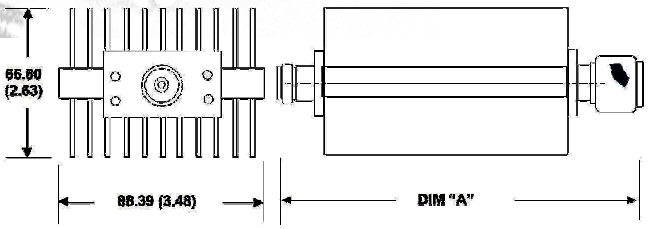
Fixed Coaxial Attenuator MODEL WA57

DC – 5.0 GHz 150 WATTS





Features

SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 5.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB x W.

Power Rating: 150W CW / 10 KW peak; Unidirectional. Full power from -55°C to +25°C

Standard Nominal Values and Deviations:

Nominal	Deviation ± dB	
Attenuator dB	**57**	**57-LIM**
3*, 6 10,20 30,40	1.25 1.25 1.50	N/A 2.00 3.00

Maximum VSWR		
Frequency GHz	**Input**	**Output**
DC - 2.0 (1.5*) 2.0 - 5.0	1.10 1.15	1.20 (1.10*) 1.20

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Calibration: Insertion Loss and VSWR performed at DC, 1.0, 2.0 and 5 GHz, calibration test data available at additional cost.

Physical Dimensions:

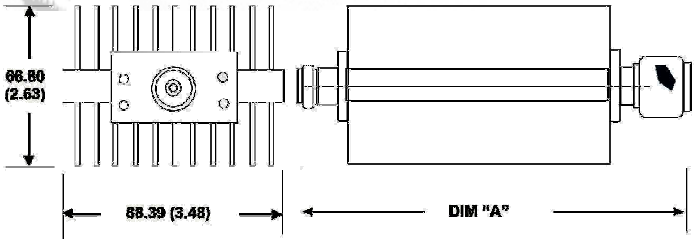
Weight:.85 kg/ 30 oz.

Connector Type	Dim "A"	Weight kg/oz
4.9/9.5	175 (6.9)	.88/31
N WA57-34	174.24 (8.86)	.85/30
SMA WA57-12	189.89 (7.47)	.79/28
7/16 WA57-89	265.68 (10.46)	1.02/36

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Fixed Coaxial Attenuator MODEL WA58

DC – 5.0 GHz 250 WATTS



Features

Designed to meet MIL-A-3933 environmental specification.

Unit may be mounted in any position.

Low Intermodulation Option in 10, 20, 30, and 40dB models.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 5.0 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB x W.

Power Rating: 250W CW / 10 KW peak; Unidirectional. Full power from -55°C to +25°C

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Maximum VSWR: DC – 2.0 GHz: 1.20
2.0 – 5.0 GHz: 1.25

Calibration: Insertion Loss and VSWR performed at DC, 1.0, and 2.0 GHz. Calibration test data available at additional cost.

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Connectors: Type N stainless steel M/F connectors and 7/16mm per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Add –LIM for Low Intermodulation option
after connector option.
Example: WA58-dB-XX-LIM

Physical Dimensions/ Standard Nominal Values and Deviations from Nominal:

Connector Type	Dim "A"	Weight kg/oz
N WA58-34 7/16 WA58-89	235.71 (9.28) 276.35 (10.88)	1.54 kg/ 3.4 lbs 1.72 kg/ 3.8 lbs

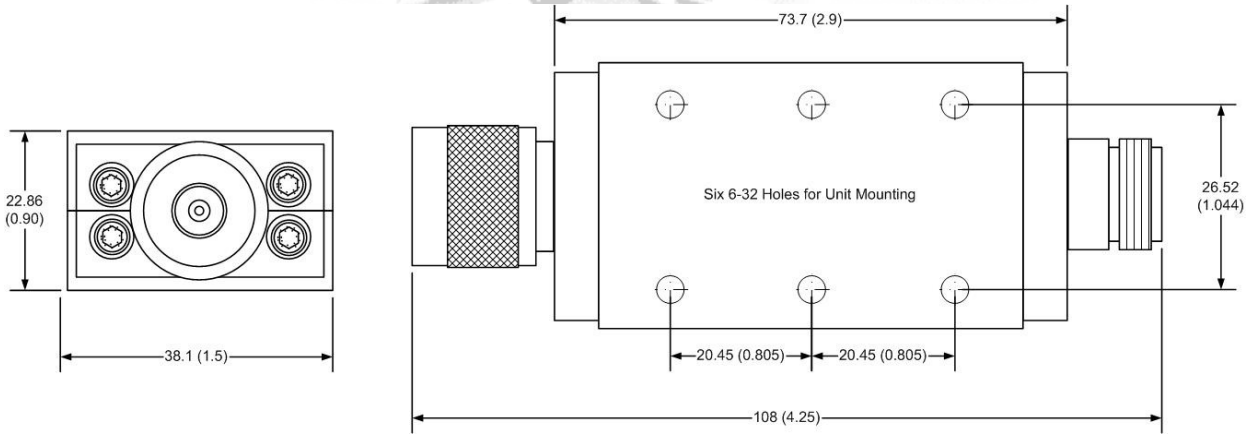
dB	Accuracy ± dB	
	WA58	WA58-LIM
3, 6 10, 20 30, 40	1.50 1.50 1.75	N/A 2.00 3.00

Weight: 1.7 kg/ 3.8 lbs MAX

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Low-Profile Mountable Fixed Coaxial Attenuator
MODEL WA59

DC – 2.5 GHz **100 WATT**



Features

Designed to comply with Mil-A-3933.

Conductive Cooling

Flat base with mounting holes

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 2.5 GHZ

Nominal dB Value: 3 – 40 dB

Connectors: Type N / SMA: stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Power: 100W average unidirectional, Peak power of 10KW (5 µsec pulse width; 0.5% duty cycle) with case temperature held to +100°C maximum using conductive heat sink.

Construction: Gold Iridite Aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper male/female contacts.

Power Sensitivity: < 0.005 dB/dB x W

Temperature Range: -55°C to 125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Calibration: Insertion Loss and VSWR performed at DC, 1.0, and 2.5 GHz. All calibration data is available at additional cost.

Weight: .14 kg/5 oz.

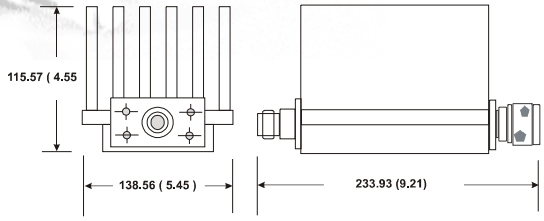
Deviation (± dB)	
dB	DC – 2.5 GHz
3 - 40	0.70

Maximum VSWR	
GHz	VSWR
DC – 2.5	1.20

Dimensions		
Model	**dB**	**Length**
WA59 -XX-12	3 - 40	120.65 (4.75)
WA59-XX-34	3 - 40	108.5 (4.25)
Note: Dimension are given in mm (inches) and are Maximum, unless otherwise specified.		

High Power Fixed Attenuator MODEL WA60

DC – 5.0 GHz 500 WATTS



Features

Designed to meet MIL-A-3933 environmental specifications. Unit may be mounted in a horizontal or vertical position. Convection cooled, full power rating without forced air cooling. Low Intermodulation option; 10,20,30,and 40dB models.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 5.0GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.0001 dB/dB/W Unidirectional in power.

Power Rating: 500 watts average. Maximum rated average power to from –55°C to 35°C ambient temperature, derated linearly to 50 watts at 125°C. 10-kilowatt peak (5 µsec pulse width; 2.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB 0-5.0GHz	
	WA60	WA60 LIM
3	± 0.50	N/A
6	± 1.00	N/A
10	± 1.00	± 1.20
20,30,40	± 0.50	± 1.20

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Connectors: Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate non-destructively with MIL-C-39012.

Calibration: Insertion Loss and VSWR performed at DC through 5.0 GHz. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

Frequency	VSWR	
GHz	WA60	WA60-LIM
DC – 2.5 GHz	1.15	1.20
2.5—5.0 GHz	1.35	1.40

Weight:

Type N	3.7 kg/ 8.2 lb.
7/16	3.9 kg/ 8.6 lb.
4.1/9.5	3.7 kg/ 8.2 lb.

Physical Dimensions:
Length:

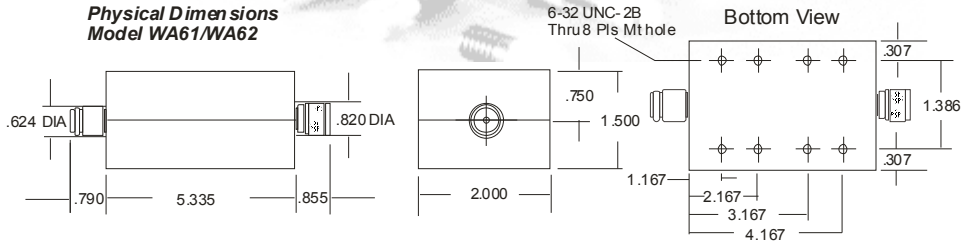
Connector	Length
Type N	297 (11.7)
DIN 7/16	338 (13.3)
4.1/9.5	375 (12.0)

Width: **139 (5.5)**
Height: **110 (4.3)**

Note: Dimensions are given in mm (inches) unless otherwise specified.

Low-Profile Mountable Fixed Coaxial Attenuator
Model WA61 & WA62

DC—4.0 GHz WA61 **150 Watts**
DC—8.5 GHz WA62 **150 Watts**



Features

Designed to meet MIL-A-3933 environmental specification. Conduction cooled.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Nominal dB Values: 3-40 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 150 watts average, 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held to +100°C maximum using conductive heat sink.

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. Option 890 or custom calibration data available at additional cost.

Standard Nominal Values/ Deviations:

dB	Accuracy ± dB			
	DC - 4 GHz		4 - 8.5 GHz	
	WA61	WA62	WA61	WA62
3,6 10,20 30	0.4 0.4 0.4	0.4 0.4 0.4	0.75 0.75 0.75	0.75 0.75 0.75
40	0.5	0.5	1.00	1.00

Construction: Gold Iridite Aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper male/female contacts.

Connectors: Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20
4.0 – 8.5	1.35

Weight:

Type N	1.5 kg/ 3.3 lb.
7/16	1.7 kg/ 3.7 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:

Length: **177.3 (6.9)**
Width: **50.8 (2.0)**
Height: **38.1 (1.5)**

Note: Dimensions are given in mm (inches) unliess otherwise specified.

Connector	Length
Type N	**174.24 (6.86)**
DIN 7/16	226 (8.5)
4.1/9.5	183 (7.2)

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Fixed Coaxial Attenuator MODEL WA65

DC – 2.5 GHz 150 WATTS

Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –2.5 GHz

Nominal dB Values: 6-30 dB

Power Sensitivity: < 0.0003 dB/dBxW Unidirectional in power.

Power Rating: 150 watt CW/ 10KW peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held within 100° C with appropriate natural convection cooling supplied around heat sink. Maximum power into output is 20 watts average.

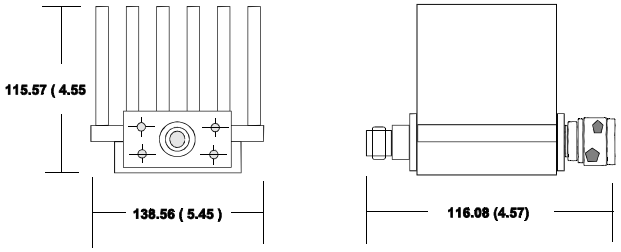
Temperature Range: Full power from -55°C to 100°C case temperature. -55°C to 125°C.

Temperature Coefficient: < 0.0004 dB/dBx°C

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
3,6,10,20,30	1.00

Physical Dimensions:



Construction: Black aluminum alloy body with passivated stainless steel connectors. Female gold plated beryllium copper contacts, stainless steel male contacts.

Calibration: Insertion Loss and VSWR performed at 0.05, 0.5, 1.0, 1.5, 2.0 and 2.5 GHz. All calibration data is available at additional cost.

Maximum VSWR

GHz	VSWR
DC - 2.5	1.20

Weight: .853 kg (1.88 lbs.) maximum

Note: Dimension are given in mm (inches) and are maximum unless otherwise specified.

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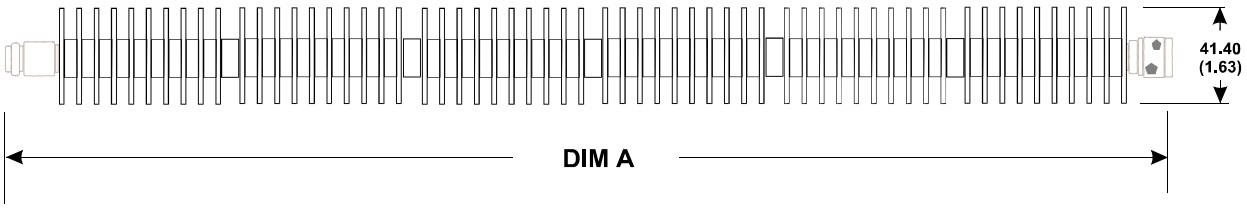
ATTENUATOR, HIGH POWER MODEL WA66

DC – 18 GHz 150 WATTS



Features

Designed to meet the environmental requirements of MIL-A-3933

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 18 GHz

Nominal dB Values: 10 - 40 dB

Power Sensitivity: < 0.00015 dB/dB/W Unidirectional in power.

Power Rating: 150 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 10 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Standard Nominal Values and Deviations from Nominal:

dB	Accuracy ± dB
	0 – 18.0 GHz
10	± 2.00
20, 30, 40	± 1.50

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C
Length: **"A" Dimension**

Weight: 510 g/ 18 oz

Length: "A" Dimension

Connector	Length
Type N	381 (15.0)

Connectors: Type N female/male connectors per MIL-STD-348 interface dimension, mate non-destructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors; gold plated beryllium copper female contact and stainless steel male contacts.

Maximum VSWR

Frequency GHz	VSWR 10 dB	VSWR 20,30,40 dB
0 – 18.0	1.90	1.50

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified.

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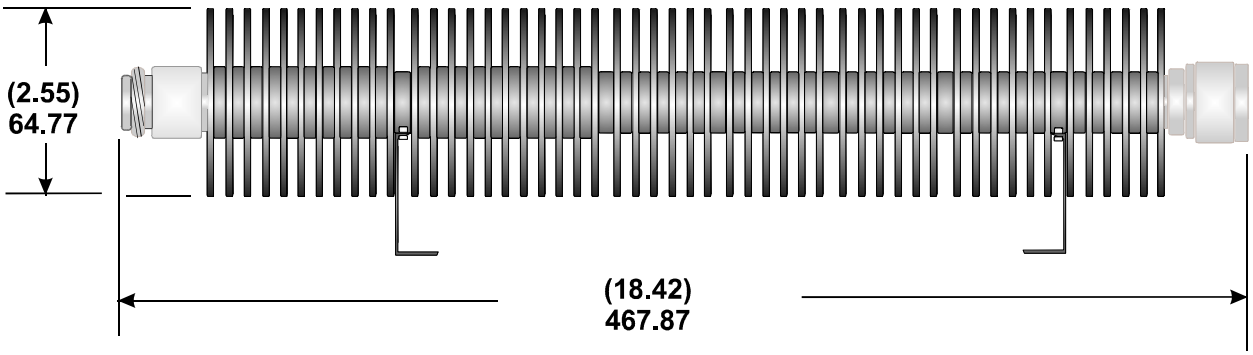
Fixed Coaxial Attenuator Model WA67

DC—12.7 GHz 350 WATTS



Features

Designed to meet the environmental requirements of MIL-A-3933

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 12.7 GHz

Nominal dB Values: 10—20—30 dB

Power Sensitivity: < 0.0001 dB/dB/W Unidirectional in power.

Power Rating: 350 watts average. Maximum rated average power @ 25°C ambient temperature, derated linearly to 10 watts at 100°C. (*Case temperature must be held to 100°C maximum*), 5 kilowatts peak (5 µsec pulse width; 3.5% duty cycle).

Standard Nominal Values and Deviations:

dB	Accuracy ± dB	
	0-8 GHz	8 – 12.7 GHz
10	± 2.00	+6.00/-0.00
20, 30	± 2.50	+ 5.00/-0.00

Temperature Coefficient: -25° C to 100° C

Connectors: Type N connectors per MIL-STD-348 interface dimensions mate nondestructively with MIL-C-39012 connectors.

Construction: Aluminum alloy body, stainless steel connectors, gold plated beryllium copper female contacts, stainless steel male contacts.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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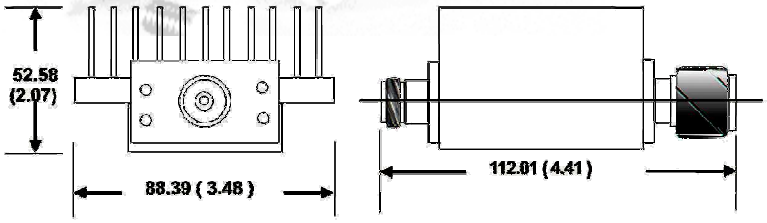
Fixed Coaxial Attenuator MODEL WA68

DC – 4.0 GHz 100 WATTS



Features

Type N, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position. Mounting holes provided on bottom of unit.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Nominal dB Values: 1-30 dB

Power Sensitivity: < 0.005 dB/dB/W Unidirectional in power.

Power Rating: 100 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 10 watts at 125°C. 10 kilowatt peak (5 µsec pulse width; 0.5% duty cycle).

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Standard Nominal Values and Deviations:

dB	Accuracy ± dB
	DC - 4.0 GHz
1,2	1.20
3,6,10,20,30	1.25

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed from dc to 4.0 GHz. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC – 4.0	1.20

Weight:

Type N	1.5 kg/ 3.3 lb.
7/16	1.7 kg/ 3.7 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Physical Dimensions:

Connector	Length
Type N	112.01 (4.41)
DIN 7/16	139.70 (5.5)
4.1/9.5	135.0 (5.3)

Width: **89.0 (3.5)**

Height: **54.0 (2.1)**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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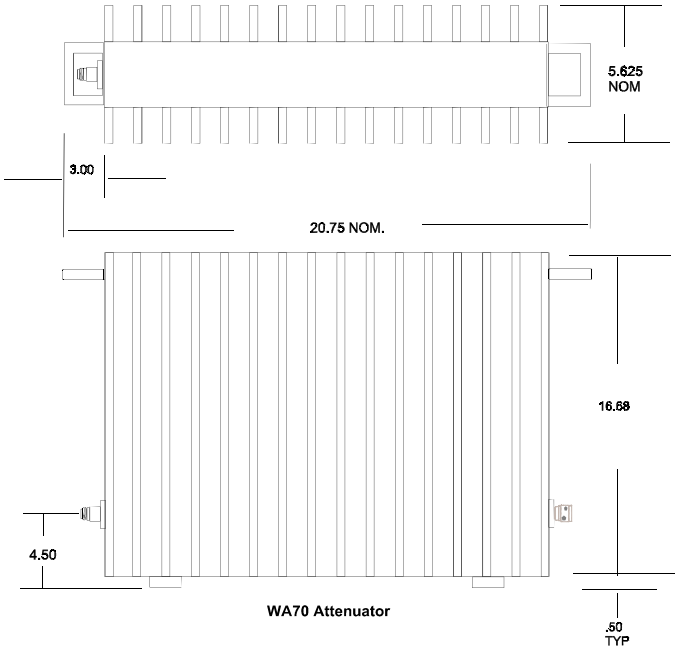
Fixed Coaxial Attenuator MODEL WA70

DC – 2.5 GHz (Usable to 3.0 GHz) 1000 WATTS



Power Rating: 1,000 watts average
To 25° C ambient temperature, derated linearly to 100 watts @ 125° C; 10 kilowatt peak. Unidirectional in power.

Temperature: -55° C to +125° C.

Temperature Sensitivity: <0.0004 dB/dB x °C

Power Sensitivity: <0.0001 dB/dB x W

Connectors: Type N stainless steel mate non-destructively with MIL-C-39012 connector or 7/16 connector, conforms to DIN 47223, IEC 169-4, VG 95250, CECC 22190

Features

Designed to meet environmental requirements of MIL-D-39030.

High quality type N connectors

Natural convection cooling (*Air flow should not be obstructed around unit*)

Specifications

Nominal Impedance: 50 Ω

Frequency Range: DC – 2.5 GHz
Usable to 3.0 GHz

Operating Position: Horizontal

Nominal dB Value: 20, 30, 40

Accuracy: +0.5 –1.5 dB **MAX. VSWR:** 1.35

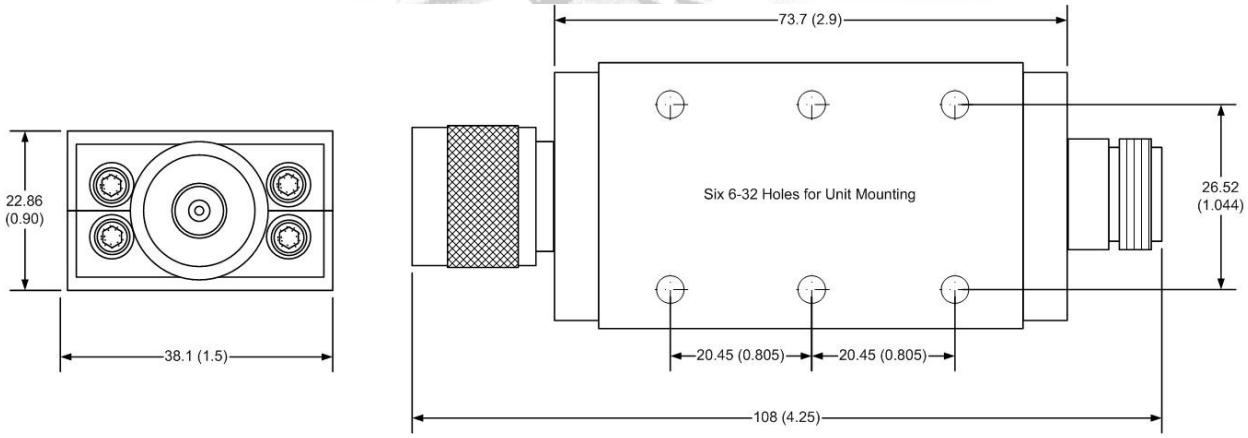
Length	527 mm/ (20.75) in nom.
Width	143 mm/ (5.625) in nom.
Height	437 mm/ (17.20) in max
Weight	20.41 kg/ 45 lbs

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Low-Profile Mountable Fixed Coaxial Attenuator
MODEL WA71

DC – 4.0 GHz **50 WATTS**

Bi-directional



Features

Designed to comply with Mil-A-3933.

Bidirectional in power.

Conductive Cooling

Flat base with mounting holes

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 4.0 GHZ

Nominal dB Value: 1 – 40 dB

Connectors: Type N / SMA: stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Power: 50W average bi-directional, Peak power of 5Kw; 5 µsec pulse width; 0.5% duty cycle, with case temperature held to +100°C maximum using conductive heat sink.

Construction: Gold Iridite Aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper male/female contacts.

Power Sensitivity: < 0.005 dB/dB x W

Temperature Range: -55°C to 125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, and 4.0 GHz. All calibration data is available at additional cost.

Weight: .14 kg/5 oz.

Deviation (± dB)	
dB	DC – 4.0 GHz
1- 40	0.40

Maximum VSWR	
GHz	VSWR
DC – 4.0	1.2

Dimensions		
Model	**dB**	**Length**
WA71 -XX-12	1 - 40	120.65 (4.75)
WA71-XX-34	1 - 40	108.0 (4.25)
Note: Dimension are given in mm (inches) and are Maximum, unless otherwise specified.		

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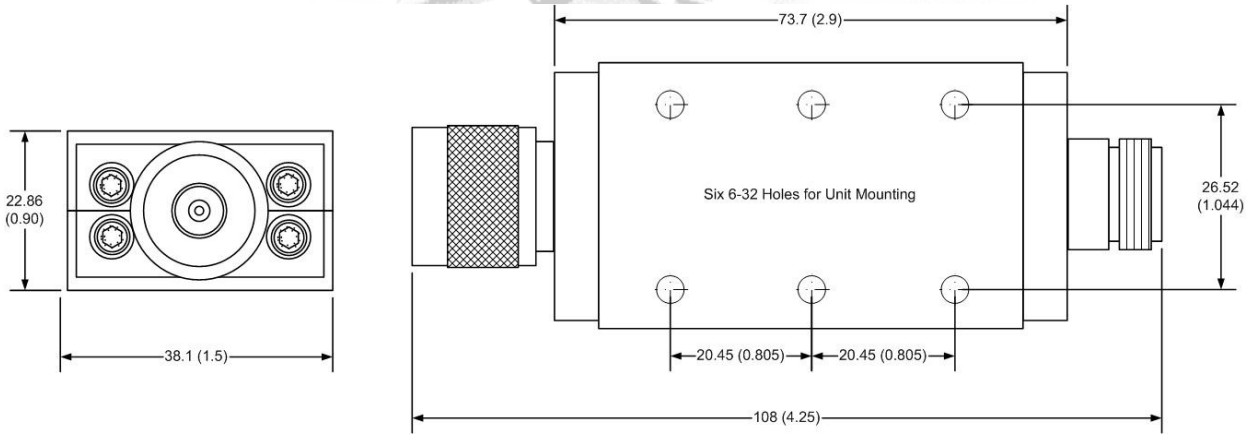
Low-Profile Mountable Fixed Coaxial Attenuator
MODEL WA72

DC – 8.5 GHz **50 WATTS**

Bi-directional



Features

Designed to comply with Mil-A-3933.

Bidirectional in power.

Conductive Cooling

Flat base with mounting holes

Connectors: Type N / SMA: stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 8.5 GHZ

Nominal dB Value: 1 – 40 dB

Deviation (± dB)		
dB	DC – 4 GHz	4 – 8.5 GHz
1 - 40	0.4	0.75

Maximum VSWR	
GHz	VSWR
DC – 4.0 4.0 – 8.5	1.2 1.3

Power: 50W CW average bi-directional to 25°C; Peak power of 5Kw; 5 µsec pulse width; 0.5% duty cycle, with case temperature held to +100° C maximum using conductive heat sink.

Power Sensitivity: < 0.005 dB/dB x W

Temperature Range: -55°C to 125°C

Temperature Coefficient: < 0.0004 dB/dB x °C

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Weight: .14 kg/5 oz.

Dimensions		
Model	dB	Dim "A"
WA72 -XX-12	1 - 40	120.65 (4.75)
WA72-XX-34	1 - 40	108.0 (4.25)
Note: Dimension are given in mm (inches) and are Maximum, unless otherwise specified.		

