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
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 tantalam nitride resistor, Gold plated terminations

#### Finish

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

#### Performance

- **Impedance**: 50 Ohms
- **Frequency range**: DC - 18.0 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 x 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
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:

- Military designator: M3933
- Connector interface series: /25
- Attenuator number: -74
- S or N: S

Dash number designation on specification sheet:
18.0 GHz with attenuation of 8.0 dB

S = Screened
N = Non-Screened

Dash Number/dB Values

<table>
<thead>
<tr>
<th>Frequency DC to 2.0 GHz</th>
<th>Frequency DC to 12.4 GHz</th>
<th>Frequency DC to 18.0 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation dB Nominal</td>
<td>Dash Number</td>
<td>Attenuation dB Nominal</td>
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<tr>
<td>0.0</td>
<td>58 N/S</td>
<td>0.5</td>
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<td>01 N/S</td>
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Electrical Characteristics

<table>
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<tr>
<th>Attenuator Increment (dB)</th>
<th>Attenuation Accuracy (dB)</th>
<th>VSWR DC to 2 GHz</th>
<th>VSWR 2 to 4 GHz</th>
<th>VSWR 4 to 8 GHz</th>
<th>VSWR 8 to 12.4 GHz</th>
<th>VSWR 12.4 to 18 GHz</th>
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<tbody>
<tr>
<td>0.5 to 6.5</td>
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<td>7.0 to 8.5</td>
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<td>9.0 to 14.0</td>
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<td>15.0 to 20.0</td>
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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
Amphenol:
M3933/14-13S M3933/14-14N M3933/14-14S M3933/14-15N M3933/14-15S M3933/14-16N M3933/14-16S
M3933/14-17N M3933/14-17S M3933/14-27N M3933/14-27S M3933/14-28N M3933/14-28S M3933/14-29N
M3933/14-33N M3933/14-33S M3933/14-34N M3933/14-34S M3933/14-35N M3933/14-35S M3933/14-36N
M3933/14-40N M3933/14-40S M3933/14-41N M3933/14-41S M3933/14-42N M3933/14-42S M3933/14-43N
M3933/16-12N M3933/16-12S M3933/16-13N M3933/16-13S M3933/16-14N M3933/16-14S M3933/16-15N
M3933/16-15S M3933/16-16N M3933/16-16S M3933/16-17N M3933/16-17S M3933/16-18N M3933/16-18S
M3933/16-19N M3933/16-19S M3933/16-20N M3933/16-20S M3933/16-21N M3933/16-21S M3933/16-22N
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M3933/16-75N M3933/16-75S M3933/16-76N M3933/16-76S M3933/16-77N M3933/16-78N