

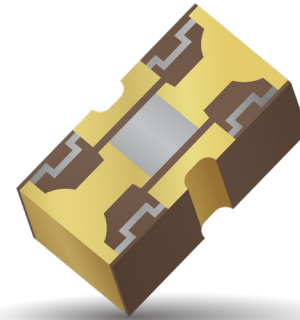
# AF Series 0603

## RF/Microwave Attenuator

### GENERAL DESCRIPTION

AVX's new RF/Microwave SMT Attenuator Series (AF) is manufactured with the highest quality materials for reliable and repeatable performance. These devices are constructed with Aluminum Nitride (AlN) and are available in a standard EIA 0603 case size. The AF Series exhibits excellent performance characteristics for the most demanding RF/Microwave applications

The AF series provides virtually flat loss over a broad frequency spectrum. Thin film metalization provides for very stable characteristics over temperature and time. Its balanced PI design provides even current distribution and accurate attenuation characteristics from DC to 20 GHz. It is designed to meet a wide range of RF and microwave large and small signal level applications. The AF is ideal for impedance matching, input padding, signal level runing, and many other critical RF/Microwave applications. The AF is rated highest power in class and is suitable for microstrip and CPW applications.



The non-magnetic termination is available providing a range of attachment options such as eutectic diebonding, conductive epoxies, and soldering. The AF is fully compatible with high speed automated pick-and-place processing.

**Note:** Consult Factory for other attenuation values, termination style and case sizes.

### HOW TO ORDER

<b>AF</b>	<b>0603</b>	<b>T</b>	<b>03</b>	<b>E</b>	<b>CA</b>	<b>T</b>	<b>D</b>
<b>Product Designation</b>	<b>Case Size</b>	<b>Power Rating:</b>	<b>Attenuation:</b>	<b>Configuration</b>	<b>Termination:</b>	<b>Packaging</b>	<b>Quantity</b>
		T = 1 W (0 to 6 dB) C = 3/4 W (7 to 10 dB)	0 to 10 dB	E = All Terminations wrapped and patterned ground plane	CA = Non-Mag Gold	T = Tape & Reel: 7" Reel, 1000 pcs. C = Cap Pack, 100 pcs. S = Snippet	D = 1000 B = 500 7 = 100 3 = 25

The above part number refers to an AF 0603 Case Size with an attenuation of 3dB, 1W Power Rating, wrapped and patterned ground plane configuration with Non-Mag Gold Termination and tape and reel packaging, 1000 pcs.

### FEATURES

- Thin Film Design
- Power Rating Up to 1 Watt
- Frequency Response +/-0.5dB
- Characterized to 20 GHz
- CPW and Microstrip Applications
- EIA 0603 SMT
- Highest Power in Class
- AlN construction
- Balanced Pi design
- Non-Magnetic
- RoHs compliant

### APPLICATIONS

- Telecommunications
- Satellite Communications
- Cellular Base Stations
- Microwave Radio
- ISM
- RF/Microwave Power
- Military/Aerospace
- Test and Measurement
- Impedance Matching
- Input Padding
- Signal Level Tuning
- Signal Conditioning

# AF Series 0603

## RF/Microwave Attenuator

### ELECTRICAL AND MECHANICAL SPECIFICATIONS

**NOMINAL IMPEDANCE:** 50 Ohms

**FREQUENCY RANGE:** DC to 20 GHz

**VALUES AVAILABLE:** 0 to 10 dB (1 dB increments)

**INPUT POWER CW:**

1:W: 0 to 6 dB

0.75W: 7 to 10 dB

**VSMR:** 1.25:1 typical

**FREQUENCY RESPONSE (dB):**

D.C. to 10 GHz:  $\pm 0.50$  dB

>10GHz:  $\pm$ dB

**SUBSTRATE MATERIALS:** AlN (1 to 10 dB)  
Al<sub>2</sub>O<sub>3</sub> (0 dB)

**RESISTORS:** Tantalum Nitride

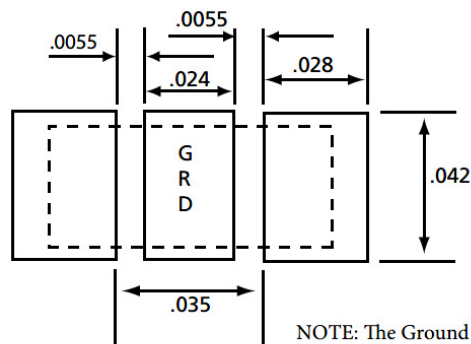
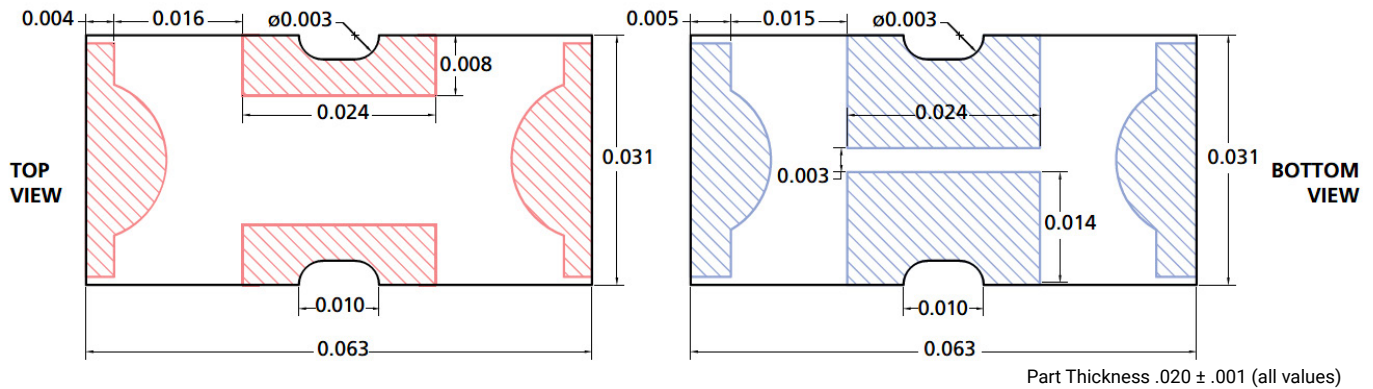
**TERMINAL:** Thin Film metalstack, Au