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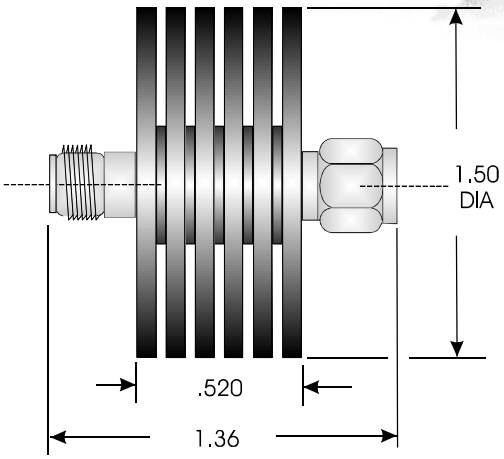
ATTENUATOR MODEL WA75

Medium Power Fixed Attenuators

DC – 40 GHz **5 WATTS**

Bi-directional Design



Features

- **Compact Construction –** Lowest size/power ratio.
- **Precision 2.92mm connectors.**
- **Flat Response.**

Specifications

NOMINAL IMPEDANCE: 50 Ω

FREQUENCY RANGE: dc to 40.0 GHz

MAXIMUM DEVIATION OVER FREQUENCY:		
Nominal ATTN (dB)	Deviation (dB) dc - 18 GHz	18 - 40 GHz
3	± 0.50	± 1.00
6, 10, 20, 30	± 0.80	± 1.50

MAXIMUM VSWR:	
Frequency (GHz)	VSWR
dc – 18	1.20
18 - 40	1.35

POWER RATING (mounted horizontally): 5 watts average **(bi-directional)** to 25°C ambient temperature, derated linearly to 0.5 Watt @ 125°C. 200 watts **peak** (5 µsec pulse width; 1.25% duty cycle).

POWER COEFFICIENT: <0.005 dB/dB/watt

TEMPERATURE COEFFICIENT: <0.0004 db/dB/°C

TEMPERATURE RANGE: -55°C to 125°C

CALIBRATION: Insertion loss and SWR data supplied at 0.05, 4, 8, 12, 26.5 and 40 GHz. Other test data available at additional cost.

CONECTORS: 2.92mm (Male/Female) connectors – mate nondestructively with SMA per MIL-C-39012, 3.5mm and other 2.92mm connectors.

Connector Options	Type/Description
6	2.92mm, Female
7	2.92mm, Male

CONSTRUCTION: Stainless steel connector body with gold plated beryllium copper contacts.

WEIGHT: 200g (7.0 oz.) maximum

MODEL NUMBER DESCRIPTION:

Example:

WA75 – XX – XX*		
Basic	Attenuation	Connector Options
Model	Value (dB)	-66 Female/Female
Number		-67 Female/Male
		-77 Male/Male

*Unit is bi-directional and full power may be applied to either connector.

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High Power Fixed Attenuator MODEL WA90

DC – 18.0 GHz
Bi-directional

50 WATTS

Features

Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 3 - 40 dB
(40 dB Version is Unidirectional)

Power Sensitivity: < 0.005 dB/dBxW bidirectional in power.

Power Rating: 50W CW/ 1 KW peak to 25°C ambient temperature, derated linearly to 10 watts at 125°C, 1 kilowatt peak (5 µsec pulse width; 2.5% duty cycle).

Standard Nominal Values and Deviations:

Nominal Atten (dB)	Accuracy ± dB
	DC – 18.0 GHz
3, 6, 10	0.50
20	0.75
30, 40	1.00

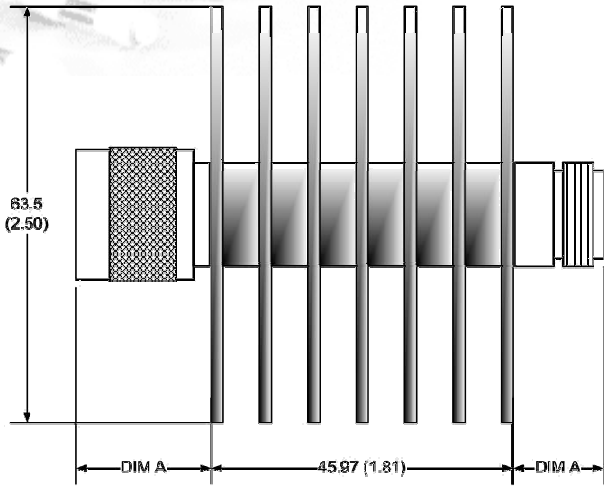
Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4, and 18.0 GHz. Option 890 or custom calibration test data available at additional charge.

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.



Maximum VSWR

Frequency (GHz)	VSWR
DC – 8.0	1.15
8.0 – 12.4	1.20
12.4 – 18.0	1.30

Weight:

Type N	1.18 kg/ 4.1 oz.
SMA	1.25 kg/ 4.3 oz.

Physical Dimensions:

Length: "A" Dimension

Connector	Length
Type N (-3, -4)	24.1 (0.95)
SMA (-1, -2)	30.1 (1.23)

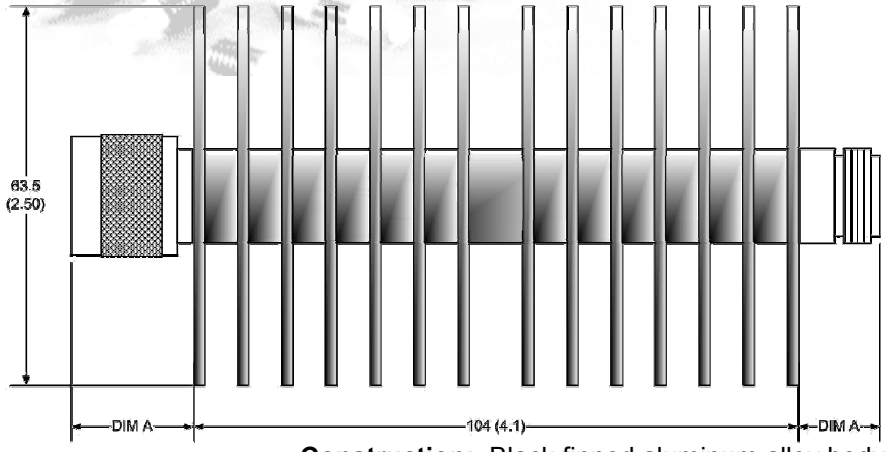
Diameter: 63.50 (2.50)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

High Power Fixed Attenuator MODEL WA91

DC – 18.0 GHz
Bi-directional

100 WATTS



Features

Designed to meet MIL-A-3933 environmental specifications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Nominal dB Values: 3 - 40 dB
(40 dB Version is Unidirectional)

Power Sensitivity: < 0.005 dB/dBxW bidirectional in power.

Power Rating: 50W CW/ 1 KW peak to 25°C ambient temperature, derated linearly to 10 watts at 125° C, 1 kilowatt peak (5 µsec pulse width; 2.5% duty cycle).

Standard Nominal Values and Deviations:

Nominal Atten (dB)	Accuracy ± dB
	DC – 18.0 GHz
6, 10	0.75
20	1.00
30, 40	1.20

Calibration: Insertion Loss and VSWR performed at DC, 4.0, 8.0, 12.4, and 18.0 GHz. Option 890 or custom calibration test data available at additional charge.

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB x °C

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Maximum VSWR

GHz	VSWR 6 dB	VSWR 10, 20,30,40 dB
DC – 8.0	1.25	1.20
8.0 – 12.4	1.35	1.25
12.4 – 18.0	1.45	1.35

Weight:

Type N	1.18 kg/ 4.1 oz.
SMA	1.25 kg/ 4.3 oz.

Physical Dimensions:

Length: "A" Dimension

Connector	Length
Type N (-3, -4)	24.1 (0.95)
SMA (-1, -2)	30.1 (1.23)

Diameter: 63.50 (2.50)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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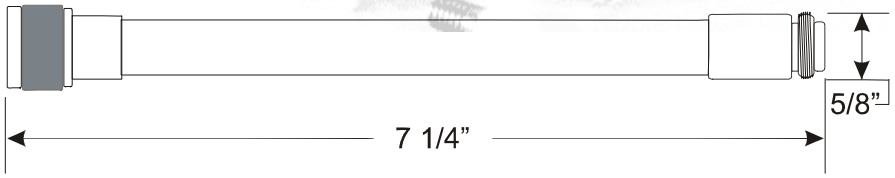
FIXED ATTENUATOR MODEL 210B

.4 – 18 GHz 1 - 5 WATTS



Specifications

Nominal Impedance: 50 ohms:

Maximum VSWR:

Nominal dB Value	Freq. Range GHz	VSWR
1	0.4 to 2.0	1.35
2	0.5 to 2.0	1.35
3	0.6 to 2.0	1.35
1-10	2 to 12.4	1.30
	12.4 to 18.0	1.50
20	2 to 12.4	1.25
	12.4 to 18.0	1.50

Power Coefficient: < 0.003 dB/dB X W

Temperature Coefficient: < 0.0008 dB/dB x °C

Temperature Range:
Operating: -55°C to + 85°C
Non-operating: -55°C to + 125°C

Connectors: Type N stainless steel. Mates with MIL-C-39012-1 and -2. Molded captive inner contact/ bead assembly provides controlled and stable interface dimensions. Standard with male and female. Units with both connectors male or female are available. With these configurations, calibration accuracy is reduced by effect of double adapters used when setting power reference for calibration. When ordering specify -3 for female N and -4 for male N. (Example: 210B-10-33; model 210B, 10dB unit with two female type N connectors).

Construction: Stainless steel body with stainless steel connector bodies.

Weight: Net 0.23 kg. (8 oz.); Shipping 0.51 kg. (1lb., 2 oz.)

Dimensions:
Length: 7.3 in. (185mm.)
Diameter: Female Connector .64 in. (1.63 cm.)
Male Connector .824 in. (2.10 cm.)
Body .50 in. (1.27 cm.)

Frequency Range:

Note: * at 2.0 GHz

Nominal Value dB	Freq. Range GHz	Accuracy ± dB				Power Rating when Properly Terminated	
		From Nom. Value at 4 GHz (db)*	From 4 GHz				
			At 1 GHz (dB)	At 10 GHz (dB)	At 18 GHz (dB)	Avg. (W)	Peak (kW) **
1	0..4-18	± 0.1	- 0.2	± 0.2	± 0.8	5	10
2	0.5-18	± 0.1	- 0.2	± 0.2	± 0.8	5	10
3	0.6-18	± 0.1	- 0.2	± 0.2	± 0.8	5	10
4	1-18	± 0.1	- 0.3	± 0.3	± 0.8	4	8
5	1-18	± 0.1	- 0.4	± 0.3	± 0.8	3	6
6	1-18	± 0.1	- 0.5	± 0.3	± 0.8	3	6
7	1-18	± 0.1	- 0.6	± 0.4	± 0.9	2.5	5
8	1-18	± 0.1	- 0.8	± 0.5	± 0.9	1	1
9	1-18	± 0.1	- 1.0	± 0.5	± 0.9	1	1
10	1-18	± 0.1	- 1.1	± 0.5	± 0.9	1	1
20	2-18	± 0.2	- 1.3*	± 1.0	± 1.4	1	1

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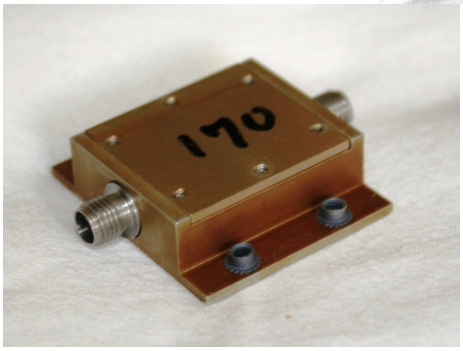
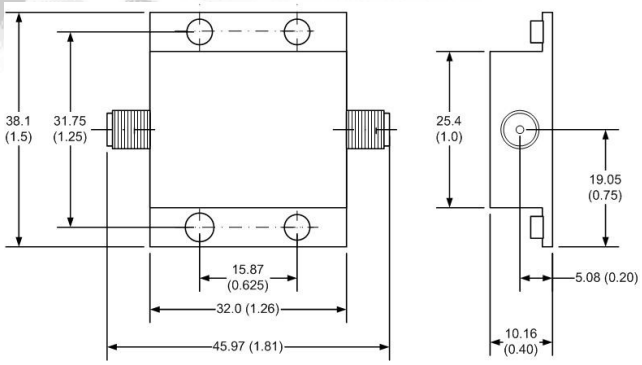
Low-Profile Fixed Coaxial Attenuator
MODEL WA200271

DC – 3.0 GHz **10 WATTS**





Features

SMA, stainless steel, F/F connectors per MIL-STD-348A, interface dimensions mate nondestructively per MIL-PRF-39012.

Designed and tested to meet the standards of MIL-A-3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –3.0 GHz

Insertion Loss: 3 dB ± 0.25 dB

Power Sensitivity: < 0.0005 dB/dB x W; Bidirectional in power.

Power Rating (over temperature):
10 W CW
800 W pk, 33 microsec pulse width, 1% Duty Cycle
1.8 kW pk, 1 microsec pulse width, .025% Duty Cycle

Temperature Range:
-65°C to +125°C, Storage
-54°C to +95°C, Operating

Temperature Coefficient: < 0.0004 dB/dB/°C

Construction: Gold Irridite aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 1.5 and 3.0 GHz. Option 890, or custom calibration test data available at additional cost.

Maximum VSWR: 1.40:1

Weight: 0.14 kg/5 oz max

Physical Dimensions:
45.97 x 38.1 x 10.16 mm
1.81 x 1.50 x 0.40 inches

Mounting: Flange mount with four (4) 4-40 self-clinching fasteners.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

COAXIAL TERMINATIONS

DC – 40.0 GHz **1—1000 WATTS**

Low Power Coaxial Terminations: 1 Watt to 25 Watts					
Model Number	**Frequency Range DC - (GHz)**	**Average Power (W)**	**Peak Power (kW)**	**Connectors and Mounting Notes**	**Page No.**
WA1401/3	3	1	0.25	SMA	70
WA1401/6	6	1	0.25	SMA	70
WA1401/12	12.4	1	0.25	SMA	70
WA1401/18	18	1	0.25	SMA	70
WA1402	40	1	0.25	SMA	71
WA1455/6	6	2	0.5	N, TNC	105
WA1406	12.4	2	0.5	SMA	72
WA1455/12	12.4	2	0.5	N, TNC	105
WA1408	18	2	1	SMA	72
WA1455	18	2	0.5	N, TNC	105
WA1454	40	2	0.25	2.92 mm	104
WA1424/12	12.4	5	1	N, TNC	78
WA1424	18	5	1	N, TNC	78
WA1443	18	5	1	SMA	95
WA1475	40	5	0.20	2.92 mm	111
WA1425/12	12.4	10	1	N, TNC	79
WA1425	18	10	1	N, TNC	79
WA1419	18	10	1	SMA	73
WA1421/4	4	25	5	N, SMA, Low-Profile Mountable	74
WA1421	8.5	25	5	N, SMA, Low-Profile Mountable	74
WA1434	4	25	5	N, SMA, 7/16 DIN	89
WA1434B	4	25	5	N, SMA, Square Body Mount	90
WA1452	4	25	5	N, SMA, 7/16 DIN	102
WA1433	8.5	25	5	N, SMA, 7/16 DIN	87
WA1433B	8.5	25	5	N, SMA, Square Body Mount	88
WA1427	10	25	5	N, SMA, 7/16 DIN	82
WA1446	18	25	1	N, SMA, TNC	97

* Other configurations are available

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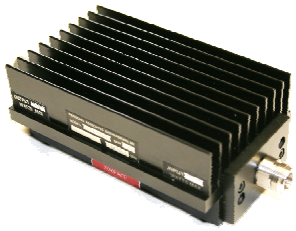
COAXIAL TERMINATIONS

DC – 40.0 GHz **1—1000 WATTS**

Medium Power Coaxial Terminations: 50 Watts to 150 Watts					
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Connectors and Mounting Notes	Page No.
WA1423	4	50	5	N, SMA	76
WA1423B	4	50	5	N, SMA, Square Body Mount	77
WA1471	4	50	5	N, SMA, Low-Profile Mountable	109
WA1426	8.5	50	5	N, SMA, 7/16 DIN	80
WA1426B	8.5	50	5	N, SMA, Square Body Mount	81
WA1472	8.5	50	5	N, SMA, Low-Profile Mountable	110
WA1447	18	50	1	N, SMA, TNC	98
WA1490	18	50	1	N, SMA, TNC	112
WA1422	4	75	5	N, SMA	75
WA1429	8.5	75	5	N, SMA, 7/16 DIN	84
WA1430	4	100	5	N, SMA, 7/16 DIN	85
WA1431	8.5	100	5	N, SMA, 7/16 DIN	86
WA1448	18	100	1	N, SMA, TNC	99
WA1491	18	100	1	N, SMA	113
WA1428	2.5	150	10	N, SMA, 7/16 DIN	83
WA1439	2.5	150	5	N, SMA, 7/16 DIN	94
WA1449	8.5	150	5	N, SMA, 7/16 DIN	100
WA1465	2.5	150	10	N, 7/16 DIN	107

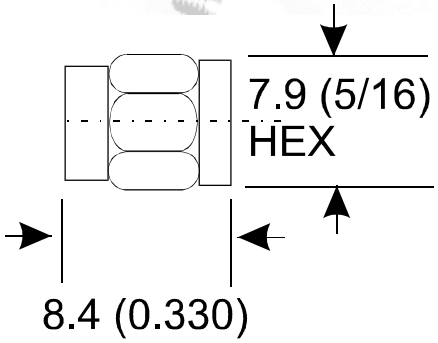
High Power Coaxial Terminations: 250 Watts to 1000 Watts					
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Connectors and Mounting Notes	Page No.
WA1445	2.5	250	10	N, SMA, 7/16 DIN	96
WA1435	8.5	250	5	N, SMA, 7/16 DIN	91
WA1438	5	300	5	N, SMA, 7/16 DIN	93
WA1436	8.5	300	5	N, SMA, 7/16 DIN	92
WA1453	2.5	500	10	N, SMA, 7/16 DIN	103
WA1460	5	500	10	N, SMA, 7/16 DIN	106
WA1451	8.5	500	5	N, SMA, 7/16 DIN	101
WA1470	3	1000	10	N, 7/16 DIN	108



TERMINATION MODEL WA1401

DC – 3.0 GHz WA1401/3
DC – 6.0 GHz WA1401/6
DC – 12.4 GHz WA1401/12
DC – 18.0 GHz WA1401/18

1 WATT



Features

Type SMA male connector per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Subminiature size and light weight.

Specifications

Nominal Impedance: 50 ohms

Frequency Range:

WA1401/3	DC – 3.0 GHz
WA1401/6	DC – 6.0 GHz
WA1401/12	DC – 12.4 GHz
WA1401/18	DC – 18.0 GHz

Power Rating: 1 watts average, 250 watts peak (maximum rated average power to 25° C ambient temperature, derated linearly to 0.0 watts at 125° C.

Temperature Range: -55°C to +125°C.

Construction: Passivated stainless steel body and connectors. Stainless steel male contact.

Weight: 3.0 gm/ .11 oz.

Physical Dimensions:

Length: 8.4 (0.330)

Maximum VSWR:

Frequency GHz	VSWR
DC – 4.0	1.05
4.0 – 8.0	1.10
8.0 – 12.4	1.15
12.4 – 18.0	1.20

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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TERMINATION MODEL WA1402

DC – 40.0 GHz **1 WATT**

Features

Type 2.92mm male/female connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 40.0 GHz

Power Rating: 1 watts average, 250 watts peak (maximum rated average power to 25° C ambient temperature, de-rated linearly to 0.1 watts at 125° C (5µsec pulse width 0.2 % duty cycle).

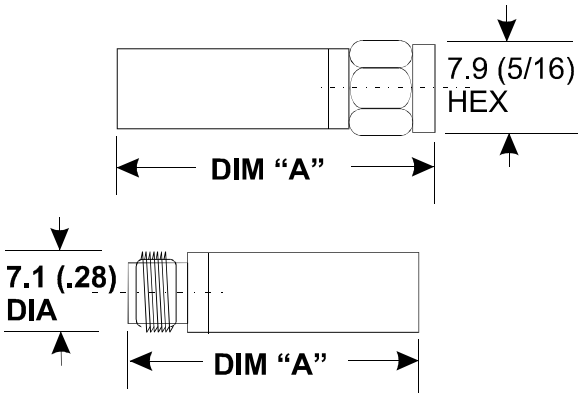
Frequency GHz	VSWR
	WA1402
DC – 40.0	1.20

Temperature Range: -55°C to +125°C.

Maximum VSWR:

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Weight: 4.9 gm/ .14 oz.



Physical Dimensions:

Length: DIM "A"

Connector Type	DIM "A"
Female -1 Male -2	20.32 (.80) 19.05 (.75)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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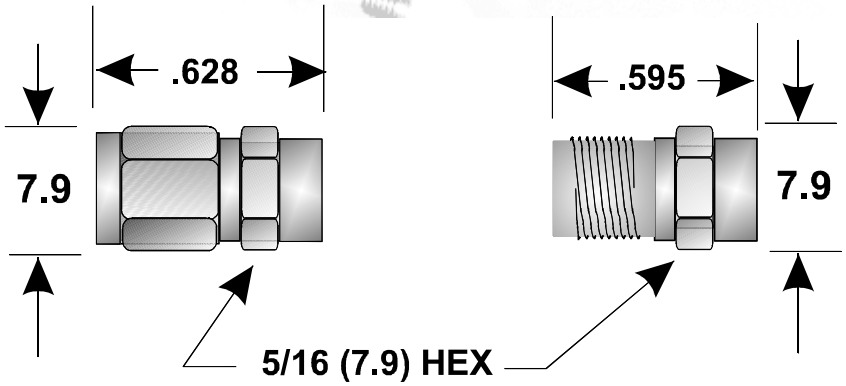
TERMINATION MODEL WA1406A & WA1408A

DC – 12.4 GHz WA1406A
DC – 18.0 GHz WA1408A **2 WATTS**



Features

Type SMA connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: WA1406A DC -12.4 GHz
WA1408A DC – 18.0 GHz

Power Rating: 2 watts average, 500 watts peak (maximum rated average power to 25° C ambient temperature, de-rated linearly to 125 watts at 75° C and 0.5 watt at 125° C.

Temperature Range: -55°C to +125°C.

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Weight: 4.9 gm/ 14 oz.

Physical Dimensions:

Length: DIM "A"

Connector Type	DIM "A"
SMA Female -1 SMA Male -2	23.62 (.93) 23.11 (.91)

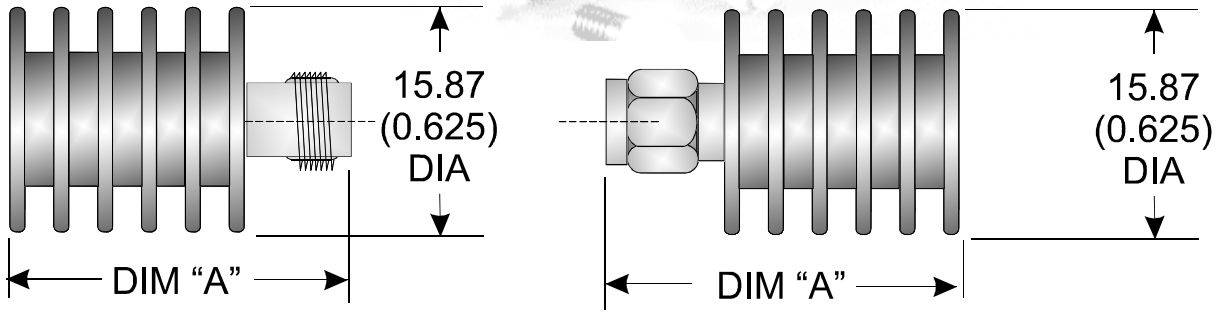
Maximum VSWR:

Frequency GHz	VSWR	VSWR
	WA1406A	**WA1408A**
DC – 4.0	1.15	1.15
4.0 – 8.0	1.20	1.20
8.0 – 12.4 12.4 - 18.0	1.25 N/A	1.25 1.25

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1419

DC – 18.0 GHz 10 WATTS



Features

Stainless steel M/F SMA connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Compact design for one of the lowest size/power ratios available. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Power Rating: 10 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 0.5 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 0.05% duty cycle).

Temperature Range: -55°C to +125°C:

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Maximum VSWR

GHz	VSWR
DC – 8.0	1.20
8.0 – 12.4	1.30
12.4 – 18.0	1.35

Weight:

0.014 kg/ 5 oz.

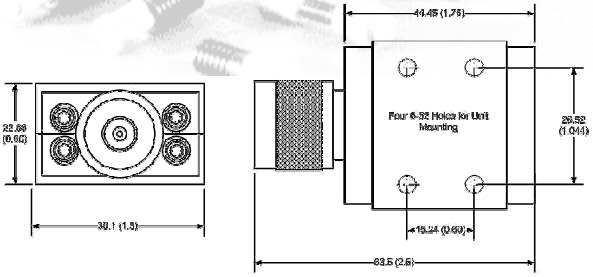
Physical Dimensions

Connector	Length A
WA1419-1	39.88 (1.57 ± .05)
WA1419-2	41.15 (1.62 ± .05)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Low-Profile Mountable TERMINATION
Model WA1421/4 & WA1421

DC—4.0 GHz WA1421/4 **25 Watts**
DC—8.5 GHz WA1421 **25 Watts**



Features

Designed to meet environmental requirements of MIL-A3933. Conductive cooling.

Specifications

Nominal Impedance: 50 ohms

Frequency Range:

WA1421/4 DC—4.0 GHz
WA1421 DC—8.5 GHz

Power Rating: 25 watts average, 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held to +100°C maximum using conductive heat sink.

Temperature Range: -55°C to +125°C:

Temperature Coefficient: < 0.0004 dB/dB/°C

Construction: Aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.2
4.0 – 8.5	1.3

Connectors: Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Weight:

Type N .17 kg/ 6 oz.

Physical Dimensions:

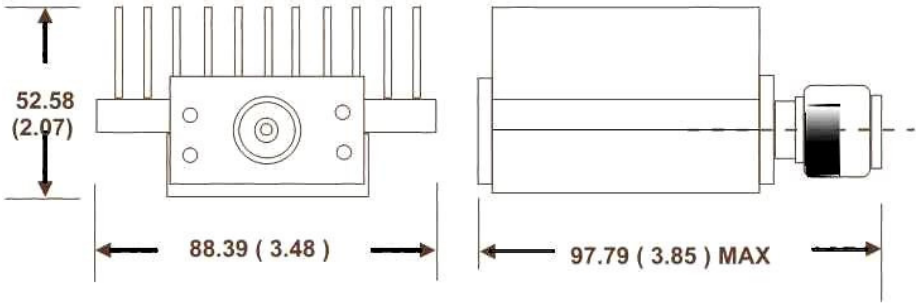
Length:

Connector Type	DIM "A"
Type N	78.7 (3.1)
DIN 7/16	131.8 (5.1)
SMA 4.1/9.5	71.1 (2.8) 81.0 (3.1)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

Termination MODEL WA1422

DC – 4.0 GHz 75 WATTS



Features

Type N, SMA or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –4.0 GHz

Power Rating: 75 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contact, stainless steel male contact..

