

# MIL-DTL-3933 Attenuators

## FEATURES & BENEFITS

**Low VSWR**

**Environmental standards per MIL-STD-202**

**Attenuators meet requirements of MIL-DTL-3933**

**Wide range of attenuation values available**

## APPLICATIONS

**Test and Measurement**

**Satellite Payloads**

**Circuit Boards**



# MIL-DTL-3933/25 Attenuators

SV Microwave offers military SMA attenuators in accordance with MIL-DTL-3933/25. QPL - 3933 parts are designed and made under DSCC qualifications in order to withstand harsh environments within military applications. Hi-Rel versions also available.

These fixed SMA coaxial attenuators operate under low power and frequency range of DC - 2 GHz up to DC - 18 GHz. These attenuators are small in size and are used in applications where space is at a premium.

## Specifications

### Material

Bodies and coupling nut	Stainless steel per AMS-5640
Lock ring and contacts	Beryllium copper per ASTM B196
Sleeve	Brass per ASTM B16
Insulators	PTFE per ASTM D1710
Gasket	Silicone rubber per ZZ-R-765, Class I, IB, Grade 50/60
Resistor element	Aluminum nitride substrate with tantalum nitride resistor, Gold plated terminations

### Finish

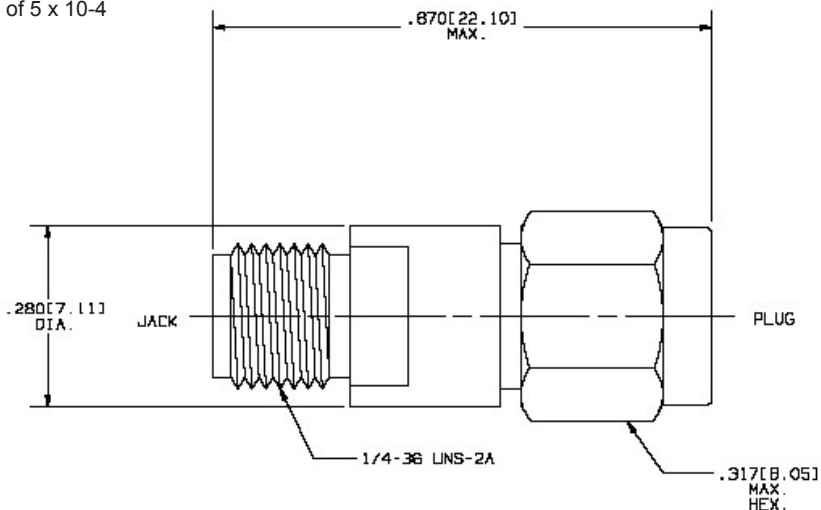
Bodies and coupling nut	Passivated per AMS-QQ-P-35, Type I I
Contacts and sleeve	Gold per ASTM B 488, Type I I, Grade C, Class 1.52, Over nickel per AMS-QQ-N-290, Class 1

### Performance

Impedance	50 Ohms
Frequency range	DC - 32.0 GHz
Average power	2.0 Watts (Note 1)
Peak power	500 Watts (Note 2)