### ENVIRONMENTAL SPECIFICATIONS

**OPERATING TEMPERATURE:** -55°C to + 150°C

100% inspection Per MIL-STD-883

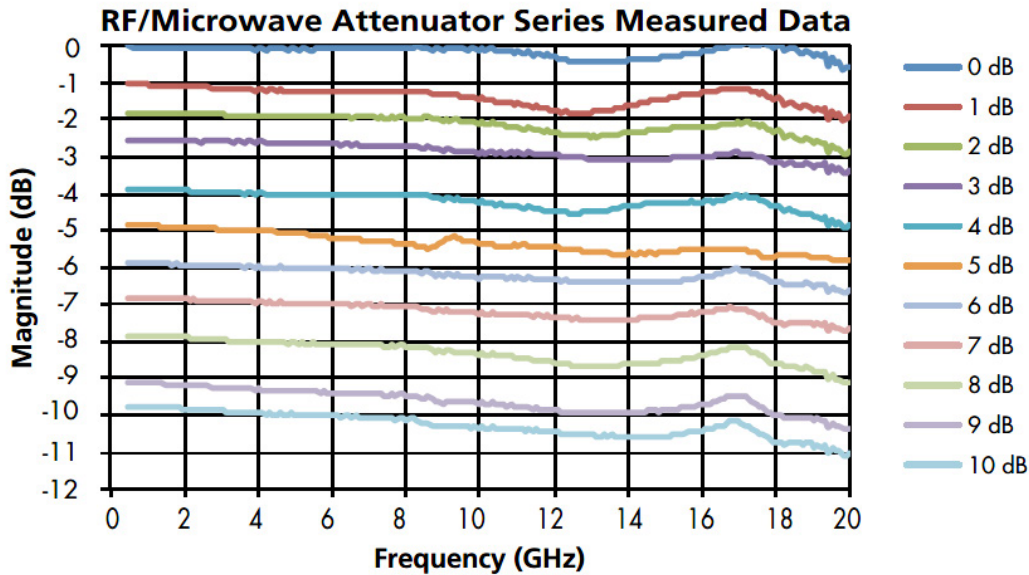
### MECHANICAL CONFIGURATION



Dimensions are in inches

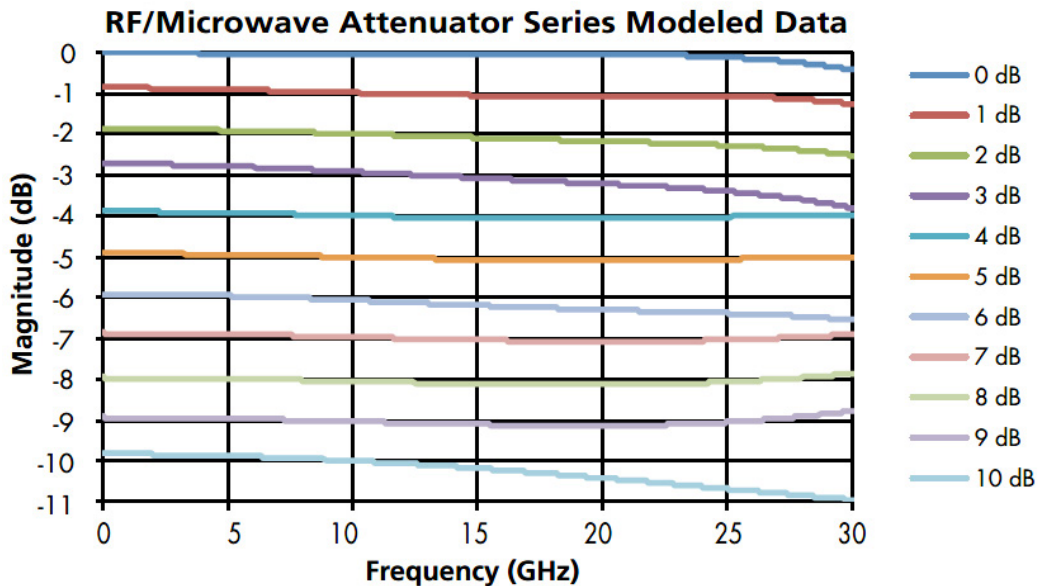
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## RF/Microwave Attenuator Performance Data



### RF/Microwave Attenuator Test Conduction Description

All testing performed on 13.3-mil-thick Rogers RO4350 microstrip board, with the UUT subtending a 44 mil gap in 30 mil-wide center trace (nominal 50-ohm characteristic impedance). Measurements were made using a four-receiver architecture. Measurements have been de-embedded to the edges of the UUT using a standard TRL calibration procedure.



### RF/Microwave Attenuator Modeled Data Description

Models were simulated using Ansoft HFSS version 14 in a perfect 50 ohm environment with ideal ports placed at the edge of the pads to ground. The boundary condition was set to be a radiating boundary in air.

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