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.20

Length:

Connector	Length
Type N	97.79 (3.85)
4.1/9.5	89.31 (3.52)
SMA	89.31 (3.52)

Width: **89.0 (3.5)**

Height: **53.0 (2.1)**

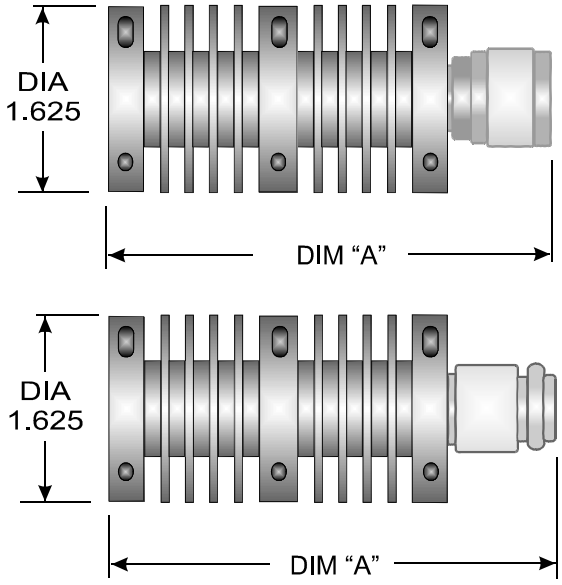
Weight:

Type N	1.5 kg/ 3.3 lb.
SMA	1.3 kg/ 3.0 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

TERMINATION MODEL WA1423

DC – 4.0 GHz 50 WATTS



Features

Designed to comply with MIL-A-3933

Natural Convection Cooling

Connectors: Type N, SMA, and 7/16mm; stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC-4.0 GHz

Maximum VSWR: 1.20

Power: 50W CW average to 25°C; de-rated linearly to 2.5 W at 125°C. Peak power of 5KW; 5µsec pulse width; 0.5% duty cycle.

Temperature Range: -55°C to 125°C

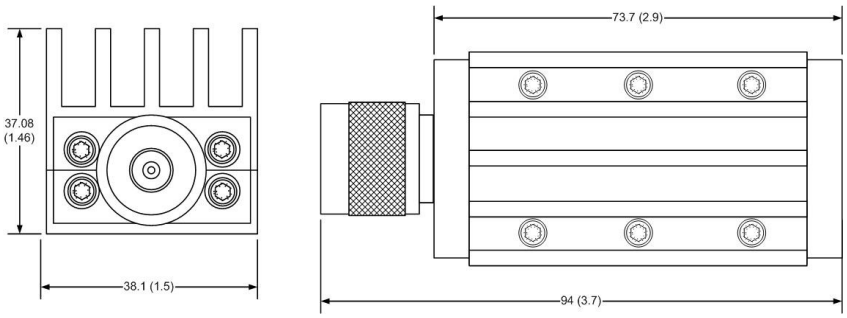
Weight: .28 kg/10 oz.

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Connector Type	DIM "A"
Type N Female –3 Type N Male –4	90.17 (3.55) 96.98 (3.818)
SMA Female –1 SMA Male –2	85.80 (3.378) 89.76 (3.534)

TERMINATION MODEL WA1423B

DC – 4.0 GHz 50 WATTS



Features

Designed to comply with MIL-A-3933

Natural Convection Cooling

Connectors: Type N, SMA, and 7/16mm; stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Physical Dimensions:

Connector Type	DIM "A"
Type N Female –3 Type N Male –4	90.1 (3.5) 94.0 (3.7)
SMA Female –1 SMA Male –2	85.80 (3.3) 89.76 (3.5)

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC-4.0 GHz

Maximum VSWR: 1.20

Power: 50W CW average to 25°C; de-rated linearly to 2.5 W at 125°C. Peak power of 5KW; 5µsec pulse width; 0.5% duty cycle.

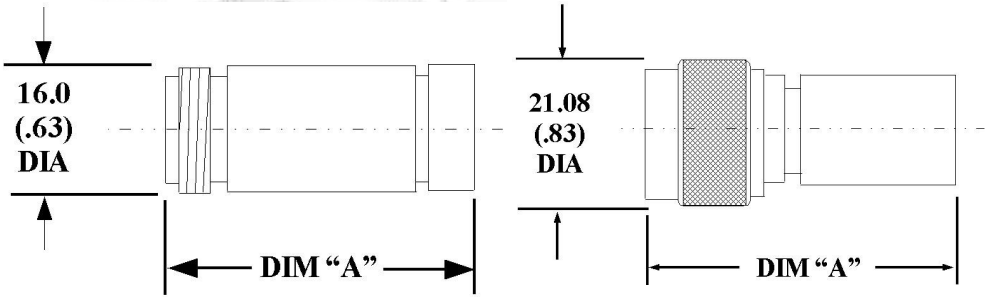
Temperature Range: -55°C to 125°C

Weight: .28 kg/10 oz.

Construction: Black aluminum alloy body with passivated stainless steel connectors.

TERMINATION MODEL WA1424

DC – 12.4 GHz WA1424/12
DC – 18 GHz WA1424 **5 WATTS**



Model WA1424-3 & WA1424-4

Features

Type N, TNC, or 4.1/9.5 mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range:

WA1424/12:	DC - 12.4 GHz
WA1424:	DC - 18 GHz

Power Rating: 5 watts average power to 25°C ambient temperature, de-rated linearly to 0 watts at 125°C. 5 kilowatts peak (5 µsec pulse width; 0.05% duty cycle). 1 kilowatts peak (5 µsec pulse width; 0.25% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dB/°C

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper contacts.

Weight:

1424-3	.06 kg/ 2.0 oz.
1424-4	.06 kg/ 2.0 oz.
1424-5	.06 kg/ 2.2 oz.
1424-6	.06 kg/ 2.2 oz.

Maximum VSWR

GHz	VSWR
DC – 2.0	1.03
2.0 – 4.0	1.05
4.0 – 8.0	1.15
8.0 – 12.4	1.30
12.4—18.0	1.35

Physical Dimensions: N Type and TNC Connectors

Connector	Dim "A"
1424-3 N(f)	40 (1.6)
1424-4 N(m)	45 (1.8)
1424-5 TNC(f)	45 (1.8)
1424-6 TNC(m)	48 (1.9)

Physical Dimensions: 4.1/9.5 mm Type Connector.

4.1/9.5	Dim "A"
1424-3	48 (1.9)
1424-4	51 (2.0)

Calibration: Insertion Loss at dc and SWR performed at 2.0, 4.0, 8.0, 12.0 GHz. Test data available at additional cost.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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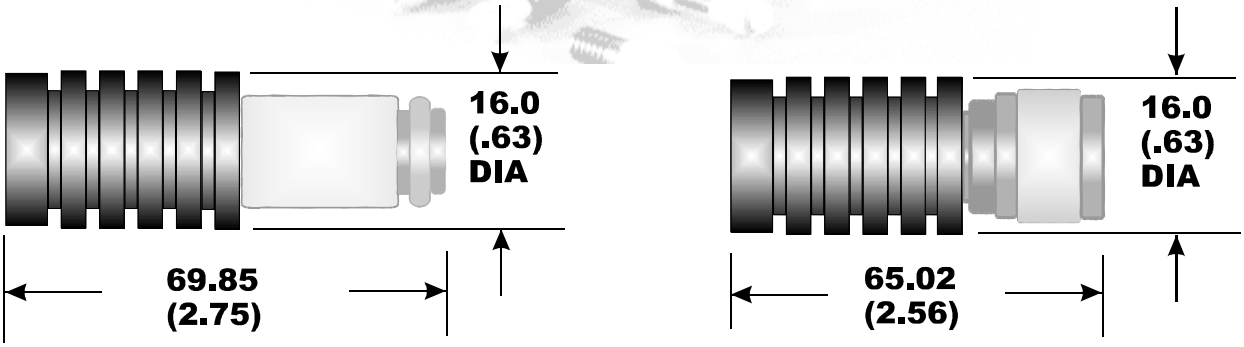
TERMINATION MODEL WA1425

DC – 12.4 GHz WA1425/12
DC – 18 GHz WA1425

10 WATTS



Features

Type N, TNC, or 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range:
WA1425/12: DC—12.4 GHz
WA1425: DC—18 GHz

Power Rating: 10 watts average, 1 kilowatt peak (5 µsec pulse width; 1.5% duty cycle). Full power from -50°C to +25°C: de-rated linearly to 0.5 W at +125° C.

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Maximum VSWR

GHz	VSWR
DC - 2.0	1.03
2.0-4.0	1.05
4.0-8.0	1.15
8.0-12.4	1.30
12.4—18.0	1.35

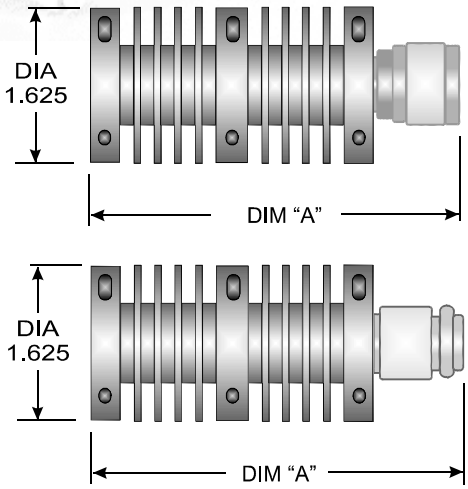
Length: 7/16mm male & female 79.25 (3.12)

Weight: .11 kg/ 4 oz.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1426

DC – 8.5 GHz 50 WATTS



Features

Type N, SMA, DIN 7/16mm, 4.1F and 4.1M connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power: Full power (50 W) from -55°C to +25°C. De-rated linearly to 0 W at +125°C. 5 kilowatts peak power.

Temperature Range: -55°C to +125°C.

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.20
4.0 – 8.5	1.30

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper male and female contacts.

Weight: .28 kg/ 10 oz.

Physical Dimensions:

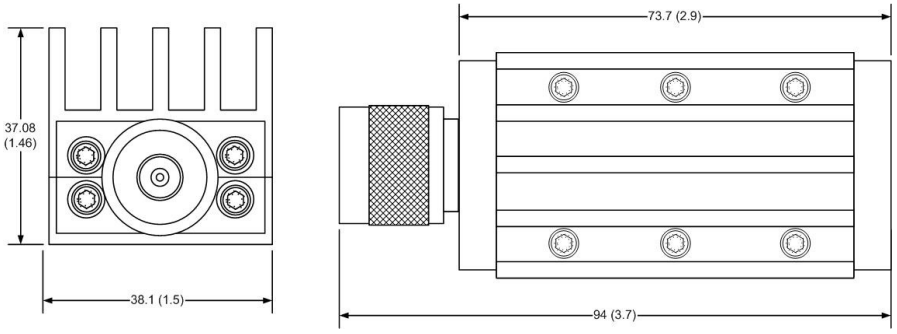
Length: DIM "A"

Connector Type	DIM "A"
Type N Female –3 Type N Male –4	90.17 (3.55) 96.98 (3.818)
SMA Female –1 SMA Male –2	85.80 (3.378) 89.76 (3.534)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1426B

DC – 8.5 GHz 50 WATTS



Model WA1426B-4

Features

Type N, SMA, DIN 7/16mm, 4.1F and 4.1M connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power: Full power (50 W) from -55°C to +25°C. De-rated linearly to 0 W at +125°C. 5 kilowatts peak power.

Temperature Range: -55°C to +125°C.

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.20
4.0 – 8.5	1.30

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper male and female contacts.

Weight: .28 kg/ 10 oz.

Physical Dimensions:

Length: DIM "A"

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	88.90 (3.22) 97.03 (3.7)
4.1M	101 (4.0)
4.1F	102 4.1)
DIN 7/16mm Female	191 (7.4)
DIN 7/16mm Male	172 (6.6)

Mounting: Six 6-32 mounting holes on base

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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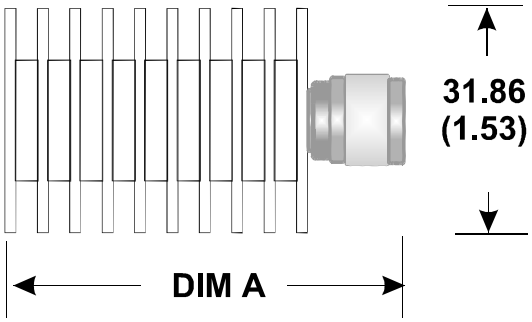
TERMINATION MODEL WA1427

DC – 10.0 GHz **25 WATTS**



Model WA1427

Features

Type N or SMA, stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -10.0 GHz

Power Rating: 25 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125° C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C:

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts.

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.10
4.0 – 10.0	1.15

Weight: .17 kg/ 6 oz.

Physical Dimensions:

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	60.99 (2.4) 68.57 (2.7)
SMA Female -1 SMA Male -2	58.43 (2.3) 60.99 (2.4)

Length: DIM "A"

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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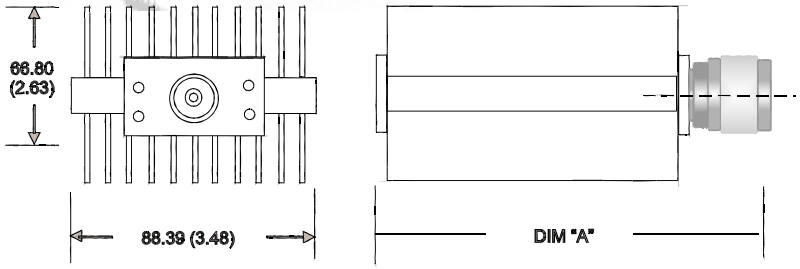
TERMINATION MODEL WA1428

DC – 2.5 GHz 150 WATTS



Model WA1428-4 shown.

Features

SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 2.5 GHz

Power Rating: 150W CW / 10 KW peak. Full power from -55°C to +25°C.

Temperature Range: -55°C to +125°C

Construction: Black aluminum alloy body with passivated stainless steel connectors.

Maximum VSWR:

GHz	VSWR
DC – 1.5	1.10
1.5 – 2.5	1.20

PHYSICAL DIMENSIONS:

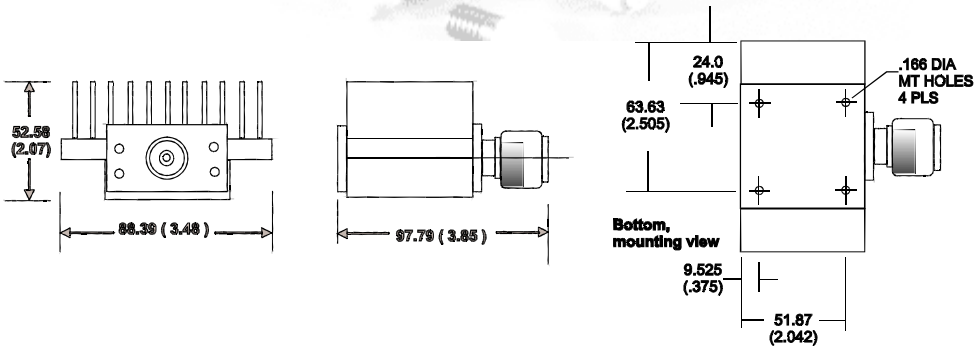
Connector Type	Dim "A"	Weight kg/lb
N F WA1428-3	144.78 (5.70)	1.13/2.5
N M WA1428-4	152.90 (6.02)	1.13/2.5
7/16 F WA1428-8	177.80 (7.00)	1.22/2.7
7/16 M WA1428-9	178.82 (7.04)	1.25/2.75

Weight:
1.13 kg/ 2.5 lbs.

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

TERMINATION MODEL WA1429

DC – 8.5 GHz 75 WATTS



Features

Type N, SMA or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate non-destructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power Rating: 75 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.2
4.0 – 8.5	1.3

Weight:

Type N	1.5 kg/ 3.3 lb.
SMA	1.3 kg/ 3.0 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Length:

Connector	Length
Type N	97.79 (3.85)
4.1/9.5	89.31 (3.52)
SMA	89.31 (3.52)

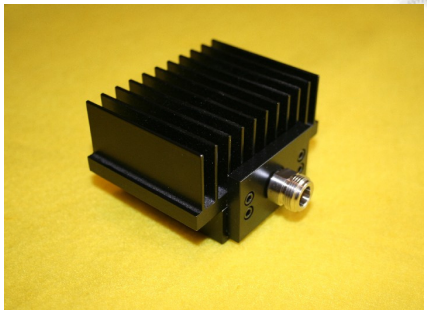
Width: **89.0 (3.5)**

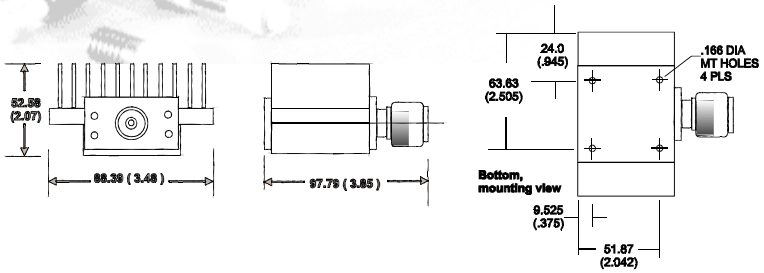
Height: **53.0 (2.1)**

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

TERMINATION MODEL WA1430

DC – 4.0 GHz 100 WATTS





Features

Type N, SMA or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 4.0GHz

Power Rating: 100 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Weight:

Type N	1.5 kg/ 3.3 lb.
SMA	1.3 kg/ 3.0 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.20

Physical Dimensions:

Length: 97.79 (3.85)

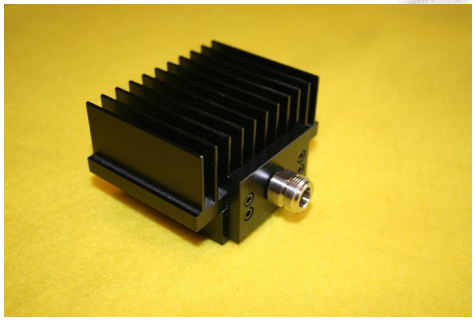
Height: 52.58 (2.07)

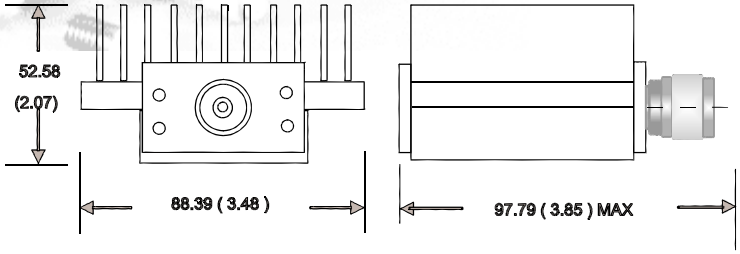
Width: 88.39 (3.48)

Note: Dimensions are given in mm (inches) and are maximum, Unless otherwise specified.

TERMINATION MODEL WA1431

DC – 8.5 GHz 100 WATTS





Features

Type N, SMA or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power Rating: 100 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Weight:

Type N	1.5 kg/ 3.3 lb.
SMA	1.3 kg/ 3.0 lb.
4.1/9.5	1.6 kg/ 3.5 lb.

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.20
4.0 - 8.5	1.30

Physical Dimensions:

Length: 97.79 (3.85)

Height: 52.58 (2.07)

Width: 88.39 (3.48)

Note: Dimensions are given in mm (inches) and are maximum, Unless otherwise specified.

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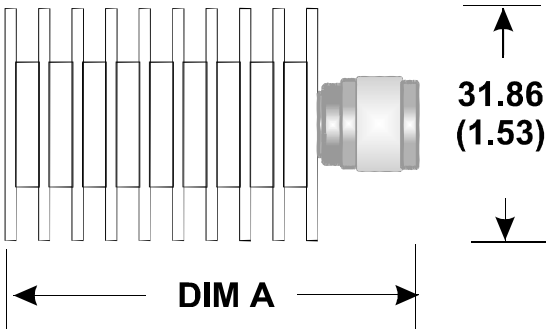
TERMINATION MODEL WA1433

DC – 8.5 GHz 25 WATTS



Model WA1433-4

Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power Rating: 25 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125° C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.2
4.0 – 8	1.3

Weight: .17 kg/ 6 oz.

Physical Dimensions:

Length: DIM "A"

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	60.99 (2.4) 68.57 (2.7)
7/16mm -8 Female 7/16mm -9 Male	84.07 (3.31) 84.84 (3.34)
SMA Female -1 SMA Male -2	58.43 (2.3) 60.99 (2.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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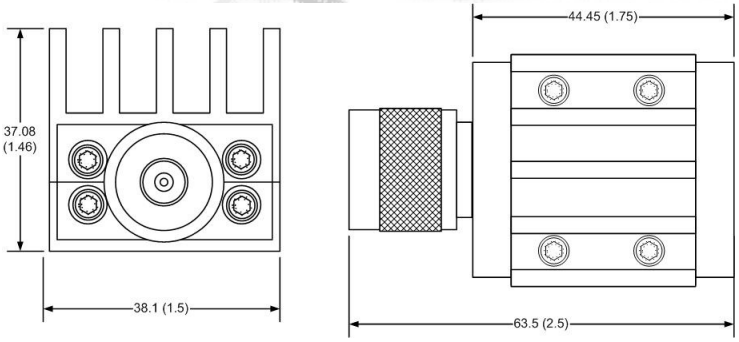
TERMINATION MODEL WA1433B

DC – 8.5 GHz 25 WATTS



Model WA1433-4

Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power Rating: 25 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125° C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C:

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20
4.0 – 8	1.30

Weight: .17 kg/ 6 oz.

Physical Dimensions:

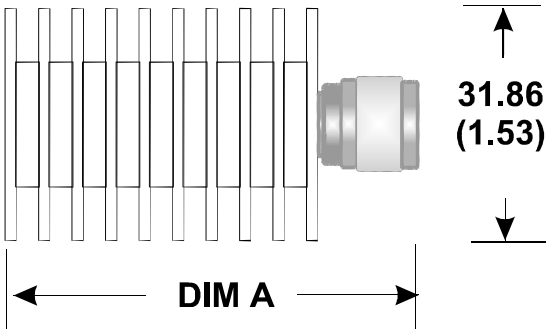
Length: DIM "A"

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	60.9 (2.4) 63.5 (2.5)
7/16mm -8 Female 7/16mm -9 Male	84.0 (3.31) 84.8 (3.34)
SMA Female -1 SMA Male -2	58.4 (2.3) 60.9 (2.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1434

DC – 4.0 GHz 25 WATTS



Model WA1434-4

Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –4.0 GHz

Power Rating: 25 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125° C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20

Weight: .17 kg/ 6 oz.

Physical Dimensions:

Length: DIM "A"

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	60.99 (2.4) 68.57 (2.7)
7/16mm -8 Female 7/16mm -9 Male	84.07 (3.31) 84.84 (3.34)
SMA Female -1 SMA Male -2	58.43 (2.3) 60.99 (2.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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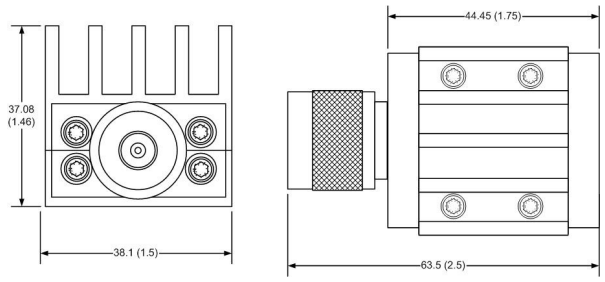
TERMINATION MODEL WA1434B

DC – 4.0 GHz 25 WATTS



Model WA1434-4

Features

Type N, SMA, stainless steel M/F, DIN 7/16mm, or 4.1/9.5mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –4.0 GHz

Power Rating: 25 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125° C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.20

Weight: .17 kg/ 6 oz.

Physical Dimensions:

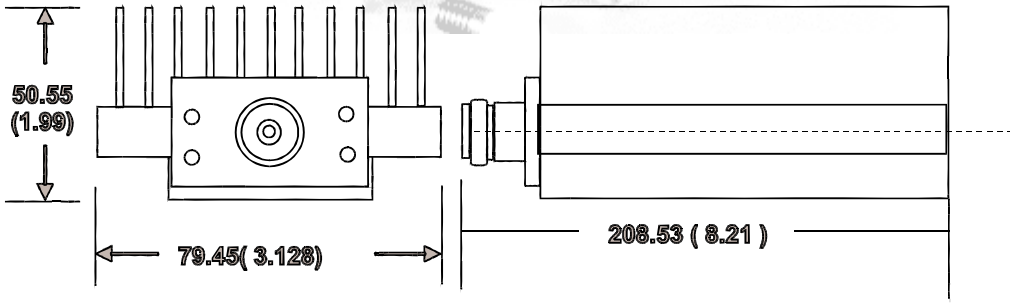
Length: DIM "A"

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	60.9 (2.4) 63.5 (2.5)
7/16mm -8 Female 7/16mm -9 Male	84.07 (3.31) 84.84 (3.34)
SMA Female -1 SMA Male -2	58.43 (2.3) 60.99 (2.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1435

DC – 8.5 GHz 250 WATTS



Model WA1435

Features

Type N stainless steel M/F connectors or DIN 7/16mm connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power Rating: 250 watt CW/ 5KW peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.30
4.0 – 8.5	1.45

Weight: 1.28 kg/ 2.75 lbs.

Length: **208.53 (8.21)**

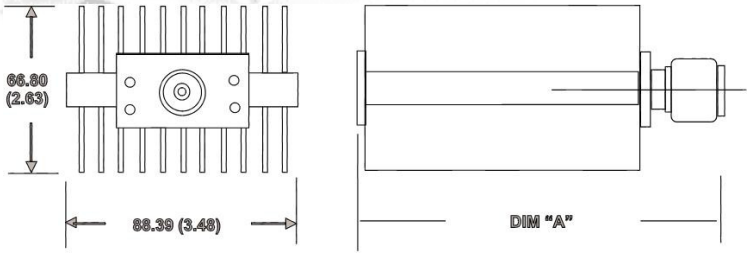
Width: **79.45 (3.128)**

Height: **50.55 (1.99)**

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

TERMINATION MODEL WA1436

DC – 8.5 GHz 300 WATTS



Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 8.5 GHz

Power Sensitivity: < 0.0001 dB / dB x W Unidirectional in power.

Power Rating: 300 watt CW/ 5KW peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 25 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C

Temperature Coefficient: < 0.0004 dB/dBx°C

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 8.5 GHz. All calibration data is available at additional cost.

