

Voltage Controlled Attenuator Module 5 - 2000 MHz

Rev. V4

Features

- Available in Surface Mount
- Low VSWR: <1.5:0
- Low Insertion Loss: 2.3 dB @ 1000 MHz
- Low Distortion: >75 dB @ 15 V
- RoHS* Compliant

Description

The G2 / SMG2 attenuator is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

The design used 3 pin diodes to provide a non linear attenuation response across a broadband frequency range. Both TO-8 and surface mount packages are hermetically sealed. MIL-STD-883 environmental screening is available.

Product Image



Electrical Specifications¹: $V_{CC} = 15\text{ V}$, $Z_0 = 50\ \Omega$

| Parameter | Units | Typical | Guaranteed | |
|---|-------|----------|-------------|---------------|
| | | +25°C | 0° to +50°C | -54° to +85°C |
| Frequency | MHz | 5 - 2200 | 5 - 2000 | 5 - 2000 |
| Maximum Attenuation (min.) | dB | | | |
| 5 - 500 MHz | | 34 | 31 | 30 |
| 500 - 1000 MHz | | 28 | 25 | 24 |
| 1000 - 2000 MHz | 22 | 20 | 18 | |
| Insertion Loss ($V_{CTRL} = 15\text{ V}$) (max.) | dB | | | |
| 5 - 1000 MHz | | 2.3 | 3.0 | 3.5 |
| 1000 - 2000 MHz | | 2.8 | 3.5 | 4.0 |
| VSWR (worst case in attenuation range) | dB | | | |
| 5 - 2000 MHz | | <1.5:0 | 2.2:1 | 2.3:1 |
| Flatness over Frequency (max.) (Attenuation = min. to 15 dB, 5 - 2000 MHz) | dB | ±0.4 | ±0.8 | ±1.0 |
| Switching Speed (max.) | µs | | | |
| 10% - 90 % | | 25 | — | — |
| 0% - 100 % | | 70 | | |
| Bias Voltage | V | 5 | 5 | 5 |
| Control Voltage | V | 0 - 15 | 0 - 15 | 0 - 15 |
| Bias Current (max.) | mA | 5.0 | 6.5 | 7.0 |
| Control Current (max.) | mA | 4 | 6 | 7 |

1. Over temperature performance limits for part MAAM-007987-000CG2 are guaranteed from 0°C to +50°C only.

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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Absolute Maximum Ratings^{2,3}

| Parameter | Absolute Maximum |
|--|------------------|
| Short Term RF Input Power (1 minute max.) | 200 mW |
| Peak Power (3 μ s max.) | 1 W |
| DC Voltage | 18 V |
| DC Bias Voltage | 10 V |
| "S" Series Burn-In Temperature | +125°C |
| Case Temperature | +125°C |
| Storage Temperature | -62°C to +125°C |

- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

Ordering Information

| Part Number | Package |
|--------------------|--------------------------------|
| G2 | TO-8 |
| SMG2 | Surface Mount |
| MAAM-007987-000CG2 | SMA Connectorized ¹ |

- The Connectorized version is not RoHS compliant.

Handling Procedures

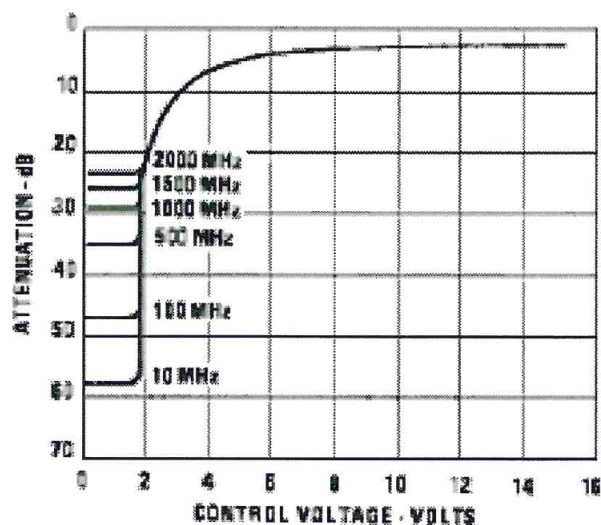
Please observe the following precautions to avoid damage:

Static Sensitivity

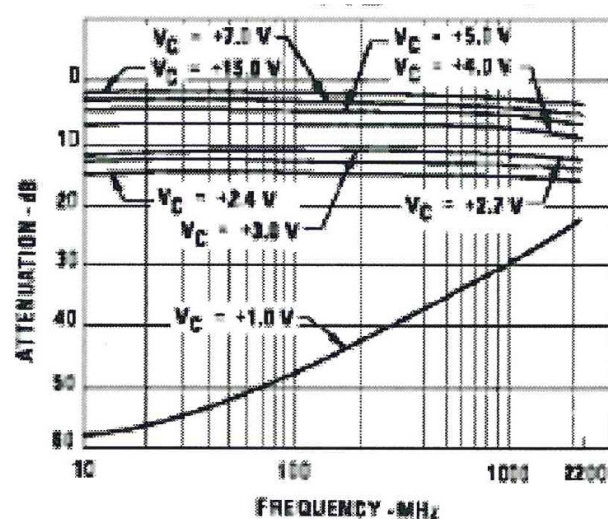
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Typical Performance Curves

Attenuation vs. Control Voltage



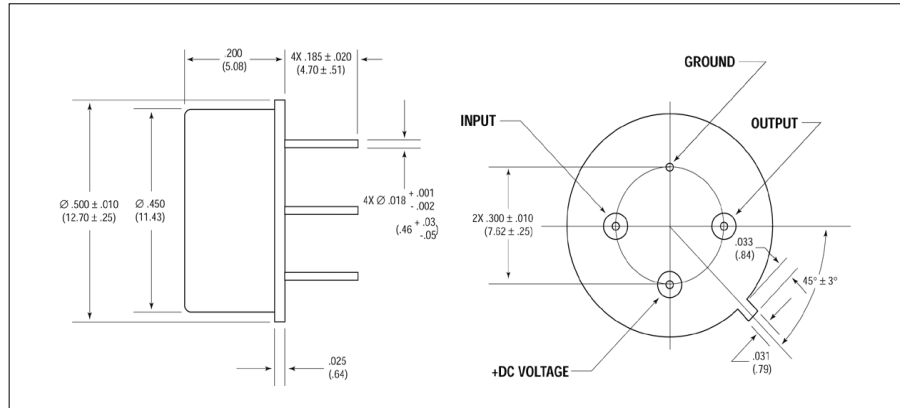
Attenuation vs. Control Voltage vs. Frequency



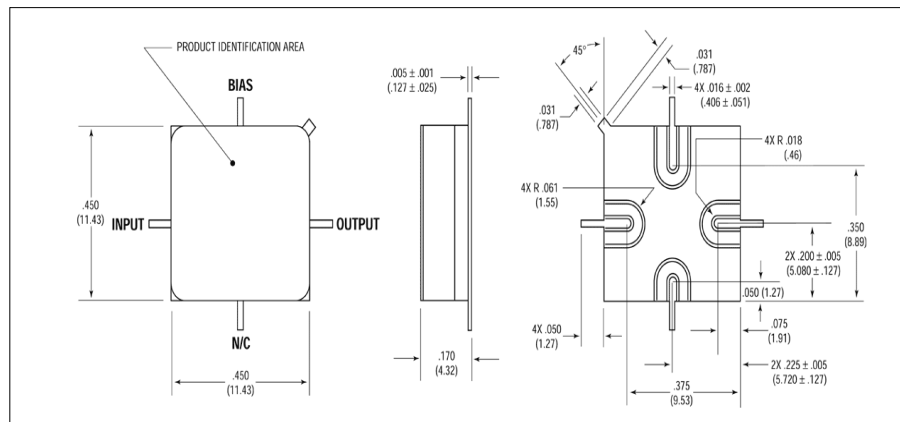
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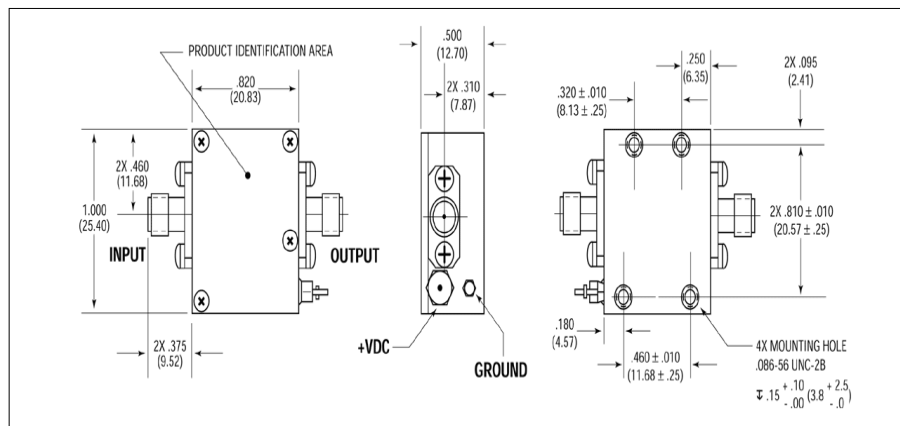
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount



Outline Drawing: SMA Connectorized



* Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.

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