#### Notes:

1. Power input related linearly from 25°C to .5 Watts at 125°C.
2. Peak power for a duty cycle of  $5 \times 10^{-4}$

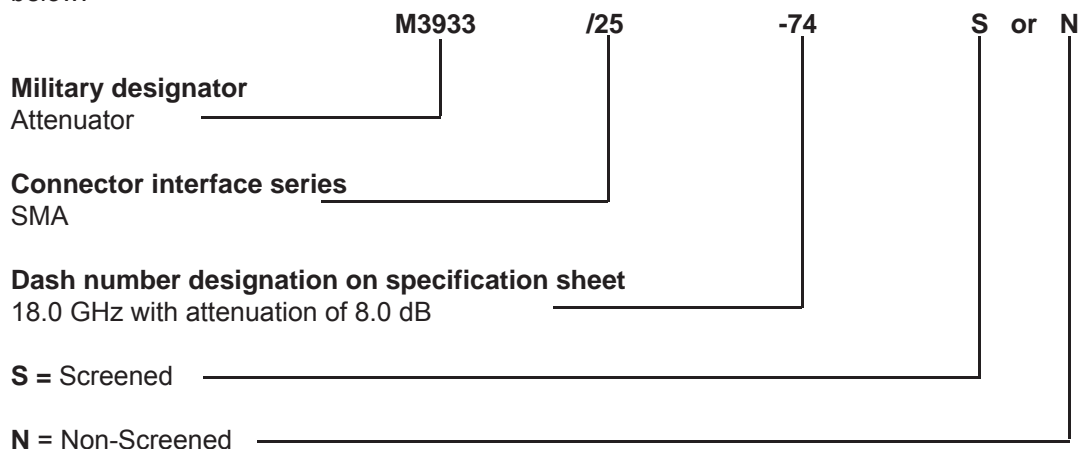


## SV Microwave is qualified to manufacture MIL-DTL-3933 Attenuators including:

MIL-DTL-3933/14	SMA Attenuators - DC to 12.4 GHz
MIL-DTL-3933/16	SMA Attenuators - DC to 18.0 GHz
MIL-DTL-3933/17	TNC Attenuators - DC to 18.0 GHz
MIL-DTL-3933/18	N Attenuators - DC to 12.4 GHz, DC to 18.0 GHz
MIL-DTL-3933/19	BNC Attenuators - DC to 4.5 GHz
MIL-DTL-3933/25	Miniature SMA Attenuators - DC to 18.0 GHz
MIL-DTL-3933/30	SVK(2.92mm) Attenuators - DC to 32.0 GHz

## SV Microwave QPL Attenuators Part Number Coding System

To more easily illustrate the ordering procedure for SV Microwave QPL Attenuators, part number **M3933/25-74S** is shown below:



## Dash Number/dB Values

Frequency DC to 2.0 GHz		Frequency DC to 12.4 GHz		Frequency DC to 18.0 GHz			
Attenuation dB Nominal	Dash Number	Attenuation dB Nominal	Dash Number	Attenuation dB Nominal	Dash Number	Attenuation dB Nominal	Dash Number
				0.0	58 N/S	0.5	59 N/S
1.0	01 N/S	1.0	27 N/S	1.0	60 N/S	1.5	61 N/S
2.0	02 N/S	2.0	28 N/S	2.0	62 N/S	2.5	63 N/S
3.0	03 N/S	3.0	29 N/S	3.0	64 N/S	3.5	65 N/S
4.0	04 N/S	4.0	30 N/S	4.0	66 N/S	4.5	67 N/S
5.0	05 N/S	5.0	31 N/S	5.0	68 N/S	5.5	69 N/S
6.0	06 N/S	6.0	32 N/S	6.0	70 N/S	6.5	71 N/S
7.0	07 N/S	7.0	33 N/S	7.0	72 N/S	7.5	73 N/S
8.0	08 N/S	8.0	34 N/S	8.0	74 N/S	8.5	75 N/S
9.0	09 N/S	9.0	35 N/S	9.0	76 N/S	9.5	77 N/S
10.0	10 N/S	10.0	36 N/S	10.0	78 N/S		
11.0	11 N/S	11.0	37 N/S	11.0	79 N/S		
12.0	12 N/S	12.0	38 N/S	12.0	80 N/S		
13.0	13 N/S	13.0	39 N/S	13.0	81 N/S		
14.0	14 N/S	14.0	40 N/S	14.0	82 N/S		
15.0	15 N/S	15.0	41 N/S	15.0	83 N/S		
16.0	16 N/S	16.0	42 N/S	16.0	84 N/S		
17.0	17 N/S	17.0	43 N/S	17.0	85 N/S		
18.0	18 N/S	18.0	44 N/S	18.0	86 N/S		
19.0	19 N/S	19.0	45 N/S	19.0	87 N/S		
20.0	20 N/S	20.0	46 N/S	20.0	88 N/S		



## Electrical Characteristics

Attenuator Increment (dB)	Attenuation Accuracy (dB)	VSWR				
		DC to 2 GHz	2 to 4 GHz	4 to 8 GHz	8 to 12.4 GHz	12.4 to 18 GHz
0.5 to 6.5	± .3	1.10	1.15	1.20	1.25	1.35
7.0 to 8.5	± .4					
9.0 to 14.0	± .5					
15.0 to 20.0	± .6					

# SV Microwave Screening Capabilities IAW MIL-DTL-3933

SV Microwave possesses the capability not only to manufacture military connectors that meet the DSCC specifications, but also to test and certify them. With extensive in-house testing capabilities, we ensure that when our products are placed in military environments, they will be able to support crucial airborne and terrestrial applications. In-house testing capabilities include MIL-DTL-3933 screening and material inspection.

SV Microwave offers innovative solutions to satisfy your requirements. We have invested in a talented engineering staff, supported by state-of-the-art, high-frequency RF simulation design software. Our full service laboratories perform comprehensive environmental mechanical and electrical testing. We control virtually all processes with in-house machining, fabrication, assembly and acceptance and qualification testing. Using our in-house testing capabilities eliminates the need for outsourcing environmental test requirements, which results in a lower delivered cost and shorter lead-time.

## Inspection Capabilities

- Thermal Shock
- Conditioning
- Stability of attenuation: after peak power
- Pre-burn-in electrical:
  - DC resistance
  - VSWR
  - Attenuation
- Burn-in 240 hours
- Post-burn-in electrical:
  - DC resistance
  - VSWR
  - Attenuation
- Radiographic inspection