Maximum VSWR:

Frequency (GHz)	VSWR
DC – 4.0 4.0 – 8.5	1.30 1.45

Weight: 1.28 kg/ 2.75 lbs.

Length: 233.93 (9.21)

Width: 79.45 (3.13)

Height: 50.55 (1.99)

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

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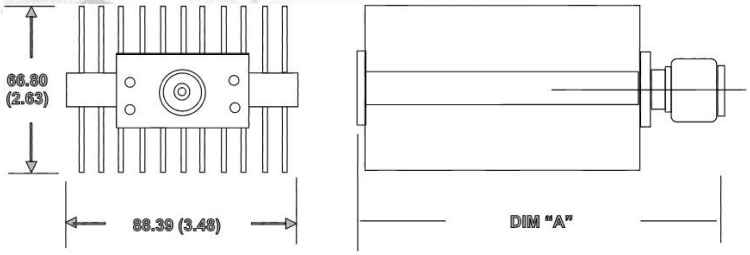
TERMINATION MODEL WA1438

DC – 5.0 GHz 300 WATTS



Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 5.0 GHz

Power Sensitivity: < 0.0001 dB/dBxW Unidirectional in power.

Power Rating: 300 watt CW/ 10KW peak. Maximum rated average power to 25°C ambient temperature, derated linearly to 25 watts at 125° C. 10 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Temperature Coefficient: < 0.0004 dB/dBx°C

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: Insertion Loss and VSWR performed at DC, 2.0, 4.0, and 5.0 GHz. All calibration data is available at additional cost.

Maximum VSWR:

Frequency (GHz)	VSWR
DC – 2.0 2.0 – 5.0	1.15 1.25

Weight: 1.28 kg/ 2.75 lbs.

Length: 233.93 (9.21)

Width: 79.45 (3.13)

Height: 50.55 (1.99)

Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

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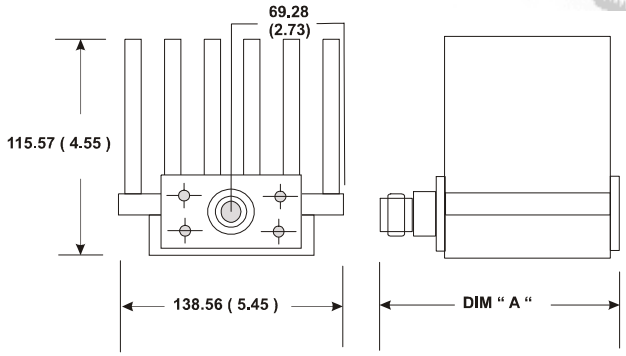
TERMINATION MODEL WA1439

DC – 2.5 GHz 150 Watts



Features

Stainless Steel Type N, M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively
with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 2.5 GHz

Operation: Horizontal or Vertical

Maximum VSWR: 1.20

Power Rating: 150 watt maximum rated average power to 25°C ambient temperature, mounted horizontally or vertically, (*with unobstructed air flow for natural convection cooling*) de-rated linearly to 0 watts at 125°C, 10 kilowatt peak (5 µsec pulse width; .75% duty cycle). Case temperature must be held to 100°C.

Temperature Range: Full power from -55°C to 100°C, Case temperature. -55°C to 125°C

Construction: Passivated stainless steel connectors with black fined aluminum body. Gold plated beryllium copper female contacts or passivated stainless steel male contacts.

Weight:

Type N	.907 Kg/ 2 lbs.
7/16mm	.998 Kg/ 2.2 lbs.

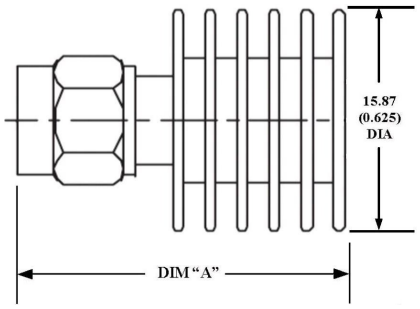
Physical Dimensions: Connector Options

Connector	Dim "A"
Type N Male (-4) Type N Female (-3)	15.0 (0.59 22.90 (0.90)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1443

DC – 18.0 GHz 5 WATTS



Features

Stainless steel Male (-1) or Female (-2) SMA connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Compact design for one of the lowest size/power ratios available. Designed to meet MIL-A-3933 environmental specification. Unit may be mounted in any position.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Power Rating: 5 watts average. Maximum rated average power to 25°C ambient temperature, derated linearly to 0.5 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 0.05% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Calibration: VSWR performed across frequency range. Option 890 or custom calibration test data available at additional cost.

Maximum VSWR

GHz	VSWR
DC – 18.0	1.20

Weight:
10 g (0.35 oz)

Physical Dimensions:

Length:

Connector Option	Length Dim. A
SMA Male	23.4 ± 0.1(0.91)
SMA Female	21.0 ± 0.1 (0.82)

Width: 15.87 (0.625 ± .01)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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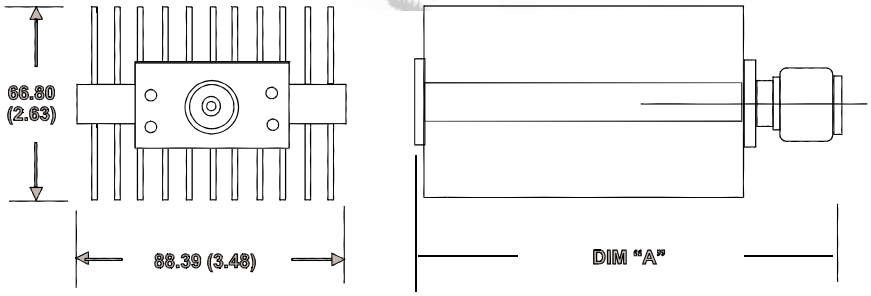
TERMINATION MODEL WA1445

DC – 2.5 GHz 250 WATTS



Features

Type N, 4.1 stainless steel M/F, or DIN 7/16mm connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Maximum VSWR

GHz	VSWR
DC – 2.5	1.10

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 2.5 GHz

Power Rating: 250 watt CW/ 10KW peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 10 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Black finned aluminum alloy body with passivated stainless steel connector. Gold plated beryllium copper female contact.

Weight: 1.5 kg/ 3.5 lbs.

Connectors: Type N; stainless steel connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

DIM "A": 212.09 (8.350)

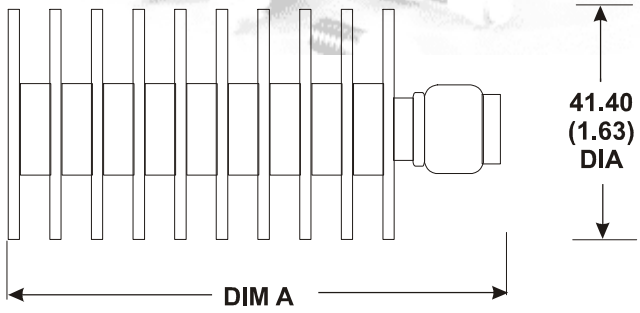
Height: 66.80 (2.63)

Width: 88.39 (3.48)

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified.

TERMINATION MODEL WA1446

DC –18.0 GHz 25 WATTS



Features

Type N or SMA stainless steel M or F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specifications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Power Rating: 25W CW/ 1 KW peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 10 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Black finned aluminum alloy body with passivated stainless steel connector. Gold plated beryllium copper female contact.

Maximum VSWR

GHz	VSWR
DC – 8.0	1.20
8.0 – 12.4	1.25
12.4 – 18.0	1.35

Weight: (Max)

Type N	0.18 kg/ 6 oz.
SMA	0.12 kg/ 4 oz.

Physical Dimensions:

Length: "A" Dimension

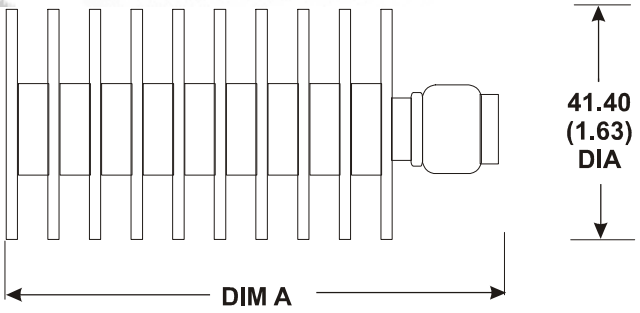
Connector	Length
Type N male	81.53 (3.21)
Type N female	82.30 (3.24)
SMA male	87.38 (3.44)
SMA female	84.07 (3.31)

Diameter: 41.40 (1.63)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1447

DC –18.0 GHz 50 WATTS



Features

Type N or SMA stainless steel M or F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Power Rating: 50W CW/ 1 KW peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 10 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Black finned aluminum alloy body with passivated stainless steel connector. Gold plated beryllium copper female contact.

Maximum VSWR

GHz	VSWR
DC – 8.0	1.20
8.0 – 12.4	1.25
12.4 – 18.0	1.35

Weight: (Max)

Type N	0.18 kg/ 6 oz.
SMA	0.12 kg/ 4 oz.

Physical Dimensions:

Length: "A" Dimension

Connector	Length
Type N male	147.32 (5.80)
Type N female	148.08 (5.83)
SMA male	152.91 (6.02)
SMA female	149.61 (5.89)

Diameter: 41.40 (1.63)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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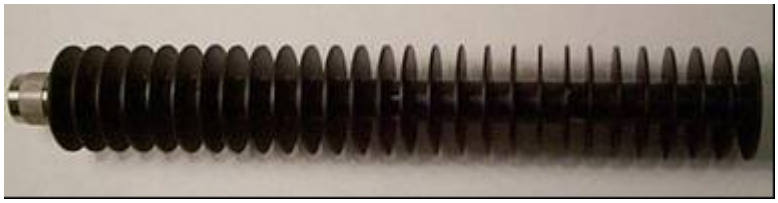
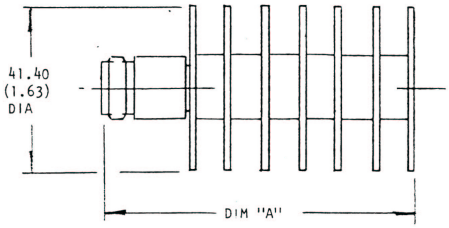
TERMINATION MODEL WA1448

DC – 18.0 GHz 100 WATTS





Features

Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-39030 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC - 18.0 GHz

Power Rating: 100 watt maximum rated average power to 25°C ambient temperature, mounted horizontally, de-rated linearly to 10 watts at 125°C. 1 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Passivated stainless steel connectors with black fined aluminum body. Gold plated beryllium copper contacts or passivated stainless steel male contact.

Weight:

Type N Male	.32 kg/ 11.0 oz.
Type N Female	.31 kg/ 10.7 oz.
SMA Male	.26 kg/ 9.0 oz.
SMA Female	.26 kg/ 9.0 oz.

Physical Dimensions: N Type Connector

Connector	Dim "A"
Type N Male	278.38 (10.96)
Type N Female	279.15 (10.99)
SMA Male	284.23 (11.19)
SMA Female	280.92 (11.06)

Maximum VSWR

GHz	VSWR	
	Type N	SMA
DC – 8.0	1.25	1.25
8.0 – 12.4	1.30	1.35
12.4 – 18.0	1.45	1.45

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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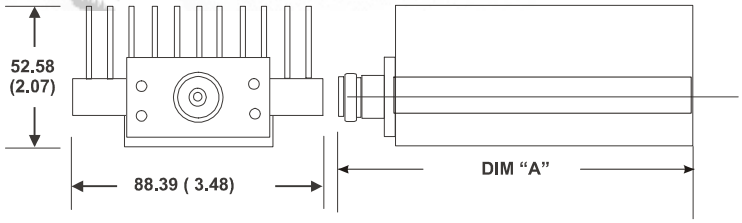
TERMINATION MODEL WA1449

DC – 8.5 GHz 150 WATTS



Features

Type N, 4.1 stainless steel M/F, or DIN 7/16mm connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -8.5 GHz

Power Rating: 150 watt CW/ 5KW peak. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper *female* contacts.

Maximum VSWR

GHz	VSWR
DC - 4.0	1.25
4.0 – 8.5	1.35

Weight: 1.41 kg/ 3.1 lbs.

Length: **151.13 (5.95) type N female**
159.25 (6.27) type N male

Width: **88.39 (3.48)**

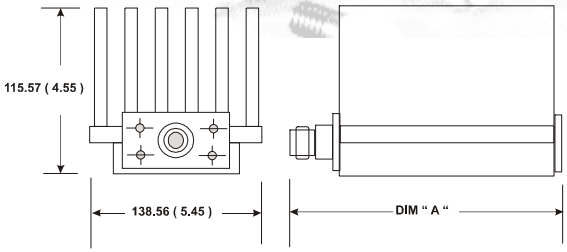
Height: **52.58 (2.07)**

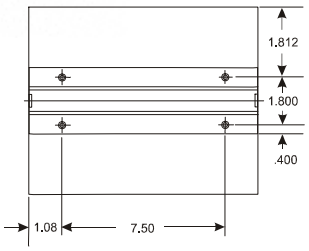
Note: Dimensions are given in mm (inches) and are maximum ± .05 in., unless otherwise specified.

TERMINATION MODEL WA1451

DC – 8.5 GHz 500 WATTS

Model WA1451





Mounting hole pattern

Features

Stainless Steel Type N, 7/16mm, 4.1 M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 8.5 GHz

Operation: Horizontal or Vertical

Power Rating: 500 watt maximum rated average power to 25°C ambient temperature, mounted horizontally, derated linearly to 50 watts at 125°C, 5 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Maximum VSWR:

GHz	VSWR
DC - 4.0	1.25
4.0 – 8.5	1.35

Temperature Range: -55°C to +125°C.

Construction: Passivated stainless steel connectors with black fined aluminum body. Gold plated beryllium copper female contacts or passivated stainless steel male contacts.

Weight:

Type N	3.64 Kg/ 8 lbs.
7/16mm	3.72 Kg/8.2 lbs.

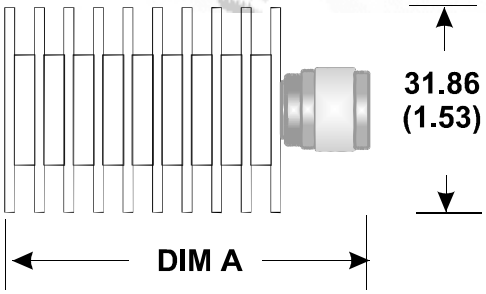
Physical Dimensions: N Type Connector

Connector	Dim "A"
Type N Male (-4)	281.94 (11.10)
Type N Female (-3)	273.81 (10.78)
DIN 7/16mm Female (-8)	291 (11.6)
DIN 7/16mm Male (-9)	311 (12.3)
4.1F	279 (11.0)
4.1M	290 (11.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

TERMINATION MODEL WA1452

DC – 4.0 GHz 25 WATTS



Features

Type N, 4.1, SMA, and DIN 7/16mm stainless steel male/female connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -4.0 GHz

Power Rating: 25 watts average. Maximum rated average power to 25°C ambient temperature, de-rated linearly to 15 watts at 125°C. 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contact.

Maximum VSWR

GHz	VSWR
DC - 2.0	1.10
2.0 – 4.0	1.20

Weight: .17 kg/ 6 oz.

Physical Dimensions:

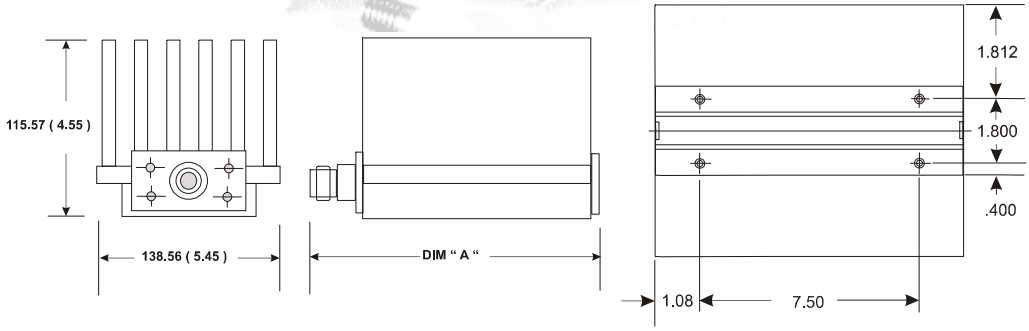
Length: DIM "A"

Connector Type	DIM "A"
Type N Female -3 Type N Male -4	60.99 (2.4) 68.57 (2.7)
SMA Female -1 SMA Male -2	58.43 (2.3) 60.99 (2.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1453

DC – 2.5 GHz 500 WATTS



Features

Stainless Steel Type N, 7/16mm, 4.1 M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 2.5 GHz

Operation: Horizontal or Vertical

Maximum VSWR:

GHz	VSWR
DC – 2.5	1.10

Power Rating: 500 watt maximum rated average power to 25°C ambient temperature, mounted horizontally, de-rated linearly to 10 watts at 125°C, 10 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Passivated stainless steel connectors with black fined aluminum body. Gold plated beryllium copper contacts or passivated stainless steel male contacts.

Weight:

Type N	3.64 Kg/ 8 lbs.
7/16mm	3.72 Kg/8.2 lbs.

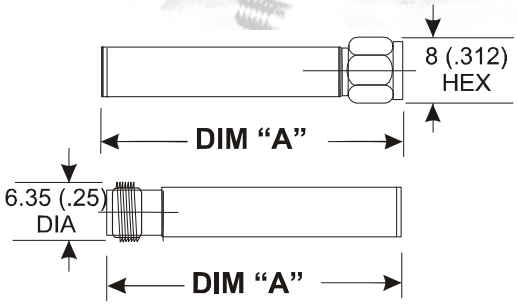
Physical Dimensions:

Connector	Dim "A"
Type N Male (-4)	281.94 (11.10)
Type N Female (-3)	273.81 (10.78)
DIN 7/16mm Female (-8)	291 (11.6)
DIN 7/16mm Male (-9)	311 (12.3)
4.1F	279 (11.0)
4.1M	290 (11.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1454

DC – 40.0 GHz 2 WATTS



Features

Type 2.92 mm connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012 connectors. Designed to meet MIL-A-3933 environmental specifications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -40 GHz

Power Rating: 2 watts average, 200 watts peak (maximum rated average power to 25° C ambient temperature, de-rated linearly to 0.1 watts at +85° C.

Temperature Range: -55°C to +100°C.

Maximum VSWR:

Frequency GHz	VSWR
DC – 26.5	1.25
26.5 – 40.0	1.45

Construction: Passivated stainless steel body and connectors. Gold plated beryllium copper female contact, stainless steel male contact.

Weight: 4.9 gm/ 14 oz.

Physical Dimensions:

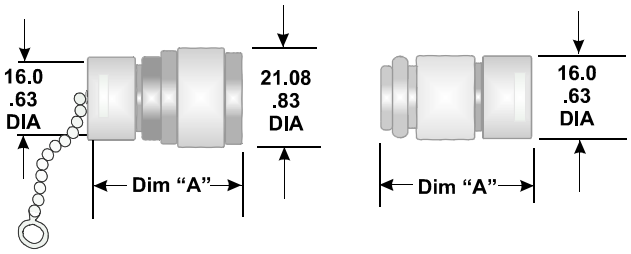
Connector Type	Dim A
2.92 mm Female -1 2.92 mm Male -2	30.48 (1.20) 32.5 (1.27)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

TERMINATION MODEL WA1455

DC – 6.0 GHz WA1455/6
DC – 12.4 GHz WA1455/12
DC – 18.0 GHz WA1455/18

2 WATT



Features

Type N male (-4) or female (-3) or type TNC male (-6) or female (-5) connector per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Excellent VSWR repeatability. Available with and without chain.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: WA1455/6 DC – 6.0 GHz
WA1455/12 DC – 12.4 GHz
WA1455/18 DC – 18.0 GHz

Power Rating: 2 watts average, 1 kilowatt peak (maximum rated average power to 25° C ambient temperature, de-rated linearly to 1.0 watts at 125° C.

Temperature Range: -55°C to +125°C.

Maximum VSWR:

Frequency GHz	VSWR (N-TYPE)	VSWR (TNC)
DC – 8.0	1.10	1.10
8.0 – 12.4	1.15	1.15
12.4 – 18.0	1.20	1.25

Construction: Passivated stainless steel body and connectors. Stainless steel male contact.

Weight: 110.0 gm/ 4 oz.

Physical Dimensions:

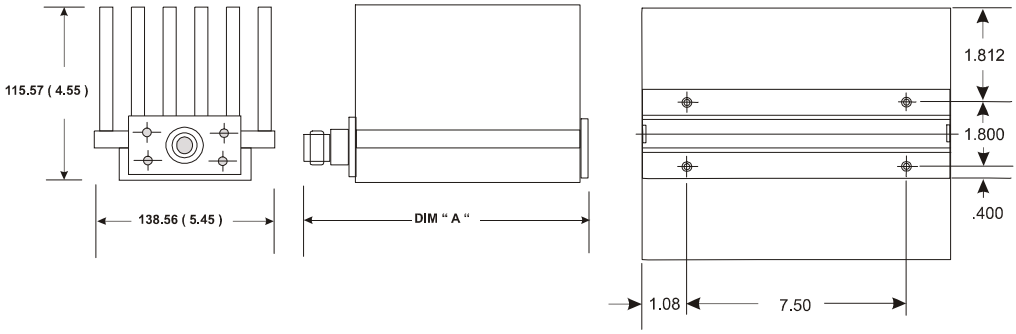
Length:

Model	DIM "A"
WA1455-3	28.89 (1.14)
WA1455-4	32.89 (1.29)
WA1455-5	34.29 (1.35)
WA1455-6	35.56 (1.40)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

TERMINATION MODEL WA1460

DC – 5.0 GHz 500 WATTS



Features

Stainless Steel Type N, 7/16mm, 4.1 M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC – 5.0 GHz

Operation: Horizontal or Vertical

Max VSWR:

DC— 2.0 GHz: 1.15
2.0 — 5.0 GHz: 1.25

Power Rating: 500 watt maximum rated average power to 25°C ambient temperature, mounted horizontally, de-rated linearly to 10 watts at 125°C, 10 kilowatt peak (5 µsec pulse width; 5% duty cycle).

Temperature Range: -55°C to +125°C

Construction: Passivated stainless steel connectors with black fined aluminum body. Gold plated beryllium copper contacts or passivated stainless steel male contacts.

Weight:

Type N	3.64 Kg/ 8 lbs.
7/16mm	3.72 Kg/8.2 lbs.

Physical Dimensions: N Type Connector

Connector	Dim "A"
Type N Male (-4)	281.94 (11.10)
Type N Female (-3)	273.81 (10.78)
DIN 7/16mm Female (-8)	291 (11.6)
DIN 7/16mm Male (-9)	311 (12.3)
4.1F	279 (11.0)
4.1M	290 (11.4)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified

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TERMINATION MODEL WA1465

DC – 2.5 GHz 150 WATTS

Features

Type N and 7/16mm stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. Designed to meet MIL-A-3933 environmental specification.

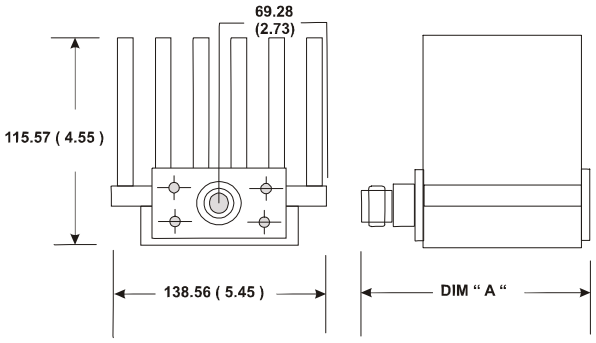
Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC –2.5 GHz

Power Rating: 150 watt CW/ 10KW peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held within 100° C with appropriate natural convection cooling supplied around heat sink. Maximum power into output is 20 watts average.

Temperature Range: -55°C to 125°C.

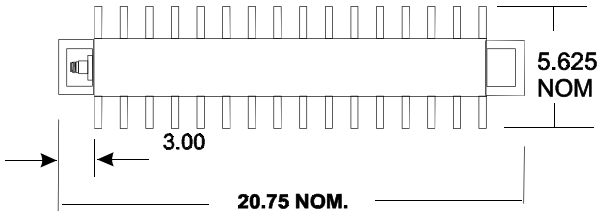


Construction: Black aluminum alloy body with passivated stainless steel connectors. Female gold plated beryllium copper contacts, stainless steel male contacts.

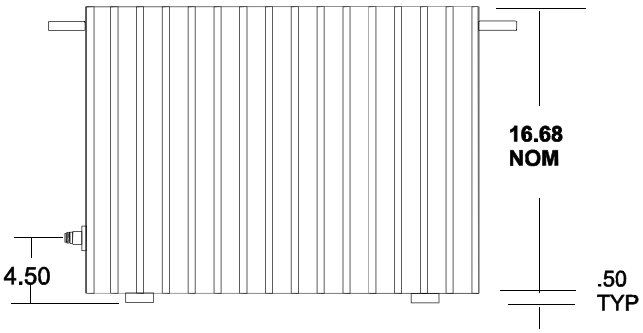
Note: Dimensions are given in mm (inches) and are maximum unless otherwise specified.

TERMINATION MODEL 1470

DC – 3.0 1000 WATTS



WA1470 Termination



Features

Designed to meet environmental requirements of MIL-D-39030.

High quality type N connectors

Natural convection cooling, No oil filling (*Air flow should not be obstructed around unit*)

Specifications

NOMINAL IMPEDANCE: 50 Ω

OPERATING POSITION: Horizontal; reduce 15% for vertical

MAX. VSWR: 1.35

POWER RATING: 1,000 watts average
To 25° C ambient temperature, de-rated linearly to 100 watts @ 125° C; 10 kilowatt peak.

TEMPERATURE: -55° C to +125° C

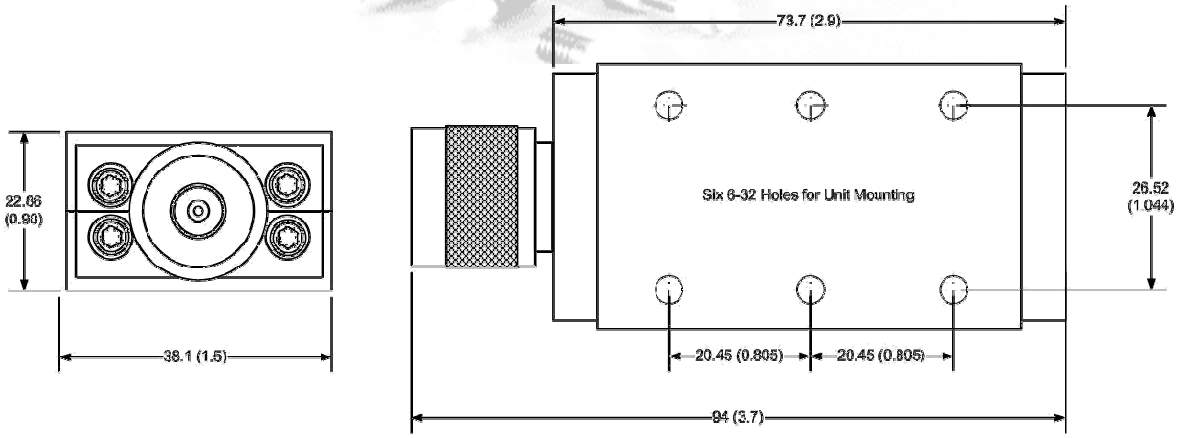
CONNECTORS: Type N stainless steel mate nondestructively with MIL-C-39012 connector or 7/16 connector, conforms to DIN 47223, IEC 169-4, VG 95250, CECC 22190

DIMENSIONS

Length	527 mm/ 20.75in nom.
Width	143 mm/ 5.625 in nom.
Height	437 mm/ 17.20 in max
Weight	20.41 kg/ 45 lbs

Low-Profile Mountable TERMINATION
MODEL WA1471

DC – 4.0 GHz **50 WATTS**



Features

Designed to comply with MIL-A-3933

Conductive Cooling

Connectors: Type N, SMA, and 7/16mm; stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Physical Dimensions:

Connector Type	Length
Type N Female –3 Type N Male –4	108.0 (4.25)
SMA Female –1 SMA Male –2	120.65 (4.75)

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC-4.0 GHz

Maximum VSWR: 1.20

Power: 50W CW average, 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held to +100°C maximum using conductive heat sink.

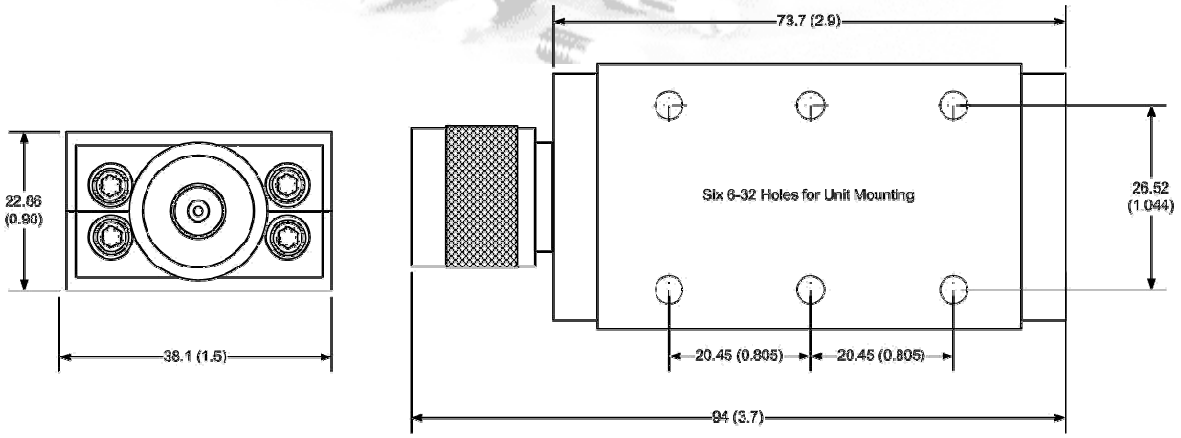
Temperature Range: -55°C to 125°C

Weight: .14 kg/5 oz.

Construction: Aluminum alloy body with passivated stainless steel connectors.

Low-Profile Mountable TERMINATION
MODEL WA1472

DC – 8.5 GHz **50 WATTS**



Features

Designed to comply with MIL-A-3933

Conductive Cooling

Connectors: Type N, SMA, and 7/16mm; stainless steel M/F connectors per MIL-STD-3448A, interface dimensions mate nondestructively with MIL-C-39012.

Physical Dimensions:

Connector Type	Length
Type N Female –3 Type N Male –4	108.0 (4.25)
SMA Female –1 SMA Male –2	120.65 (4.75)

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC-8.5 GHz

Maximum VSWR: 1.30

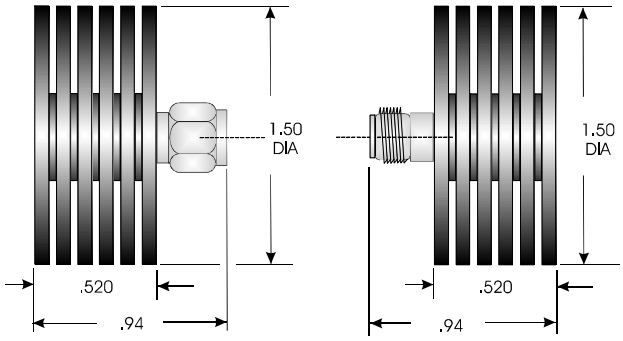
Power: 50W CW average, 5 kilowatt peak (5 µsec pulse width; 1.5% duty cycle) with case temperature held to +100°C maximum using conductive heat sink.
Temperature Range: -55°C to 125°C

Weight: .14 kg/5 oz.

Construction: Aluminum alloy body with passivated stainless steel connectors.

TERMINATION MODEL WA1475

DC – 40.0 GHz 5 WATTS



Model WA1475 shown with model WA54 attenuator

Features

► **Compact Construction –** Lowest size/power ratio.

► **Precision 2.92mm connectors.**

► **Flat Response.**

Specifications

NOMINAL IMPEDANCE: 50 Ω

FREQUENCY RANGE: DC to 40.0 GHz

POWER RATING (mounted horizontally): 5 watts average **(bi-directional)** to 25°C ambient temperature, derated linearly to 0.5 Watt @ 125°C. 200 watts **peak** (5 µsec pulse width; 1.25% duty cycle).

TEMPERATURE RANGE: -55°C to 125°C

CONECTORS: 2.92mm (Male/Female) connectors – mate nondestructively with SMA per MIL-C-39012, 3.5mm and other 2.92mm connectors.

Connector Options	Type/Description
6	2.92mm, Female
7	2.92mm, Male

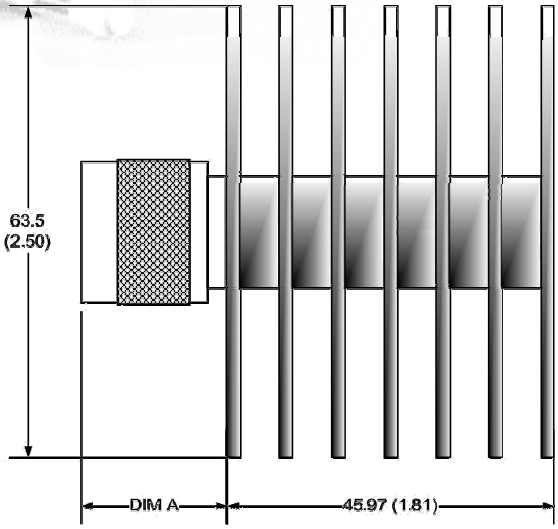
CONSTRUCTION: Stainless steel connector body with gold plated beryllium copper contacts.

WEIGHT: 200g (7.0 oz.) maximum

MAXIMUM VSWR:	
Frequency (GHz)	VSWR
DC – 18.0	1.20
18.0 - 40.0	1.35

High Power Termination MODEL WA1490

DC – 18.0 GHz 50 WATTS



Features

Designed to meet MIL-A-3933 environmental specifications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Power Rating: 50W CW/ 1 KW peak to 25°C ambient temperature, derated linearly to 10 watts at 125°C, 1 kilowatt peak (5 µsec pulse width; 2.5% duty cycle).

Temperature Range: -55°C to +125°C:

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012. *

Maximum VSWR

Frequency (GHz)	VSWR
DC – 8.0	1.15
8.0 – 12.4	1.20
12.4 – 18.0	1.30

* Note: TNC connector available upon request.

Weight:

Type N	1.18 kg/ 4.1 oz.
SMA	1.25 kg/ 4.3 oz.

Physical Dimensions:

Length: "A" Dimension

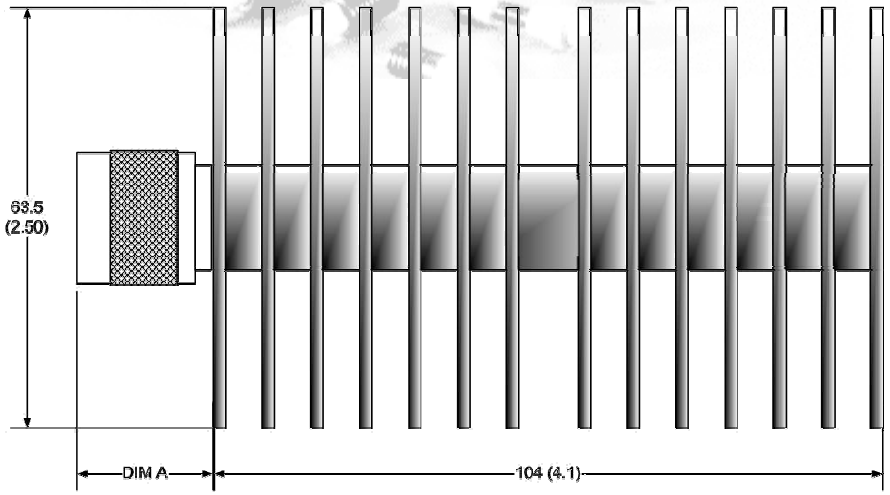
Connector	Length
Type N (-3, -4)	24.1 (0.95)
SMA (-1, -2)	30.1 (1.23)

Diameter: 63.50 (2.50)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

High Power Termination MODEL WA1491

DC – 18.0 GHz 100 WATTS



Features

Designed to meet MIL-A-3933 environmental specifications.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC -18.0 GHz

Power Rating: 100W CW/ 1 KW peak to 25°C ambient temperature, derated linearly to 10 watts at 125°C, 1 kilowatt peak (5 µsec pulse width; 2.5% duty cycle).

Temperature Range: -55°C to +125°C.

Construction: Black finned aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper contacts.

Connectors: Type N or SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.*

Maximum VSWR

Frequency (GHz)	VSWR
DC – 8.0	1.20
8.0 – 12.4	1.25
12.4 – 18.0	1.35

*Note: TNC available upon request.

Weight:

Type N	1.18 kg/ 4.1 oz.
SMA	1.25 kg/ 4.3 oz.

Physical Dimensions:

Length: "A" Dimension

Connector	Length
Type N (-3, -4)	24.1 (0.95)
SMA (-1, -2)	30.1 (1.23)

Diameter: 63.50 (2.50)

Note: Dimensions are given in mm (inches) and are maximum, unless otherwise specified.

RESISTIVE POWER SPLITTERS AND DIVIDERS

DC – 18.0 GHz **1 WATTS**

Resistive Power Splitters

Usage: Use in RF and wireless applications where one of the two outputs are included in a leveling loop or used as a reference in a ratio system providing an output signal whose source impedance is matched to 50 ohms.

Features: Excellent amplitude tracking, low equivalent output SWR, unidirectional

Resistive Power Splitters							
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Maximum Insertion Loss (dB)	Amplitude Tracking (dB, max)	Phase Tracking (± deg)	Connectors	Page No.
WA1507R	4	1	6.5	0.15	4	SMA	120
PS-018	18	1	7.5	0.2	2	N	118
7PS-018	18	1	7.5	0.2	2	N (input), 7 mm	119

Resistive Power Dividers

Usage: Use in general RF and wireless applications where RF signals are to be either divided or combined.

Features: Excellent amplitude and phase tracking, bi-directional, isolated outputs

Resistive Power Dividers							
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Maximum Insertion Loss (dB)	Amplitude Tracking (dB, max)	Phase Tracking (± deg)	Connectors	Page No.
WA1549R	4	1	6.5	0.15	4	SMA	117
WA1506A	18	1	7.5	0.5	0	N	115
WA1515	18	1	7.5	0.5	0	SMA	116

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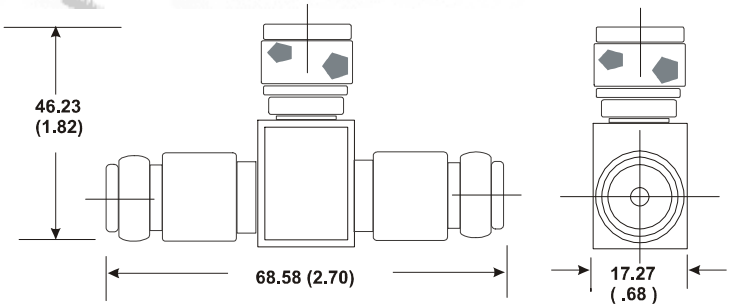
Broadband Resistive Power Divider
MODEL WA1506A

DC-18.0 GHz **1 Watt**



Features

►Accurate Division and Low Frequency Sensitivity- The symmetry of output power between the two arms is excellent across the frequency range.

►High Stability- Low temperature and power coefficients ensure attenuator stability

►Calibration Data – Each divider is calibrated at four frequencies. Calibration data provided at additional cost.

►Matched Ports- Symmetrical 6 dB division permits any port to be used as input.

Specifications

Nominal Impedance: 50Ω

Frequency Range: DC to 18.0 GHz

AMPLITUDE & PHASE TRACKING (MAX.)	
Frequency (GHz)	**Tracking**
DC – 4.0	0.2 dB
4.0 – 10.0	0.4 dB
10.0 - 18.0	0.5 dB

MAXIMUM VSWR	
Frequency (GHz)	**VSWR**
DC – 10.0	1.25
10.0 - 18.0	1.35

Insertion Loss: (Between input & either output arm): 6 dB nominal, -0.2, +1.2 dB maximum to 10.0 GHz; +1.5 dB maximum to 18 GHz.

Maximum Input Power: 1.0 watt CW, 1 kilowatt peak (5µsec pulse width, 0.05 duty cycle)

Phase Tracking: ±2° nominal between output ports (with male connector as input and female connectors as outputs)

Number of Ports: 3 interchangeable for input and output

Power Coefficient: <0.005 dB/dB/W

Temperature Coefficient: <0.005 dB/dB/°C

Temperature Range: -55°c TO +125 °C

Construction: Nickel plated brass body; stainless steel connectors; gold plated beryllium copper contacts.

Connectors: Type N connectors per MIL-STD-348 interface nondestructively with MIL-C-39012 connectors.

Weight: .14kg (5 oz) maximum

Note: All dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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Broadband Resistive Power Divider
MODEL WA1515

DC – 18.0 GHz **1 WATT**

AMPLITUDE & PHASE TRACKING (MAX.)	
Frequency (GHz)	**Tracking**
DC – 4.0	0 .2 dB
4.0 – 10.0	0.4 dB
10.0 – 18.0	0.5 dB

MAXIMUM VSWR		
Frequency (GHz)	**Output**	**Input**
DC – 10.0	1.25	1.25
10.0 – 18.0	1.35	1.35

Features

Lightweight Miniature package: High power capability

Close Tracking: Division is 6dB from matched ports

Specifications

NOMINAL IMPEDANCE: 50Ω

FREQUENCY RANGE: DC - 18.0 GHz

INSERTION LOSS: 6 dB nominal, -0.2 dB, +1.2 to 10.0 GHz, 1.5 to 18.0 GHz

MAXIMUM INPUT POWER: 1.0 watt CW, 1kw peak (5 µsec pulse width, 0.05 % duty cycle)

PHASE TRACKING: ±2° nominal between male input and female outputs.

TEMPERATURE RANGE: -55°C to +125 °C

TEMPERATURE COEFFICIENT: < 0.004 dB/dB/°C

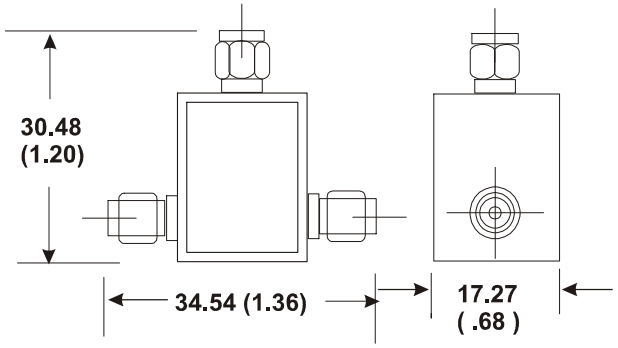
POWER COEFFICIENT: < 0.005 dB/dB/watt

CONTRUCTION: Nickel plated brass body; stainless steel connectors.

CONNECTORS: Male SMA port 1, (2) Female SMA ports 2 and 3; all ports-mate nondestructively with other SMA, 2.92mm and 3.5mm connectors. Optional female SMA connectors are available on all ports. Reference P/N WA1515-1.

WEIGHT: 30 g (1 oz) maximum

PHYSICAL DIMENSIONS:



Broadband Resistive Power Divider
MODEL WA1549R

DC – 4.0 GHz **1 WATT**

Features

These resistive power dividers are intended for RF and wireless applications in which one of the outputs is included in a leveling loop or is used as a reference in a ratio system , for the purpose of providing an output signal whose source impedance is essentially matched to 50Ω. Some examples are:

►A dual channel insertion loss measuring system (ratio).

►A parallel IF substitution insertion loss measuring system (ratio or ALC loop).

►A precision power source (ration or ALC loop)

Specifications

NOMINAL IMPEDANCE: 50Ω

FREQUENCY RANGE: DC - 4.0 GHz

INSERTION LOSS: 6 dB nominal, 6.5 dB maximum (Between input and either output)

MAXIMUM INPUT POWER: 1.0 watt CW (Input connector only)

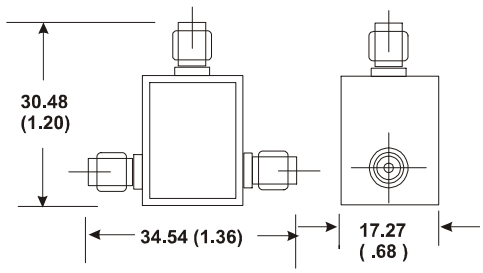
AMPLITUDE & PHASE TRACKING (MAX.)		
Frequency (GHz)	**Tracking**	
	Amplitude	Phase
DC – 4.0	< 0.15	< 4°

TEMPERATURE RANGE: -55°C to +125 °C

CONNECTORS: Female SMA connectors all ports-mate nondestructively with other SMA, 2.92mm and 3.5mm connectors. Optional male SMA connectors are available.

WEIGHT: 25 g (0.9 oz) maximum

PHYSICAL DIMENSIONS:



NOTE: All dimensions are given in mm (inches) and are maximum, unless otherwise specified.

MAXIMUM VSWR:

MAXIMUM VSWR		
Frequency (GHz)	**Output**	**Input**
DC – 4.0	1.25	1.25

Broadband Resistive Power Splitter
MODEL PS-018

DC – 18.0 GHz **1 WATT**

Features

These resistive power splitters are intended for use with RF and wireless applications where one of the two outputs are included in a leveling loop or used as a reference in a ratio system providing an output signal whose source impedance is matched to 50 ohms.

MAXIMUM VSWR	
Frequency (GHz)	VSWR
DC – 18.0	1.30
Max if both output ports are terminated in 50 ohms.	

Specifications

NOMINAL IMPEDANCE: 50Ω

FREQUENCY RANGE: DC TO 18.0 GHz

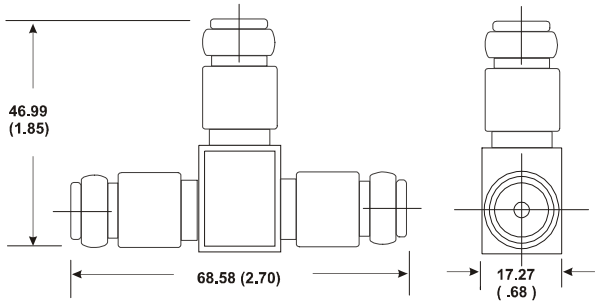
INSERTION LOSS: (Between input & either output arm): 6 dB nominal, 7.5 dB maximum.

MAXIMUM INPUT POWER: 1.0 watt CW, 1 kilowatt peak (5µsec pulse width, 0.05 duty cycle) maximum (input connector only).

MAXIMUM BALANCE OF POWER DIVISION:

DC – 18.0 GHz 0.15 dB
8.0 – 18.0 GHz 0.20 dB
Typical 0.1 dB

PHYSICAL DIMENSIONS:



PHASE TRAKING: ±2° nominal between output ports

EQUIVALENT OUTPUT SWR: (Port 2 & 3 when in a leveling or ratio system)

DC – 2.0 GHz 1.05
2.0 – 4.0 GHz 1.07
4.0 – 8.0 GHz 1.10
8.0 – 18.0 GHz 1.15

POWER COEFFICIENT: <0.005 dB/dB x W

TEMPERATURE COEFFICIENT: <0.0004 dB/dB x °C

TEMPERATURE RANGE: -55°c to +85 °C

CONSTRUCTION: Nickel plated brass body; stainless steel connectors; gold plated beryllium copper contacts.

CONNECTORS: Type N connectors per MIL-STD-348 interface nondestructively with MIL-C-39012 connectors.

WEIGHT: .17 kg (6 oz) maximum

NOTE: All dimensions are given in mm (inches) and are maximum, unless otherwise specified.

Broadband Resistive Power Splitter
MODEL 7PS-018

DC – 18.0 GHz **1 WATT**

Features

These resistive power splitters are intended for use with RF and wireless applications where one of the two outputs are included in a leveling loop or used as a reference in a ratio system providing an output signal whose source impedance is matched to 50 ohms.

MAXIMUM VSWR	
Frequency (GHz)	VSWR
DC – 18.0	1.30
Max if both output ports are terminated in 50 ohms.	

Specifications

NOMINAL IMPEDANCE: 50Ω

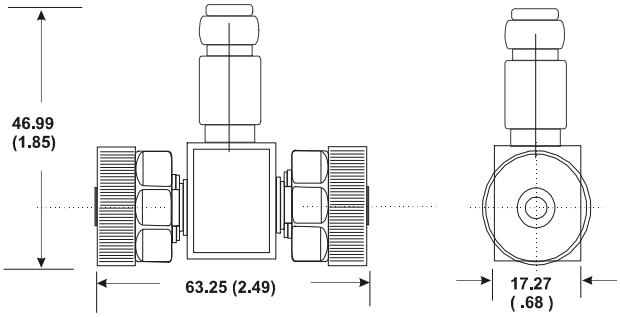
FREQUENCY RANGE: DC TO 18.0 GHz

INSERTION LOSS: (Between input & either output arm): 6 dB nominal, 7.5 dB maximum.

MAXIMUM INPUT POWER: 1.0 watt CW, 1 kilowatt peak (5µsec pulse width, 0.05 duty cycle) maximum (input connector only).

MAXIMUM BALANCE OF POWER DIVISION:

DC – 18.0 GHz 0.15 dB
8.0 – 18.0 GHz 0.20 dB
Typical 0.1 dB



PHYSICAL DIMENSIONS:

PHASE TRAKING: ±2° nominal between output ports

EQUIVALENT OUTPUT SWR: (Port 2 & 3 when in a leveling or ratio system)

DC – 2.0 GHz 1.05
2.0 – 4.0 GHz 1.07
4.0 – 8.0 GHz 1.10
8.0 – 18.0 GHz 1.15

POWER COEFFICIENT: <0.005 dB/dB x W

TEMPERATURE COEFFICIENT: <0.0004 dB/dB x °C

TEMPERATURE RANGE: -55°c to +85 °C

CONSTRUCTION: Nickel plated brass body; stainless steel connectors; gold plated beryllium copper contacts.

CONNECTORS: Type N stainless steel female (input) connector per MIL-STD-348A, interface nondestructively with MIL-C-39012 connectors. Precision 7mm (output). Meets or exceeds requirements of IEEE STD 287 and mates with all connectors conforming to design 2 of that standard.

WEIGHT: .17 kg (6 oz) maximum

NOTE: All dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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Broadband Resistive Power Splitter
MODEL WA1507R

DC – 4.0 GHz **1 WATT**

AMPLITUDE & PHASE TRACKING (MAX.)		
Frequency (GHz)	**Tracking**	
	Amplitude	Phase
DC – 4.0	< 0.15	< 4 °

MAXIMUM VSWR		
Frequency (GHz)	**Output**	**Input**
DC – 4.0	1.15	1.20

Features

Lightweight Miniature package: High power capability. These resistive power splitters are intended for RF and wireless applications in which one of the outputs is included in a leveling loop or is used as a reference in a radio system, for the purpose of providing an output signal whose source impedance is essentially matched to 50 ohms.

Specifications

NOMINAL IMPEDANCE: 50Ω

FREQUENCY RANGE: DC - 4.0.0 GHz

INSERTION LOSS: 6 dB nominal, 6.5 dB maximum (between input and either output).

MAXIMUM INPUT POWER: 1.0 watt CW, 1kw peak (5 µsec pulse width, 0.05 % duty cycle, input connector only).

TEMPERATURE RANGE: -55°C to +125 °C

TEMPERATURE COEFFICIENT: < 0.004 dB/dB/°C

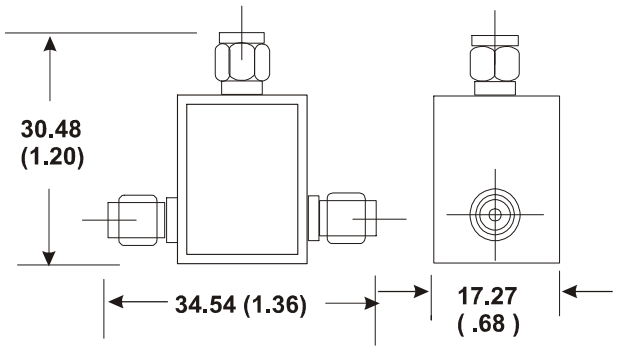
POWER COEFFICIENT: < 0.005 dB/dB/watt

CONTRUCTION: Nickel plated brass body; stainless steel connectors.

CONNECTORS: Male SMA port 1, (2) Female SMA ports 2 and 3; all ports-mate nondestructively with other SMA, 2.92mm and 3.5mm connectors. Optional female SMA connectors are available on all ports. Reference P/N WA1515-1.

WEIGHT: 30 g (1 oz) maximum

PHYSICAL DIMENSIONS:



NOTE: All dimensions are given in mm (inches) and are maximum, unless otherwise specified.

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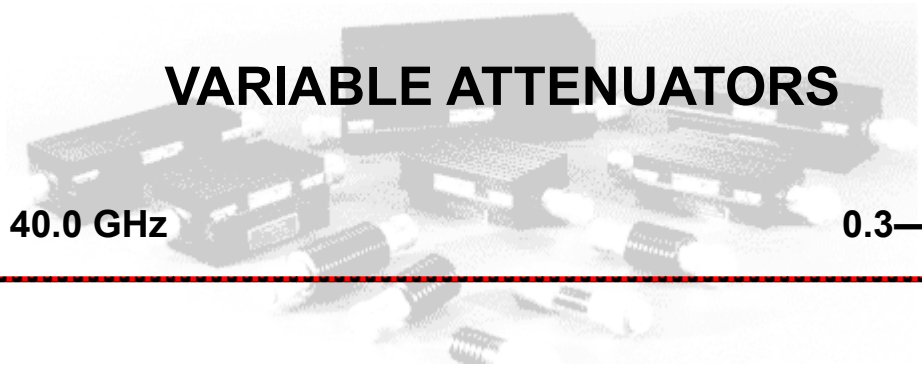
VARIABLE ATTENUATORS



DC – 40.0 GHz **0.3—5 WATTS**

Continuously Variable Attenuators							
Model Number	Frequency Range (GHz)	Average Power (W)	Peak Power (kW)	Residual Insertion Loss (dB)	Attenuation Range (dB)	Connectors and Mounting Notes	Page No.
VA-02-100	DC - 2	5	0.5	6	100	N, SMA	122
VA-04-60	DC - 4	5	0.5	6	60	N, SMA	122
VA-04-30	DC - 4	5	0.5	3	30	N, SMA	122
WA942-02-15	DC - 2	1	0.5	2	15	SMA	123
WA942-02-30	DC - 2	1	0.5	2	30	SMA	123
WA942-04-15	DC - 4	1	0.5	2	15	SMA	123
WA942-04-30	DC - 4	1	0.5	2	30	SMA	123
953-3	1 - 11	1	1	0.5 - 1	3	N, SMA	124
953-10	2.5 - 11	1	1	0.5 - 1	10	N, SMA	124
953-20	4 - 11	1	1	0.5 - 1	20	N, SMA	124
973-10	1.3 - 11	1	1	0.5 - 1	10	N, SMA	124
973-20	2.5 - 11	1	1	0.5 - 1	20	N, SMA	124
973-40	4 - 11	1	1	0.5 - 1	40	N, SMA	124
953B-3	1 - 18	1	1	0.5 - 1	3	N, SMA	124
953B-10	2.5 - 18	1	1	0.5 - 1	10	N, SMA	124
953B-20	4 - 18	1	1	0.5 - 1	20	N, SMA	124
953K-3	1 - 40	0.5	0.1	0.5 - 1	3	2.92 mm	125
953K-10	3 - 40	0.5	0.1	0.5 - 1	10	2.92 mm	125
953K-20	4 - 40	0.5	0.1	0.5 - 1	20	2.92 mm	125

Programmable Step Attenuators						
Model Number	Frequency Range (GHz)	Average Power (W)	Peak Power (dBm)	Attenuation Range (dB)	Connectors and Mounting Notes	Page No.
DA13-30	DC - 13	0.3	+25	30	N, SMA, TNC	126
DA13-60	DC - 13	0.3	+25	60	N, SMA, TNC	126
DA13-90	DC - 13	0.3	+25	90	N, SMA, TNC	126

* Other configurations are available

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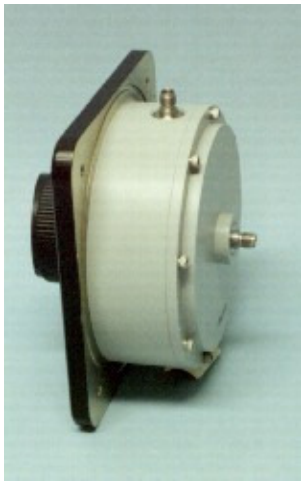
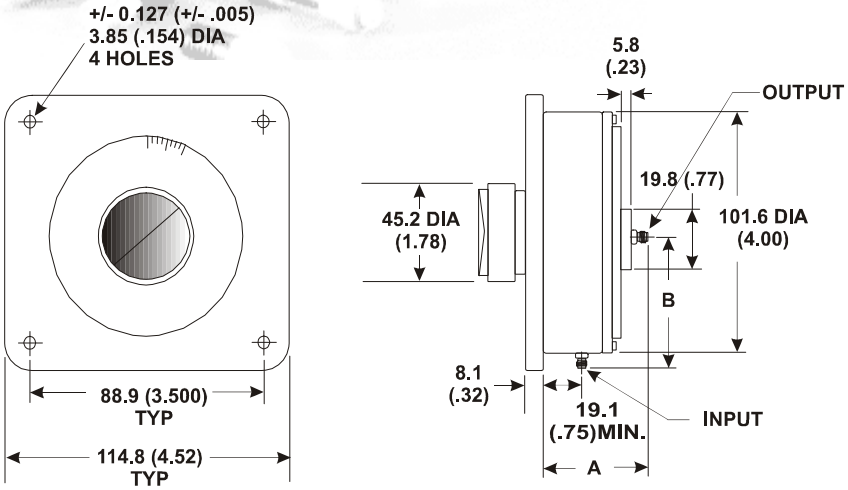
VARIABLE ATTENUATOR MODEL VA/02 & VA/04

DC – 2.0 GHz VA/02/100
DC – 4.0 GHz VA/04/60
DC – 4.0 GHz VA/04/30

5 WATTS





Features

Type N or SMA connector options.

Minimum Insertion Loss: Range above zero-loss of 6 dB.

Specifications

Nominal Impedance: 50 ohms

Power Rating: 5 watts average, 0.5 kW peak, to 25°C ambient temperature, de-rated linearly to 0 watts at 85°C.

Temperature: Full power from 0° C to +25 ° C; de-rated linearly to 0W at + 85° C. 0° C to +85 °

Phase Shift with Change in Attenuation:
1° / dB x f (GHz) maximum

Frequency (GHz) / VSWR: See table below.

Model	GHz	Range dB	VSWR GHz		
			0 – 1	1 – 2	2 – 4
VA/04/30	DC - 4.0	30	1.50	1.60	1.80
VA/04/60	DC - 4.0	60	1.50	1.60	1.80
VA/02/100	DC - 2.0	100	1.50	1.60	--

Accuracy:

VA/04/30: ± 0.25dB or 4% at 2 GHz
VA/04/60: ± 0.25dB or 4% at 2 GHz
VA/02/100: ± 0.5 dB or 1% at 1 GHz

Dial Calibration (in 1 dB increments):

VA/04/30 3 to 33 dB ~ 180° approx
VA/04/60 6 to 66 dB ~ 180° approx.
VA/02/100 6 to 106 dB ~ 270° approx.

Connectors: Type N, SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate non-destructively with MILC-39012.

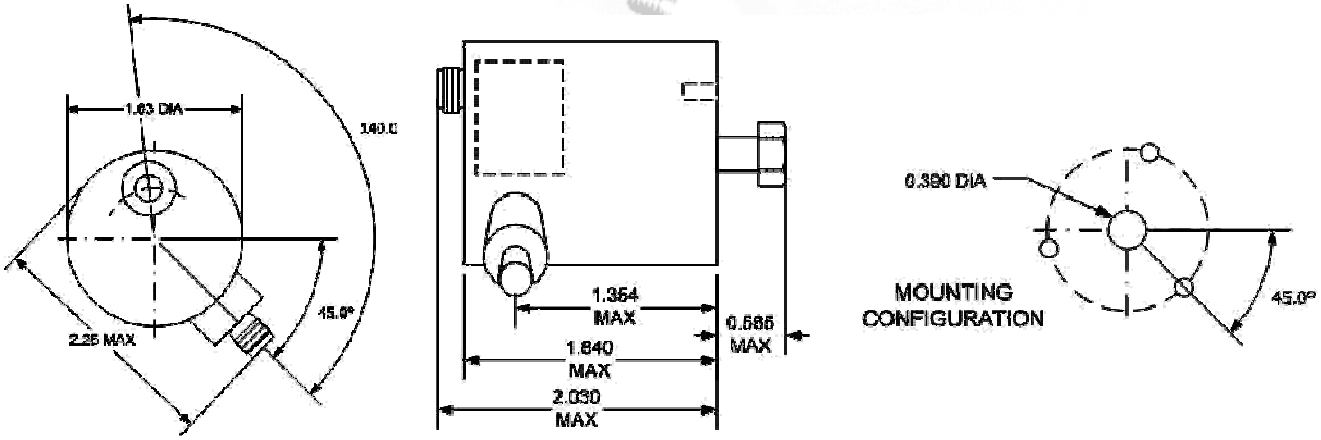
Connector Option	Connector Type Input	Output	DIM "A" mm (in.)	DIM "B" mm (in.)
-34	N Female	N Male	66.0 (2.6)	68.1 (2.68)
-44	N Male	N Male	66.0 (2.6)	71.9 (2.83)
-33	N Female	N Female	61.0 (2.4)	68.1 (2.68)
-12	SMA Female	SMA Male	55.6 (2.19)	58.2 (2.29)
-22	SMA Male	SMA Male	55.6 (2.19)	61.5 (2.42)
-11	SMA Female	SMA Female	52.3 (2.06)	58.2 (2.29)

Note: Dimensions are given in mm (inched), unless otherwise specified.

VARIABLE ATTENUATOR MODEL WA942

DC – 2.0 GHz WA942-02
DC – 4.0 GHz WA942-04

1 WATT



Features

Choice of Attenuation Ranges: 15 dB and 30 dB

SMA Connectors per MIL-PRF-39012 and MIL-STD-348

Excellent Reset-ability: 10:1 Turns Ratio

Rugged Design to MIL-A-24215 Environments

Panel Mount Configuration

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC-2.0 GHz, WA942-02
DC-4.0 GHz, WA942-04

Attenuation Range:
WA942-02-15: 0 to 15 dB
WA942-02-30: 0 to 30 dB
WA942-04-15: 0 to 15 dB
WA942-04-30: 0 to 30 dB
Other ranges may be available, contact the factory.

Insertion Loss: 2 dB, max

VSWR: 1.5:1, max

Power Rating: 1 watts average, 0.5 kW pk, to 25°C ambient temperature, de-rated linearly to 0.5 watts at 85°C.

Power Coefficient: 0.005 dB/dB/W, max

Temperature: -55° C to + 85° C

Temperature Coefficient: 0.001 dB/dB/° C, max

Phase Shift with Change in Attenuation:
1° / dB x f (GHz) maximum

Connectors: SMA stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MILC-39012.

Construction: Aluminum body, stainless steel connectors, gold-plated beryllium copper contacts.

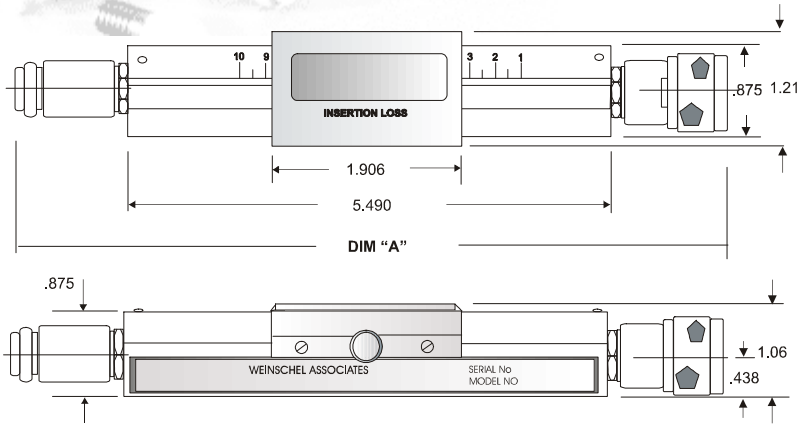
Weight: 0.7 kg (1.5 lb), max

Note: Dimensions are given in inches, unless otherwise specified.

Continuously Variable Attenuator Model 953, 953B & 973

DC – 18.0 GHz 1 WATT

953B shown on top



Specifications

Nominal Impedance: 50 ohms

Connectors: 953 (N, SMA), 953B (N, SMA), 973 (N, SMA) Type N/SMA Stainless Steel, M/F per MIL-STD-348A Interface dimensions mate non-destructively with MIL-C-39012 connectors.

Frequency Range:

FREQUENCY GHz				
Model	**3dB**	**10dB**	**20dB**	**40dB**
953	1 – 11	2.5 – 11	4 – 11	--
953B	1 – 18	2.5 – 11	4 – 18	--
973	--	1.3 – 11	2.5 – 11	4 – 11
VSWR GHz				
Model	**3dB**	**10dB**	**20dB**	**40dB**
953	1,5	1.5	1.5	-
953B	1.6 to 2	1.6 to 4	1.6 to 6	-
	1.5 to 18	1.5 to 18	1.5 to 18	-
973	-	1.5 to 11	1.6 to 4	1.7 to 6
	-	-	1.5 to 11	1.5 to 11

Zero Loss typically 0.5 to 1.0 dB

Frequency Correction Data Provided.

Temperature: Full power from 0° C to +25° C; de-rated linearly to 10% at +85° C. 0° C to +85 °

Physical Dimensions:

Model	DIM "A"	Weight kg / lb
953/953B	213 (8.4	0.4 / 0.8
973	359 (14.1)	0.6 / 1.3

Scale divisions in ½ dB increments.

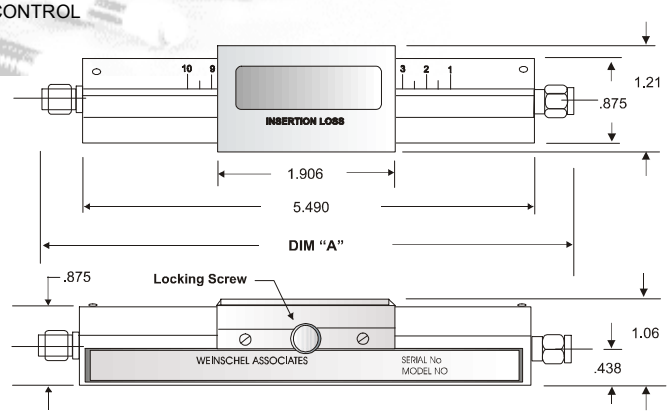
Model	Power
953	1W CW / 1Kw peak
953B	1W CW / 1Kw peak
973	1W CW / 1Kw peak

Note: Dimensions are given in mm (inched) and are maximum, unless otherwise specified.

Continuously Variable Attenuator Model 953K

1 – 40.0 GHz 1 WATT

953K shown on bottom



Maximum dimensions in inches (cm).

Mates with SMA, 3.5 mm, Type K[(1)].

(1) K Connector is a registered trademark of Wiltron Co.

BROADBAND FREQUENCY RANGE – 1.0 TO 4.0 GHz in 3 dB model. Other models have slightly less range

DIRECT READING SCALE – Insertion loss scales are individually calibrated. A permanently attached table shows small corrections to the calibrations above and below mid-frequency.

CONTINUOUSLY VARIABLE – Attenuation is continuously variable over near linear scale using a simple slide control.

SMALL PHASE SHIFT – Total insertion length remains constant for all attenuation settings, resulting in very small phase shift vs. attenuation
≈ 1°/dB/GHz.

NON-CONTACTING CONTROL DEVICE – Attenuator control is capacitively coupled to attenuating element to avoid wear and insure smooth operation.

STABILITY – These attenuators contain ***Weinschel Associates*** high quality, stable film resistors on a ceramic base.

STAINLESS STEEL CONNECTORS – Stainless steel con-nectors ensure maximum life and minimum wear. Critical dimensions are held more closely than required by applicable military specifications.

NOMINAL IMPEDANCE: 50 Ohms

ATTENUATION RANGE: 3, 10 AND 20 dB

CONNECTORS: Stainless steel 2.92 mm, Male, Female

PHASE SHIFT WITH CHANGE IN ATTENUATION:
~ 1°/dB x f (GHz) maximum

INPUT POWER RATING (*when properly terminated*)**:**
0.5 watt average, 100 watt peak; de-rated linearly to zero from 25 to 85˚C.

POWER COEFFICIENT: < 0.001 dB/dB x W

TEMPERATURE COEFFICIENT: < 0.0003 dB/dB x ˚C

TERMPERATURE RANGE: 0˚ TO 85˚C

WEIGHT: Net 0.37 kg (13 oz); Shipping 0.60 kg (1 lb., 5 oz)

Characteristic	Model 953K		
	3 dB	10 dB	20 dB
Frequency Range	**1 – 40 GHz**	**3-40 GHz**	4-40 GHz
Characteristic Insertion Loss, Residual	*1.0 dB max at 18 GHz*	*1.5 dB max at 18 GHz*	*2.0 dB max at 18 GHz*
Direct Reading Scale Calibration	**18 GHz**	**18 GHz**	**18 GHz**
Insertion Loss Corrections	*Min. 1, 2 & 3 dB at 1 and 40 GHz*	*Min. 2, 4, 6 & 10 dB at 3 and 40 GHz*	*Min. 5,10, 15 & 20 dB at 4 and 40 GHz*
Max. Correction from Scale Value	**± 1.0 dB**	**+ 2.5 dB -1.0 dB**	**± 2.5 dB**
Calibration Accuracy (Incl. Resettability)	*0.1 dB*	*0.2 dB*	0.3 dB
Scale Resolution	**~ 0.60 in / dB**	**~ 0.25 in / dB**	~ 0.12 in / dB
Scale Increments	*0.2 dB*	*0.5 dB*	*0.5 dB*
Max. VSWR			
To 18.0 GHz	1.50	1.50	1.50
To 40.0 GHz	1.35	1.35	1.50

WEINSCHEL ASSOCIATES
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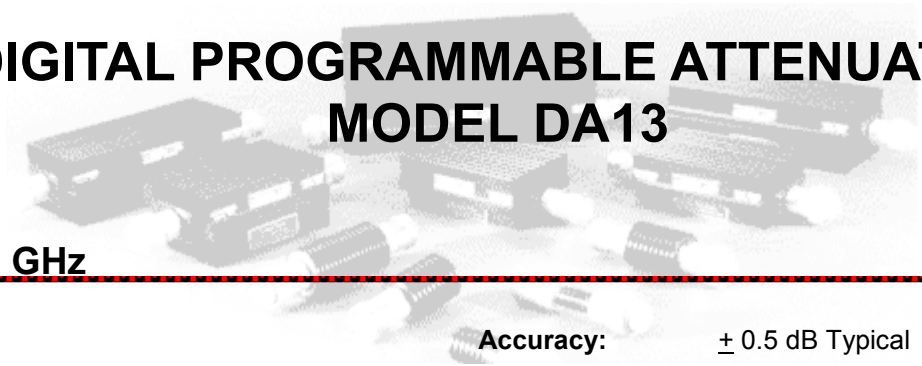
WEB: http://www.WeinschelAssociates.com
EMAIL: sales@WeinschelAssociates.com

DIGITAL PROGRAMMABLE ATTENUATOR
MODEL DA13



DC – 13.0 GHz **0.3 WATT**

Overview

The DA Series of Digital Attenuators represents the latest in programmable attenuator technology. The DA Series combines the rugged design and superior performance that comes standard with Weinschel Associates products with modern innovations to achieve new levels of ease of integration and price performance.

The DA Series is ideal for a multitude of applications including:

- ***Test Instrumentation***
- ***Base Station Infrastructure***
- ***Broadband Telecommunications***
- ***Microwave and VSAT Radios***
- ***Military***

Features

- ***Broadband Frequency Coverage***
- ***High Accuracy and Repeatability***
- ***Easy Programmability***
  - ***USB and Wireless Interfaces***
  - ***Software Driver/Application***
- ***Rugged Construction***

Specifications

Frequency Range: DC—13.0 GHz

Attenuation Range:

Model DA13-30:	30 dB
Model DA13-60:	60 dB
Model DA13-90:	90 dB

Step Size: 0.5 dB

Insertion Loss (max):

Model	Insertion Loss vs Freq (GHz)		
	DC – 4.0	4.0 – 8.0	8.0 – 13.0
DA13-30	4.0	5.0	6.0
DA13-60	8.0	10.0	12.0
DA13-90	12.0	15.0	18.0

VSWR (max): 1.50:1

Accuracy: ± 0.5 dB Typical

Switching Speed: <100 ns

Input power for 0.1 dB Compression: +22 dBm

Input Third Order Intercept Point: +32 dBm

Power Rating: 0.3 Watt CW, +25 dBm max

Phase Shift with Change in Attenuation:
1° / dB x f (GHz) maximum

Temperature:

Operating:	-55 to + 85 °C
Storage:	-60 to +125 °C

Connectors: Type N, SMA, and TNC stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Programming Interface:

Options:	USB-2.0
	RS-232
	802.11g Wireless
	Manual Control
Software:	LabView Driver
	Standalone Program/API

Input Power Requirement: +12Vdc @ TBD mA

Options:	AC Power Adapter
	EMI Feedthru

Available 1st Quarter 2007

PRECISION RF ADAPTERS
IN-SERIES AND BETWEEN SERIES

In-Series Precision RF Adapters					
Model Number	Connectors	Frequency Range DC - (GHz)	VSWR (max)	Insertion Loss (dB, max)	Page No.
WA1513-33	N (f) - N (f)	18	1.15	0.25	128
WA1513-44	N (m) - N (m)	18	1.15	0.25	128
WA1587-11	SMA (f) - SMA (f)	26.5	1.2	0.5	130
WA1587-12	SMA (f) - SMA (m)	26.5	1.2	0.5	130
WA1587-22	SMA (m) - SMA (m)	26.5	1.2	0.5	130

Between-Series Precision RF Adapters					
Model Number	Connectors	Frequency Range DC - (GHz)	VSWR (max)	Insertion Loss (dB, max)	Page No.
WA1548-13	SMA (f) - N (f)	18	1.10	0.43	129
WA1548-14	SMA (f) - N (m)	18	1.10	0.43	129
WA1548-23	SMA (m) - N (f)	18	1.10	0.43	129
WA1548-24	SMA (m) - N (m)	18	1.10	0.43	129
WA7002-13	SMA (f) - N (f)	18	1.12	0.5	131
WA7002-14	SMA (f) - N (m)	18	1.12	0.5	131
WA7002-23	SMA (m) - N (f)	18	1.12	0.5	131
WA7002-24	SMA (m) - N (m)	18	1.12	0.5	131

TEL: 877.948.8342 / 301.963.4630 ♦ Fax: 301.963.8640
WEB: http://www.WeinschelAssociates.com
EMAIL: sales@WeinschelAssociates.com

Precision Coaxial Adapter MODEL WA1513

DC – 18.0 GHz Type N to Type N

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC—18.0 GHz

Temperature Range: -55°C to +85°C

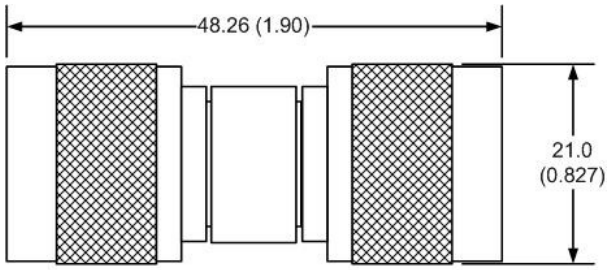
Construction: Stainless Steel bodies, beryllium copper with gold plated female contacts, stainless steel male contacts.

Connectors: Type N per MIL-STD-348 interface dimensions mate non-destructively with MIL-C-39012 connectors.

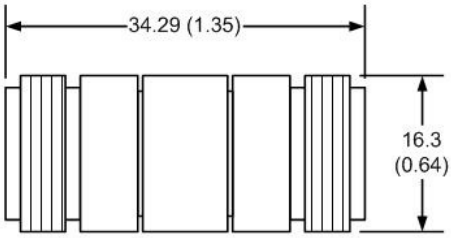
Weight:

WA1513-33	43g (1.5 oz)
WA1513-44	51g (1.8 oz)

Physical Dimensions:



MODEL 1513-44



MODEL 1513-33

Maximum VSWR	
Frequency (GHz)	**VSWR**
DC—18.0	**1.12 per adapter**

Insertion Loss		
Frequency (GHz)	**Max. Ins Loss**	**Repeatability**
DC—18.0	**0.25**	**0.02**

Precision Coaxial Adapter MODEL WA1548

DC – 18.0 GHz Type SMA to Type N

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC—18.0 GHz

Temperature Range: -55°C to +85°C

Construction: Stainless Steel bodies, beryllium copper with gold plated female contacts, stainless steel male contacts.

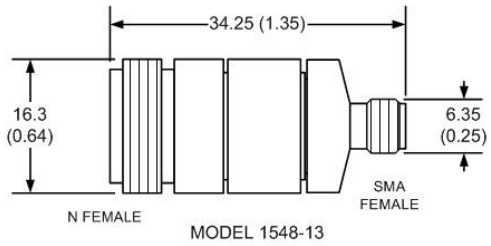
Connectors: Types N and SMA per MIL-STD-348 interface dimensions mate non-destructively with MIL-C-39012 connectors. Coupling Torque 14 in-lbs for N-Type and 8 in-lbs for SMA.

Weight: 49g (1.72 oz), max

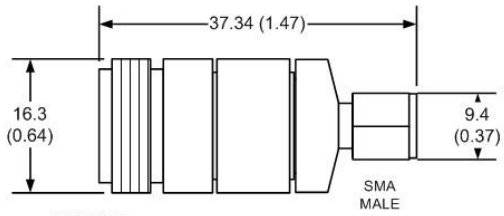
Maximum VSWR	
Frequency (GHz)	**VSWR**
DC—18.0	1.10 per adapter

Insertion Loss		
Frequency (GHz)	**Max. Ins Loss**	**Repeatability**
DC—12.4	0.40	0.01
12.4—18.0	0.43	0.02

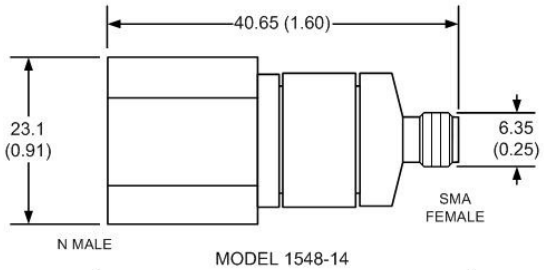
Physical Dimensions:



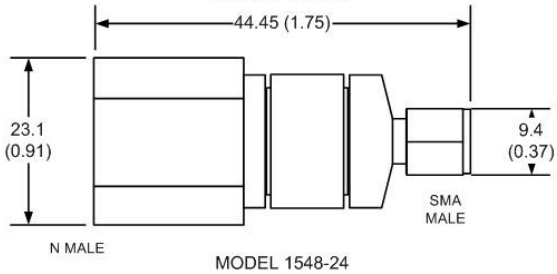
MODEL 1548-13



MODEL 1548-23



MODEL 1548-14



MODEL 1548-24

Precision Coaxial Adapter MODEL WA1587

DC – 26.5 GHz SMA to SMA

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC—26.5 GHz

Temperature Range: -55°C to +85°C

Construction: Stainless Steel body, beryllium copper with gold plated female contacts, stainless steel male contacts.

Connectors: SMA connectors per MIL-STD-348 interface dimensions mate non-destructively with MIL-C-39012 connectors.

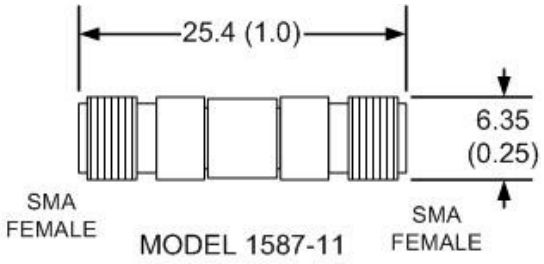
Weight:

WA1587-11	35g (1.2 oz)
WA1587-12	35g (1.2 oz)
WA1587-22	35g (1.2 oz)

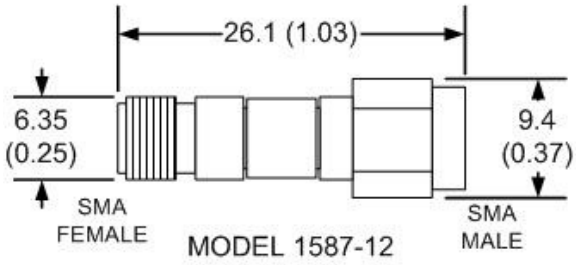
Maximum VSWR	
Frequency (GHz)	**VSWR**
DC—18.0	1.15
18.0—26.5	1.20

Insertion Loss		
Frequency (GHz)	**Max. Ins Loss**	**Repeatability**
DC - 12.4	0.30	0.01
12.4 -18.0	0.40	0.02
18.0 - 26.5	0.50	0.02

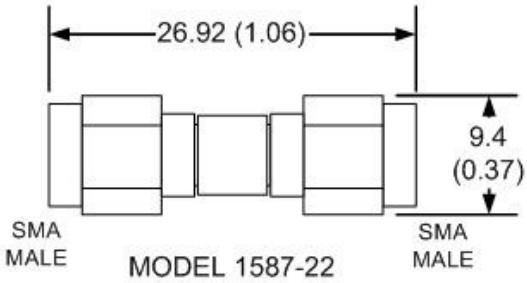
Physical Dimensions:



MODEL 1587-11



MODEL 1587-12



MODEL 1587-22

Precision Coaxial Adapter MODEL WA7002

DC – 18.0 GHz Type SMA to Type N

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC—18.0 GHz

Temperature Range: -55°C to +85°C

Construction: Stainless Steel bodies, beryllium copper with gold plated female contacts, stainless steel male contacts.

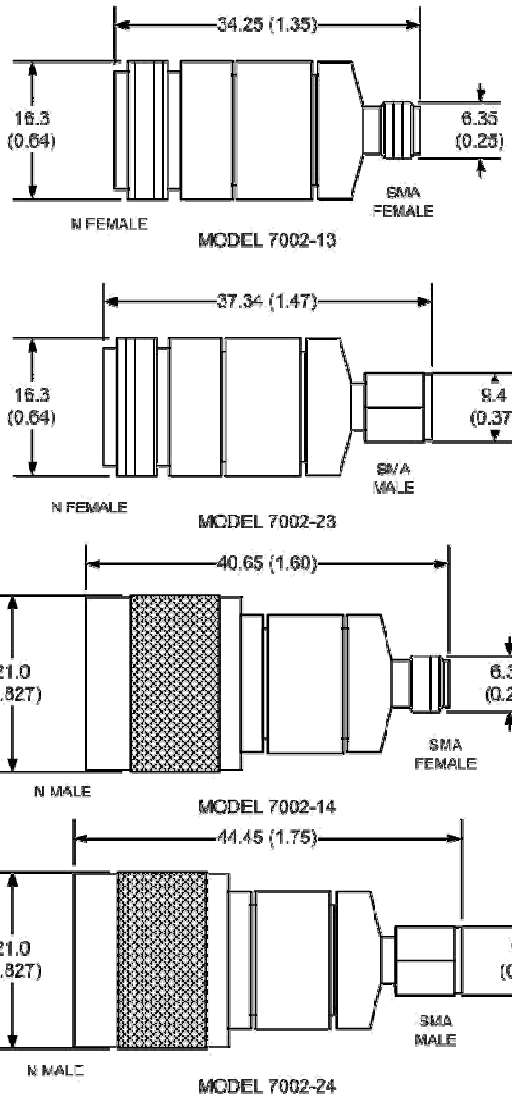
Connectors: Types N and SMA per MIL-STD-348 interface dimensions mate non-destructively with MIL-C-39012 connectors.

Weight: 49g (1.72 oz), max

Maximum VSWR	
Frequency (GHz)	**VSWR**
DC—18.0	1.12 per adapter

Insertion Loss		
Frequency (GHz)	**Max. Ins Loss**	**Repeatability**
DC—12.4	0.40	0.01
12.4—18.0	0.50	0.02

Physical Dimensions:



STUB TUNERS
0.2 – 13.0 GHz

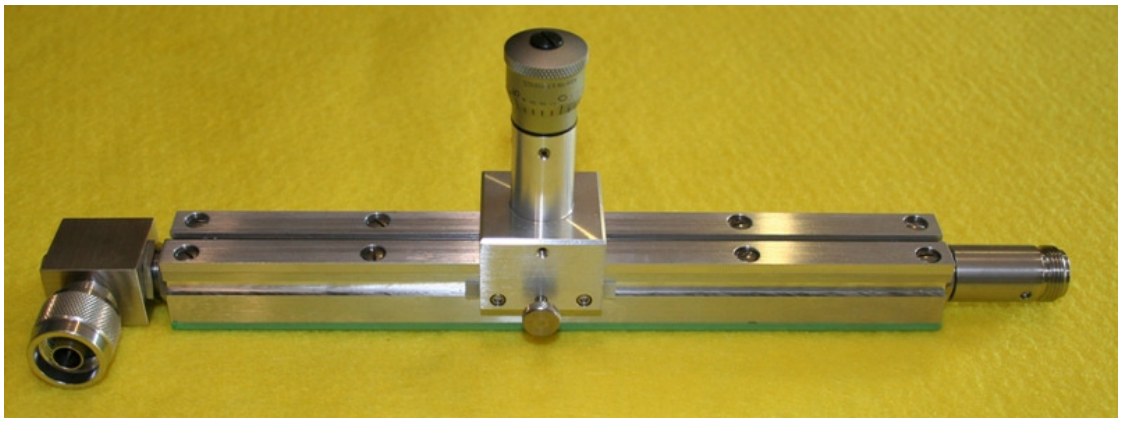
Double Stub and Sliding Screw Tuners					
Model Number	Frequency Range (GHz)	Insertion Loss (dB, max)	Notch Depth (dB)	Connectors	Page No.
WA200261	0.75 to 1.24	0.2	>20	N	133
DS-109LL	0.2 to 2.0	0.5	>40	N	134
DS-109L	0.4 to 4.0	0.5	>40	N	134
DS-109	0.75 to 13.0	0.5	>40	N	134

Features

Precision Operation: Stub Tuners allow precision matching within RF systems and subsystems to ensure optimum power transmission from source to load.

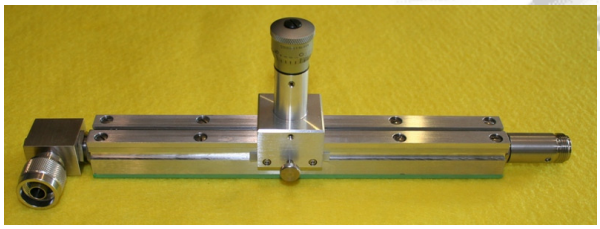
Broadband Operation: Each tuner is design to operate over a wide range of frequencies.

Mechanical Locking: Rugged mechanical locking mechanisms are employed to secure the tuner in the optimal configuration.



TUNER MODEL WA200261

0.75 – 1.24 GHz 300 WATTS



Features

Optimizes transmitter performance. This Slide-Screw Tuner is capable of adjusting a source or load VSWR of 2:1 to reduce reflected power to 1% maximum of incident. Designed to meet MIL-A-3933 environmental specifications. Unit may be mounted in a horizontal or vertical position. Convection cooled, full power rating without forced air cooling.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 0.75 - 1.24GHz

Nominal Insertion Loss: <0.2 dB

Tuning: <1 %

Power Rating: 300 watts average, 300 Volt peak voltages over the operating temperature range. 3 kW peak.

Temperature Range:
-55°C to +125°C storage
0°C to +90°C operating

Operation: Patented Manual locking Micrometer adjustment mechanism.

Construction: Clear iridite aluminum alloy body with passivated stainless steel connectors. Gold plated beryllium copper female contacts, stainless steel male contacts.

Connectors: Type N stainless steel M/F connectors per MIL-STD-348A, interface dimensions mate nondestructively with MIL-C-39012.

Weight: 0.51 kg/ 1.13 lb.

Physical Dimensions:

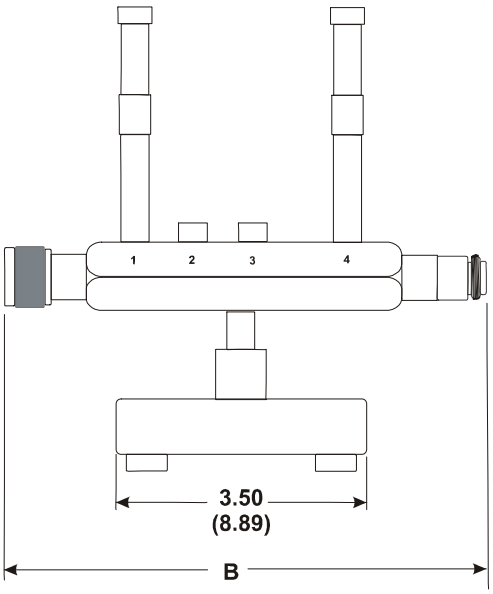
Length:	**280 (11.0) max**
Width:	**50.8 (2.0) max**
Height:	**83.8 (3.3) max**

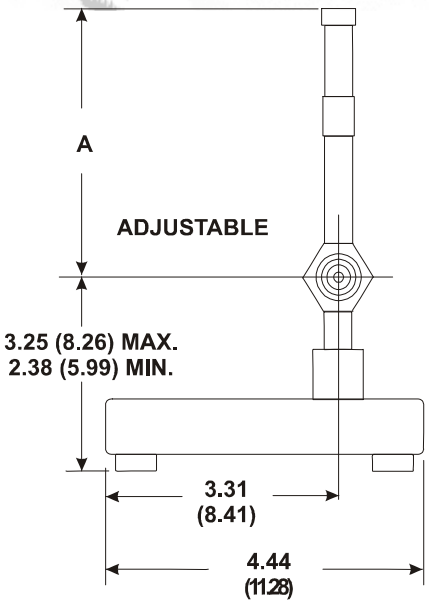
Note: Dimensions are given in mm (inches) unless otherwise specified.

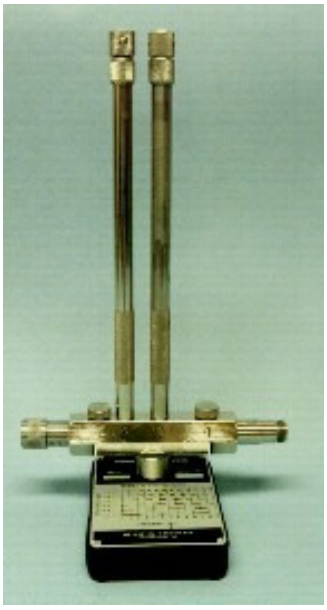
Note: Design protected by patent.

Double Stub Tuner MODEL DS-109

40 MHz – 13.0 GHz







Specifications

Nominal Impedance: 50 ohms

Matching Range: From 7:1 to 1.00 within tuner frequency range.

Dimensions:

Model No.	DS-109	DS-109L	DS-109LL**
Frequency	0.75 – 13.0 GHz	0.4 – 4.0 GHz	0.2 – 2.0 GHz
Length of Stub	70.5 cm.	38cm.	53 cm.
Net Weight	5 lbs. (2.56 kg)	6 lbs. (2.73 kg)	12 lbs. (5.45 kg)
Shipping Weight	8 lbs. (3.64 kg)	9 lbs. (4.38 kg)	15 lbs. (6.82 kg)

Model No.	DIM "A" *	DIM "B"
DS-109 DS-109L DS-109LL	18.50 (46.49) 32.50 (82.55) 63.25 (160.66)	7.38 (18.75) 7.38 (18375) 12.00 (30.48)

Connectors: Tuners are equipped with close tolerance, stainless steel Type N, one male, one female, for long life with minimum wear.

Construction:

* Stub height is adjustable, maximum value given

** Two pedestals are used for DS-109LL

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified

PRECISION ATTENUATOR SETS

DC – 26.5 GHz **2—5 WATTS**

Precision Coaxial Attenuator Sets							
Model Number	Frequency Range DC - (GHz)	Average Power (W)	Peak Power (kW)	Standard* Attenuation Values (dB)	Connectors	Attenuators Used	Page No.
WAS-6	18	5	1	3,6,10,20	N	4 x WA2	139
WAS-16	18	5	1	1,3,6,10,20,30	7 mm	6 x WA17	136
WAS-18	18	5	1	1,3,6,10,20,30	Precision N	6 x WA44	137
WAS-19	26.5	2	0.5	3,6,10,20	SMA	4 x WA9	138

* Other configurations are available

Features

Calibration Data: Attenuators are calibrated at 1 GHz intervals. Option 890 adds calibration data at 0.1 GHz and at 0.5 GHz intervals. DC Resistance values also provided.

Certificate of Calibration: Provided with each set, contains all calibration data.

Storage Case: Compact storage case organizes and protects the attenuators and their calibration data.

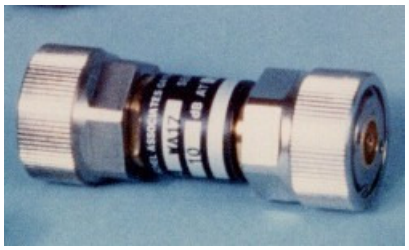
Custom Sets Available: Build your own set from our extensive offering of Fixed Coaxial Attenuators.

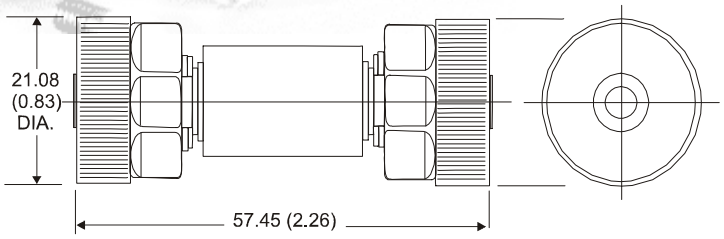
Custom solutions at “off-the-shelf” prices

ATTENUATOR SET MODEL WAS16

1 Each WA17-1, WA17-3, WA17-6, WA17-10, WA17-20, WA17-30

DC – 18.0 GHz **5 WATTS**





Features

The model WAS16 comes complete with Certificate of Calibration booklet and hardwood protective case for storing your attenuators. The WAS16 consists of 6 calibrated model WA17 attenuators, 1, 3, 6, 10, 20, and 30 dB. The Following data for each attenuator are provided.

All units are swept test for insertion loss and VSWR. A calibration certificate with test results is provided with each attenuator, including frequency sensitivity.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC to 18.0 GHz

Maximum Deviation From Nominal Value (including frequency sensitivity):

1 dB:	± 0.5 dB
3, 6 dB:	± 0.3 dB
10, 20 dB:	± 0.5 dB
30 dB:	± 0.75 dB

Maximum VSWR:

DC to 4.0 GHz	1.10
4.0 to 12.4 GHz	1.15
12.4 to 18 GHz	1.20

Power Rating: 5 watts average, 1kW peak at 25°C ambient temperature, de-rated linearly to: 4 watts at 45°C, 3 watts at 65°C, 2 watts at 85°C).

Power Coefficient: < 0.005 dB / dB x W

Temperature Coefficient: < 0.0004 dB / dB x °C

Temperature Range: -50°C to + 85°C

Case Dimensions: 10 5/8 in. (269.9 mm) long x 8 in. (203.2 mm) wide x 2 3/8 in. (60.3 mm) high.

Weight: Net 3 lb., 13 oz. (1.73 kg); Shipping weight, 5 lbs. (2.56 kg)

Connectors: Precision 7mm sexless stainless steel connectors, meets or exceeds requirements of IEEE Standard 287 and mates with all connectors conforming to design 2 of that standard.

Coupling Torque: 14 ± 1 inch pounds

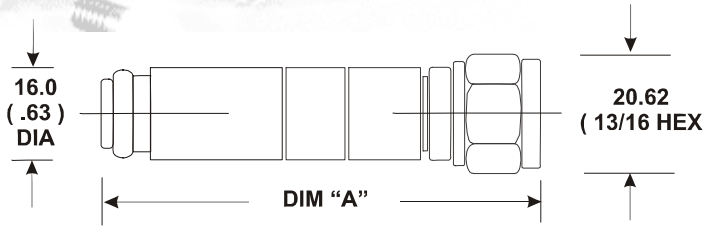
Construction: Brass body, plated, stainless steel and beryllium copper or silver alloy connectors.

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified.

PRECISION ATTENUATOR SET MODEL WAS18

1 Each WA44-1, WA44-3, WA44-6, WA44-10, WA44-20, WA44-30

DC – 18.0 GHz **5 WATTS**



Features

The model WAS18 comes complete with Certificate of Calibration and hardwood protective case for storing your attenuators. The WAS18 consists of 6 calibrated model WA44 attenuators, 1, 3, 6, 10, 20, and 30 dB. The Following data for each attenuator are provided.

3 DC resistance values and insertion loss every 1.0 GHz from DC through 18.0 GHz.

✪ R.F Calibration Option -890 (42 frequencies) 100, 500, 1,000 and every 500 MHz to 16,000; 16,000 to 18,000 every 250 MHz.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC to 18.0 GHz

Maximum Deviation From Nominal Value (including frequency sensitivity):

1 dB:	± 0.5 dB
3, 6 dB:	± 0.3 dB
10, 20 dB:	± 0.5 dB
30 dB:	± 1.00 dB

Maximum VSWR:

DC to 4.0 GHz	1.15
4.0 to 12.4 GHz	1.20
12.4 to 18 GHz	1.25

Power Rating: 5 watts average, 1kW peak. (Maximum rated average power to 25°C ambient temperature, de-rated linearly to: 4 watts at 45°C, 3 watts at 65°C, 2 watts at 85°C).

Power Coefficient: < 0.005 dB / dB x W

Temperature Coefficient: < 0.0004 dB / dB x °C

Temperature Range: -50°C to + 85°C

Case Dimensions: 10 ¾ in. (273 mm) long x 8 ½ in. (215.9 mm) wide x 2 ½ in. (63.5 mm) high.

Weight: Net 2 lb., 8 oz. (1.12 kg); Shipping weight, 3 lbs. (1.36 kg)

Connectors: Type N connectors, stainless steel, conform to MIL-C-39012 lab standard test connector interface.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Note: Dimensions are given n mm (inched). Dimensions are maximum unless otherwise specified.

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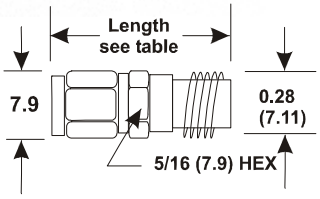
ATTENUATOR SET MODEL WAS19

1 Each WA9-3, WA9-6, WA9-10, WA9-20

DC – 26.0 GHz **2 WATTS**



Features

The model WAS19 comes complete with Certificate of Calibration and hardwood protective case for storing your attenuators. The WAS19 consists of 4 calibrated model WA9 attenuators, 3, 6, 10, and 20 dB. The Following data for each attenuator are provided.

3 DC resistance values and insertion loss every 1.0 GHz from DC through 26.0 GHz.

✪ R.F Calibration Option -890 (42 frequencies) 100, 500, 1,000 and every 500 MHz to 16,000; 16,000 to 18,000 every 250 MHz.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC to 26.0 GHz

Maximum Deviation From Nominal Value (including frequency sensitivity):

3 dB:	± 0.5 dB
6 dB:	± 0.6 dB
10 dB:	± 0.8 dB
20 dB:	± 1.0 dB

Maximum VSWR:

DC to 4.0 GHz	1.10
4.0 to 8.0 GHz	1.15
8.0 to 12.4 GHz	1.20
12.4 to 18.0 GHz	1.25
18.0 to 26 GHz	1.35

Power Rating: 2 watts average, 500W peak. (Maximum rated average power to 25°C ambient temperature, de-rated linearly to: 1 watt at 75°C and 0 watts at 125°C).

Power Coefficient: < 0.005 dB / dB x W

Temperature Coefficient: < 0.0004 dB / dB x °C

Temperature Range: -55°C to + 125°C

Case Dimensions: 5 ½ in. (139.7 mm) long x 4 7/8 in. (123.8 mm) wide x 2 3/8 in. (60.3 mm) high.

Weight: Net 1 lb., 4 oz. (0.56 kg); Shipping weight, 2 lbs. 8 oz. (1.14 kg)

Connectors: SMA connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

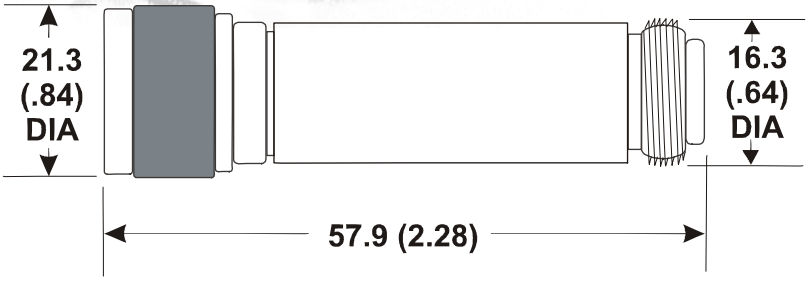
Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified.

ATTENUATOR SET MODEL WAS6

1 Each WA2-3, WA2-6, WA2-10, WA2-20

DC – 18.0 GHz **5 WATTS**



Features

The model WAS6 comes complete with Certificate of Calibration and hardwood protective case for storing your attenuators. The WAS6 consists of 4 calibrated model WA2 attenuators, 3, 6, 10, and 20 dB. The Following data for each attenuator are provided.

3 DC resistance values and insertion loss every 1.0 GHz from DC through 18.0 GHz. (18 frequencies)

✪ R.F Calibration Option -890 (42 frequencies) 100, 500, 1,000 and every 500 MHz to 16,000; 16,000 to 18,000 every 250 MHz.

These attenuators are designed to meet environmental tests of MIL-A-3933.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: DC to 18 GHz

Maximum Deviation From Nominal Value (including frequency sensitivity):

3, 6 dB:	± 0.3 dB
10, 20 dB:	± 0.5 dB

Power Rating: 5 watts average, 1kW peak. (Maximum rated average power to 25°C ambient temperature, de-rated linearly to 0 watts at 125°C).

Maximum VSWR:

DC to 4.0 GHz	1.15
4.0 to 8.0 GHz	1.20
8.0 to 12.4 GHz	1.25
12.4 to 18 GHz	1.40

Power Coefficient: < 0.005 dB / dB x W

Temperature Coefficient: < 0.0004 dB / dB x °C

Temperature Range: -55°C to + 125°C

Case Dimensions: 4 ¾ in. (120.6 mm) long x 4 ½ in. (114.3 mm) wide x 2 ¾ in. (44.5 mm) high.

Weight: Net 1 lb., 13 oz. (0.82 kg); Shipping weight, 3 lbs. (1.36 kg)

Connectors: Stainless steel Type N, male and female each attenuator. Connector mate nondestructively with Type N per MIL-C39012 and MIL-C-71.

Construction: Passivated stainless steel body and connectors. Beryllium copper female contacts, stainless steel male contacts.

Note: Dimensions are given in mm (inched). Dimensions are maximum unless otherwise specified.

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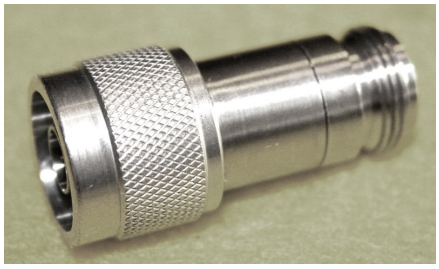
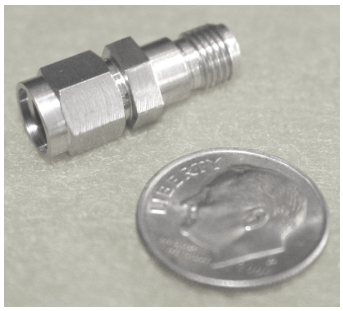
DC BLOCKS

10 MHz – 18.0 GHz **50—200 VOLTS**

DC Blocks						
Model Number	Frequency Range (GHz)	Insertion Loss (dB, max)	VSWR (max)	Working Voltage (V)	Connectors	Page No.
WA6046/6	0.01 to 6	0.5	1.35	50	N	141
WA6055H/6	0.01 to 6	0.5	1.35	50	SMA	143
WA6046	0.01 to 18	0.8	1.5	50	N	142
WA6055H	0.01 to 18	0.8	1.5	50	SMA	144
WA7046/6	0.01 to 6	0.5	1.35	100	N	145
WA7055H/6	0.01 to 6	0.5	1.35	100	SMA	147
WA7046	0.01 to 18	0.8	1.5	100	N	146
WA7055H	0.01 to 18	0.8	1.5	100	SMA	148
WA8046/6	0.01 to 6	0.5	1.35	200	N	149
WA8055H/6	0.01 to 6	0.5	1.35	200	SMA	151
WA8046	0.01 to 18	0.8	1.5	200	N	150
WA8055H	0.01 to 18	0.8	1.5	200	SMA	152



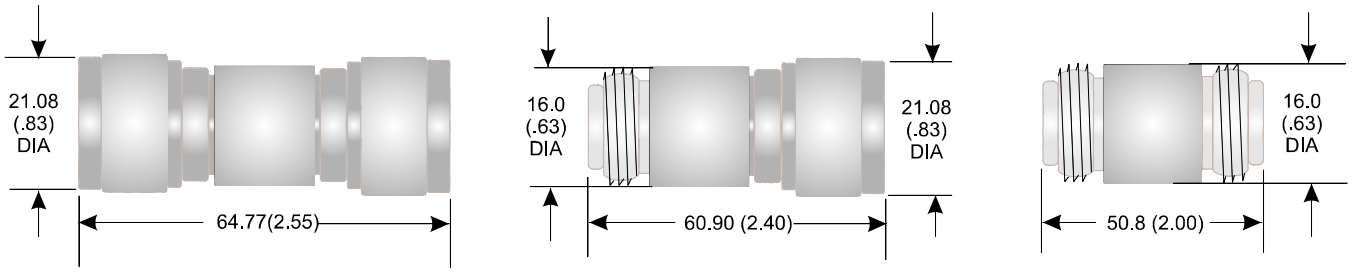


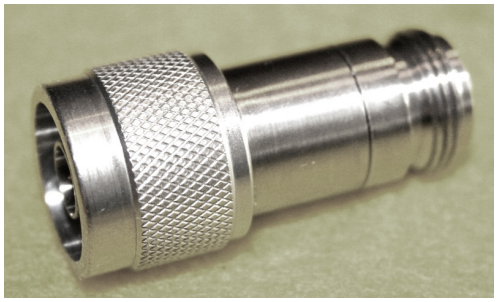
DC BLOCK

MODEL WA6046/6

10 MHz – 6.0 GHz

50 VOLTS





Features

Inner Only - 6.0 GHz N DC Block

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Maximum VSWR: 1.50

Maximum Insertion Loss: 0.8 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—6.0	0.25 0.50	1.20 1.35

Voltage: 50 volts

Temperature Range: -65°C to + 125°C

Connectors: N M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Connectors	Length	Wt
7046/6-34	Male – Female	44.7 (1.76)	
7046/6-33	Female – Female	Call	N/A
7046/6-44	Male - Male	Call	N/A

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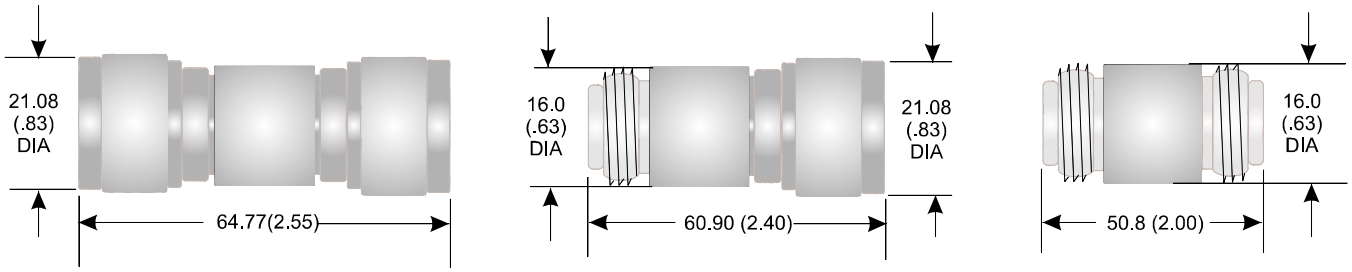
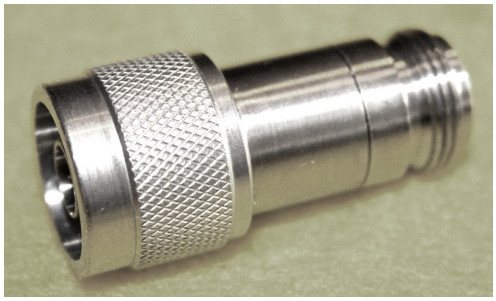
DC BLOCK

MODEL WA6046

10 MHz – 18.0 GHz

50 VOLTS





Features

Inner Only - 18.0 GHz N DC Block

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Maximum VSWR: 1.50

Maximum Insertion Loss: 0.8 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0	0.25	1.20
1.0—4.0	0.50	1.30
4.0—8.0	0.80	1.40
8.0—18.0	0.80	1.50

Voltage: 50 volts

Temperature Range: -65°C to + 125°C

Connectors: N M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Connectors	Length	Wt
7046-34	Male – Female	44.7 (1.76)	
7046-33	Female – Female	Call	N/A
7046-44	Male - Male	Call	N/A

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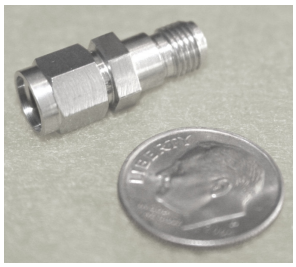
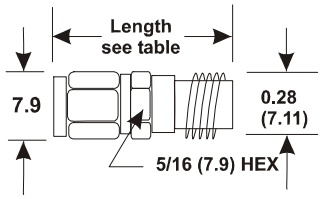
DC BLOCK MODEL WA6055H/6

10 MHz – 6.0 GHz **50 VOLTS**





Features

Inner Only - 6.0 GHz SMA DC Block

5/16 hex provides secure torquing surface for mating in hard to get at places.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 6.0 GHz

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—6.0	0.25 0.50	1.20 1.35

Voltage: 50 volts

Temperature Range: -65°C to + 125°C

Connectors: SMA M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

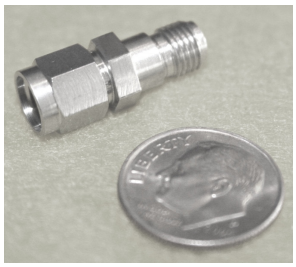
Physical Dimensions:

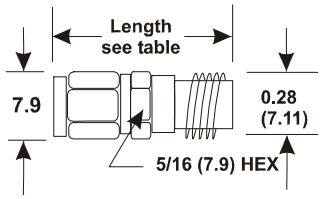
Model	Conn.	Length	Wt.
7055H/6-21	Male – Female	22.35 (0.88)	3.9 gm 0.14 oz
7055H/6-11	Female – Female	Call	N/A
7055H/6-22	Male - Male	Call	N/A

Note: Dimension are given in mm (inches). Dimensions are maximum unless otherwise specified.

DC BLOCK MODEL WA6055H

10 MHz – 18.0 GHz 50 VOLTS





Features

Inner Only - 18.0 GHz SMA DC Block

5/16 hex provides secure torquing surface for mating in hard to get at places.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—4.0 4.0—8.0 8.0—18.0	0.25 0.50 0.80 0.80	1.20 1.30 1.40 1.50

Voltage: 50 volts

Temperature Range: -65°C to + 125°C

Connectors: SMA M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Conn.	Length	Wt.
7055H-21	Male – Female	22.35 (0.88)	3.9 gm 0.14 oz
7055H-11	Female – Female	Call	N/A
7055H-22	Male - Male	Call	N/A

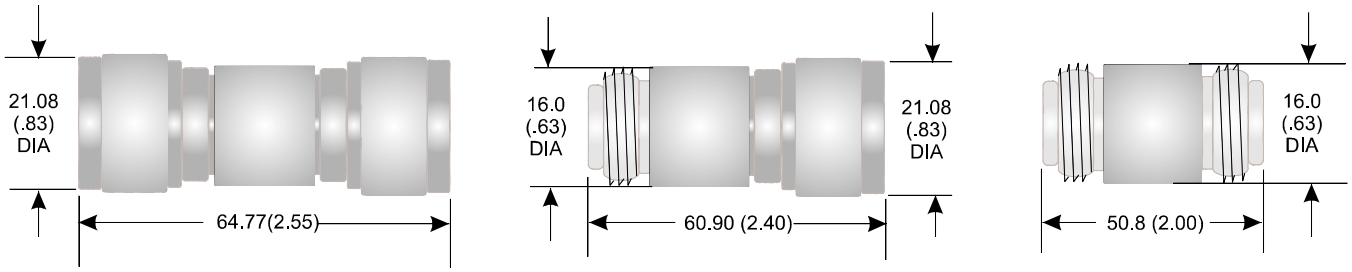
Note: Dimension are given in mm (inches). Dimensions are maximum unless otherwise specified.

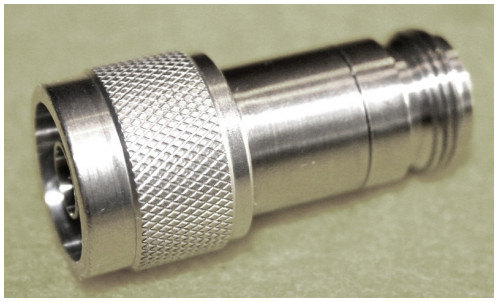
DC BLOCK

MODEL WA7046/6

10 MHz – 6.0 GHz

100 VOLTS





Features

Inner Only - 6.0 GHz N DC Block

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Maximum VSWR: 1.50

Maximum Insertion Loss: 0.8 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—6.0	0.25 0.50	1.20 1.35

Voltage: 100 volts

Temperature Range: -65°C to + 125°C

Connectors: N M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Connectors	Length	Wt
7046/6-34	Male – Female	44.7 (1.76)	
7046/6-33	Female – Female	Call	N/A
7046/6-44	Male - Male	Call	N/A

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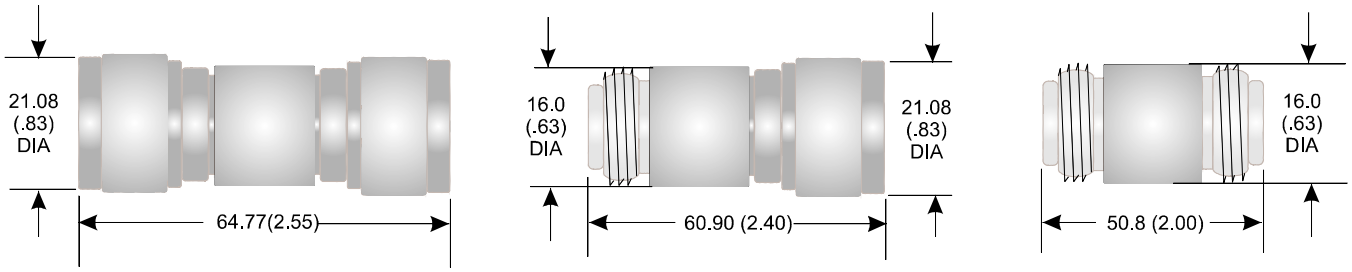
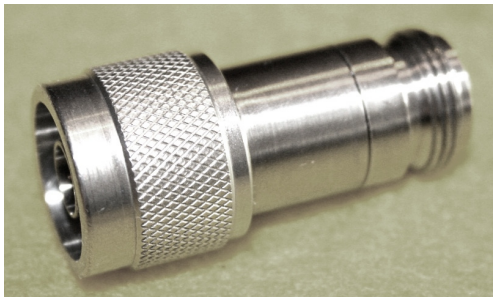
DC BLOCK

MODEL WA7046

10 MHz – 18.0 GHz

100 VOLTS





Features

Inner Only - 18.0 GHz N DC Block

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Maximum VSWR: 1.50

Maximum Insertion Loss: 0.8 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0	0.25	1.20
1.0—4.0	0.50	1.30
4.0—8.0	0.80	1.40
8.0—18.0	0.80	1.50

Voltage: 100 volts

Temperature Range: -65°C to + 125°C

Connectors: N M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Connectors	Length	Wt
7046-34	Male – Female	44.7 (1.76)	
7046-33	Female – Female	Call	N/A
7046-44	Male - Male	Call	N/A

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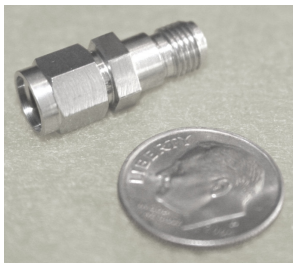
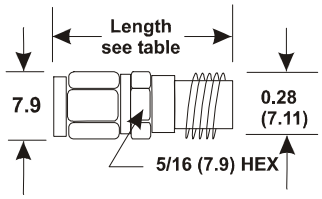
DC BLOCK

MODEL WA7055H/6

10 MHz – 6.0 GHz

100 VOLTS





Features

Inner Only - 6.0 GHz SMA DC Block

5/16 hex provides secure torquing surface for mating in hard to get at places.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 6.0 GHz

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—6.0	0.25 0.50	1.20 1.35

Voltage: 100 volts

Temperature Range: -65°C to + 125°C

Connectors: SMA M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Conn.	Length	Wt.
7055H/6-21	Male – Female	22.35 (0.88)	3.9 gm 0.14 oz
7055H/6-11	Female – Female	Call	N/A
7055H/6-22	Male - Male	Call	N/A

Note: Dimension are given in mm (inches). Dimensions are maximum unless otherwise specified.

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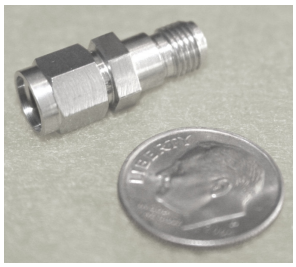
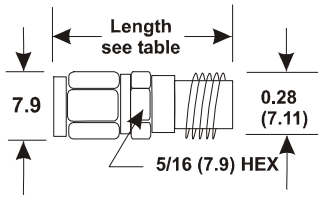
DC BLOCK

MODEL WA7055H

10 MHz – 18.0 GHz

100 VOLTS





Features

Inner Only - 18.0 GHz SMA DC Block

5/16 hex provides secure torquing surface for mating in hard to get at places.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0	0.25	1.20
1.0—4.0	0.50	1.30
4.0—8.0	0.80	1.40
8.0—18.0	0.80	1.50

Voltage: 100 volts

Temperature Range: -65°C to + 125°C

Connectors: SMA M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Conn.	Length	Wt.
7055H-21	Male – Female	22.35 (0.88)	3.9 gm 0.14 oz
7055H-11	Female – Female	Call	N/A
7055H-22	Male - Male	Call	N/A

Note: Dimension are given in mm (inches). Dimensions are maximum unless otherwise specified.

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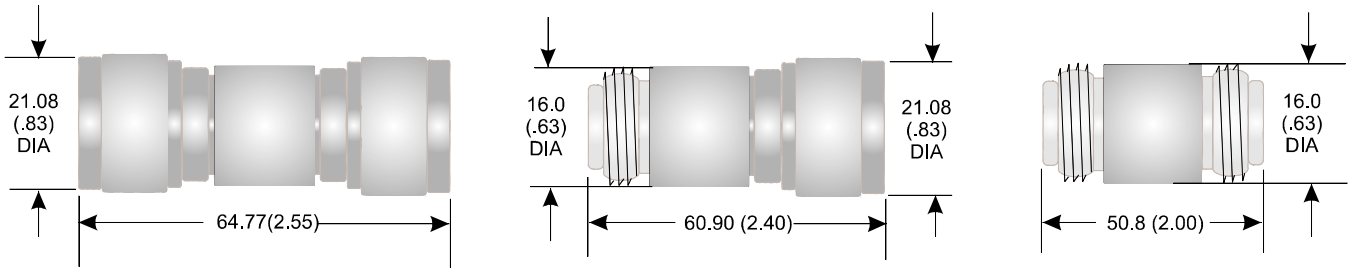
EMAIL: sales@WeinschelAssociates.com

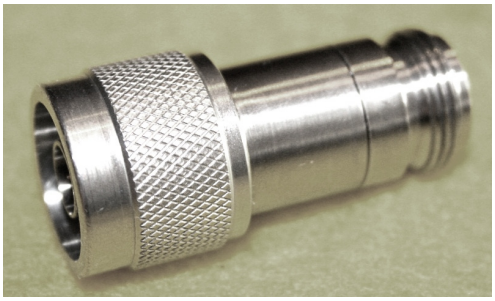
DC BLOCK

MODEL WA8046/6

10 MHz – 6.0 GHz

200 VOLTS





Features

Inner Only—6.0 GHz N DC Block

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 6.0 GHz

Maximum VSWR: 1.35

Maximum Insertion Loss: 0.5 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—6.0	0.25 0.50	1.20 1.35

Voltage: 200 volts

Temperature Range: -65°C to + 125°C

Connectors: N M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Connectors	Length	Wt
8046/6-34	Male – Female	44.7 (1.76)	
8046/6-33	Female – Female	Call	N/A
8046/6-44	Male - Male	Call	N/A

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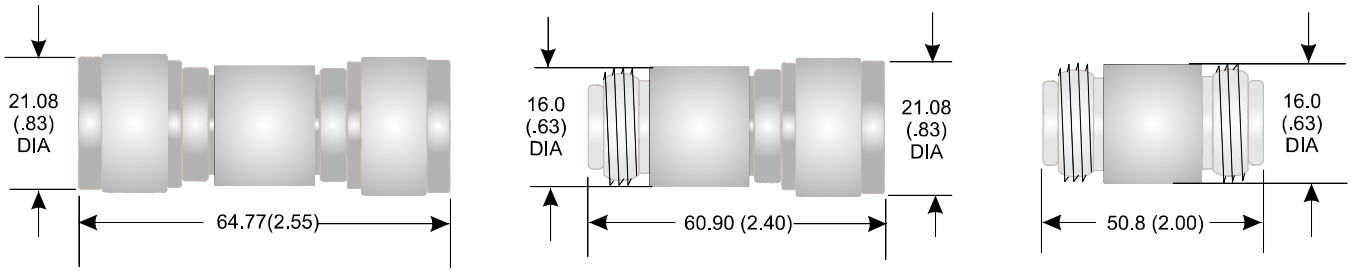
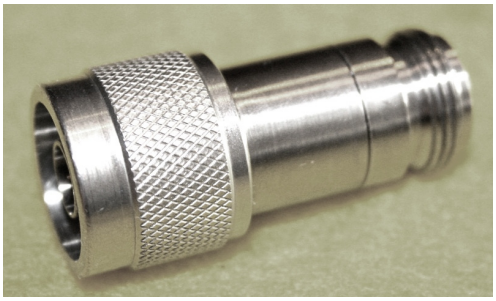
DC BLOCK

MODEL WA8046

10 MHz – 18.0 GHz

200 VOLTS





Features

Inner Only - 18.0 GHz N DC Block

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Maximum VSWR: 1.50

Maximum Insertion Loss: 0.8 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0	0.25	1.20
1.0—4.0	0.50	1.30
4.0—8.0	0.80	1.40
8.0—18.0	0.80	1.50

Voltage: 200 volts

Temperature Range: -65°C to + 125°C

Connectors: N M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

Model	Connectors	Length	Wt
8046-34	Male – Female	44.7 (1.76)	
8046-33	Female – Female	Call	N/A
8046-44	Male - Male	Call	N/A

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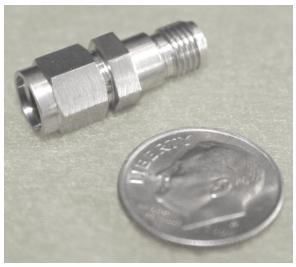
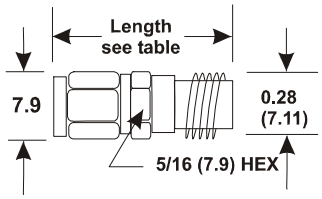
DC BLOCK MODEL WA8055H/6

10 MHz – 6.0 GHz 200 VOLTS





Features

Inner Only - 6 GHz SMA DC Block

5/16 hex provides secure torquing surface for mating in hard to get at places.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 6 GHz

Maximum VSWR: 1.35

Maximum Insertion Loss: 0.5 dB

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0 1.0—6.0	0.25 0.50	1.20 1.35

Voltage: 200 volts

Temperature Range: -65°C to + 125°C

Connectors: SMA M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

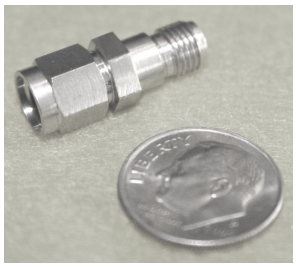
Model	Conn.	Length	Wt,
8055H/6-21	Male – Female	22.35 (0.88)	3.9 gm 0.14 oz
8055H/6-11	Female – Female	Call	N/A
8055H/6-22	Male - Male	Call	N/A

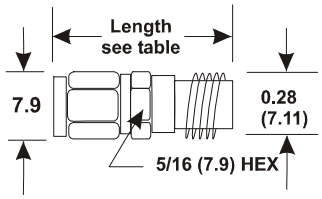
DC BLOCK

MODEL WA8055H

10 MHz – 18.0 GHz

200 VOLTS





Features

Inner Only - 18.0 GHz SMA DC Block

5/16 hex provides secure torquing surface for mating in hard to get at places.

Specifications

Nominal Impedance: 50 ohms

Frequency Range: 10 MHz to 18.0 GHz

Frequency GHz	Insertion Loss (dB)	VSWR (Max)
0.01—1.0	0.25	1.20
1.0—4.0	0.50	1.30
4.0—8.0	0.80	1.40
8.0—18.0	0.80	1.50

Voltage: 200 volts

Temperature Range: -65°C to + 125°C

Connectors: SMA M/F connectors per MIL-STD-348 Interface dimension mate nondestructively with MIL-C-39012 connectors.

Construction: Stainless steel body with stainless steel connectors with gold plated beryllium copper female contact and stainless steel male contact.

Physical Dimensions:

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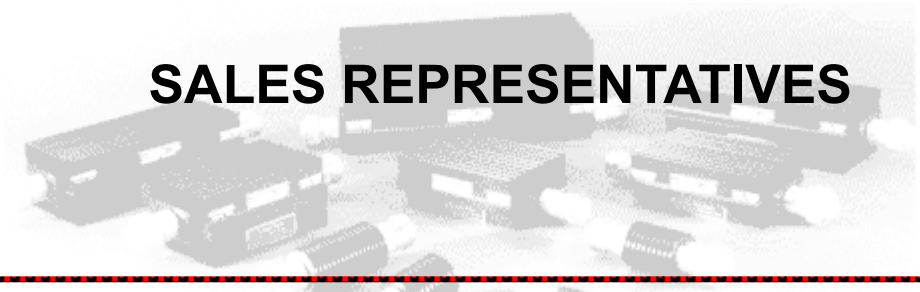
8055H-22	Male - Male	Call	N/A

Note: Dimension are given in mm (inches). Dimensions are maximum unless otherwise specified.

SALES REPRESENTATIVES



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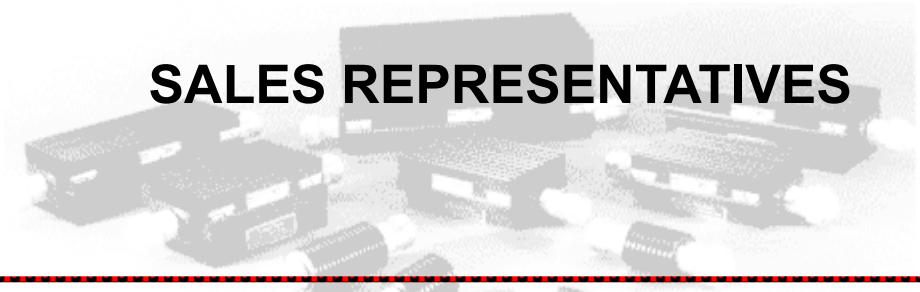

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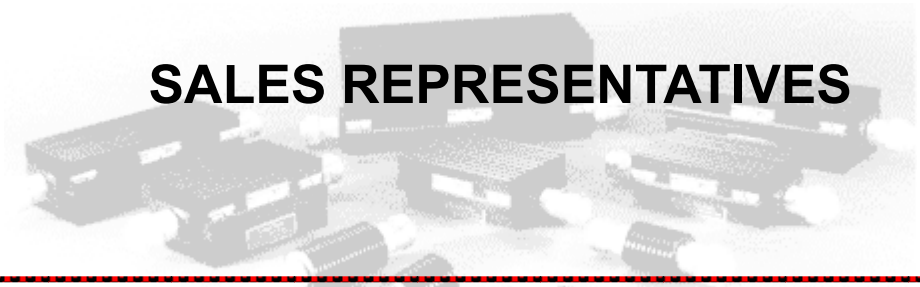

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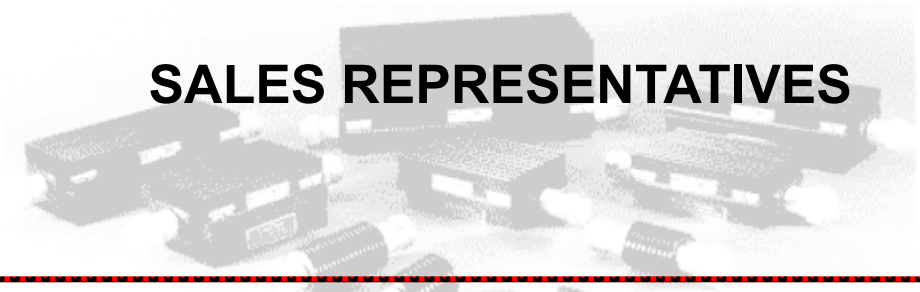

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Phone: +1.301.963.4630, Fax: +1.301.963.8640
e-mail: sales@weinschelassociates.com

For up to date Sales Representative information, visit our website: **http://www.weinschelassociates.com**

ORDERING INFORMATION

HOW TO ORDER: Please order by both catalogue number and description of the component to avoid confusion. Special features and configurations not listed in this catalogue may be available. Please contact the factory regarding any non-standard features.

WHERE TO ORDER: Address all purchase orders and other communication to:

Weinschel Associates
19212 Orbit Drive, Gaithersburg, MD 20879
Phone: 877.948.8342/301.963.4630
Fax: 301.963.8640
e-mail: sales@weinschelassociates.com

DOMESTIC TERMS: Formal price quotations remain in effect for 60 days unless otherwise stated. Standard payment terms for approved customers are Net 30 days. Where credit has not been established, payment must be arranged prior to shipment or COD. All pricing is FOB Gaithersburg, Maryland unless otherwise stated and includes commercial inspection and packaging for shipment. **All major credit cards are accepted.**

EXPORT TERMS: Payment terms are cash in advance or irrevocable Letter of Credit payable through a bank to be specified by Weinschel Associates. All prices are in US Dollars, FOB Gaithersburg, Maryland. All bank charges are to be paid by the customer.

SOURCE INSPECTION: When source inspection is required, an additional charge of either $100 or two (2%) of the purchase order value will be levied, whichever is greater.

CERTIFICATES OF COMPLIANCE: A Certificate of Compliance is shipped with every order along with the packing slip. Extra copies are available upon request at any time.

TEST DATA: Comprehensive test data is available for an extra charge. Weinschel Associates tests 100% of its shipped product against published specifications. Data is retained when required by the customer.

TECHNICAL CONSULATION: Our engineering department is available for informal and formal consultation on technical, calibration, and service issues. Call or e-mail the factory.

WARRANTY REPAIRS: In the event of a problem with an item, please contact the factory. If a return is necessary, a Return Material Authorization (RMA) number will be provided by which the returned item will be identified and repaired or replaced. Please provide complete details of the complaint along with contact and shipping information for the items return.

NON-WARRANTY REPAIRS: If return of an item is desired for non-warranty repair and/or calibration, please contact the factory. A Return Material Authorization (RMA) number will be provided by which the returned item will be identified. Upon receipt, an evaluation of the item will be performed and the price to repair or recalibrate will be provided for approval (unless pre-approved). Weinschel Associates furnishes full warranty on all repairs for 90 days following shipment.

SHIPPING INSTRUCTIONS: Weinschel Associates will use best judgment and best method shipping for your items. Special instructions will be followed.

SPECIFICATION CHANGES: Changes to specifications may occur at any time without notification and without any obligation to Weinschel Associates to revise previously sold items. We reserve the right to discontinue any item without notice.

CANCELLATIONS AND RETURNS: Order cancellation must be authorized by Weinschel Associates and the customer may incur a cancellation charge. All returns are subject to a restocking charge dependent upon elapsed time.

MAJOR CREDIT CARDS ACCEPTED