

## Voltage-Controlled Attenuator Module 5 to 2000 MHz

Rev. V4

### Features

- AVAILABLE IN SURFACE MOUNT
- LOW VSWR: < 1.8:1 (TYP.)
- LOW INSERTION LOSS: 2.0 dB TO 1000 MHz (TYP.)
- LOW DISTORTION: -25 dBc (TYP.) AT  $V_{control} = +15 V$

### Description

The G1 attenuator is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

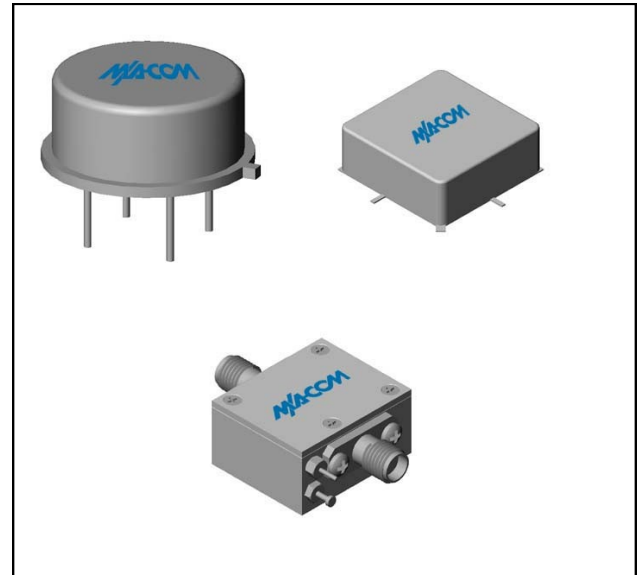
This design uses three pin diodes to provide a non linear attenuation response across a broadband frequency range. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

Part Number	Package
G1	TO-8
SMG1	Surface Mount
CG1 **	SMA Connectorized

\*\* The connectorized version is not RoHs compliant.

### Product Image



### Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +15 V_{DC}$

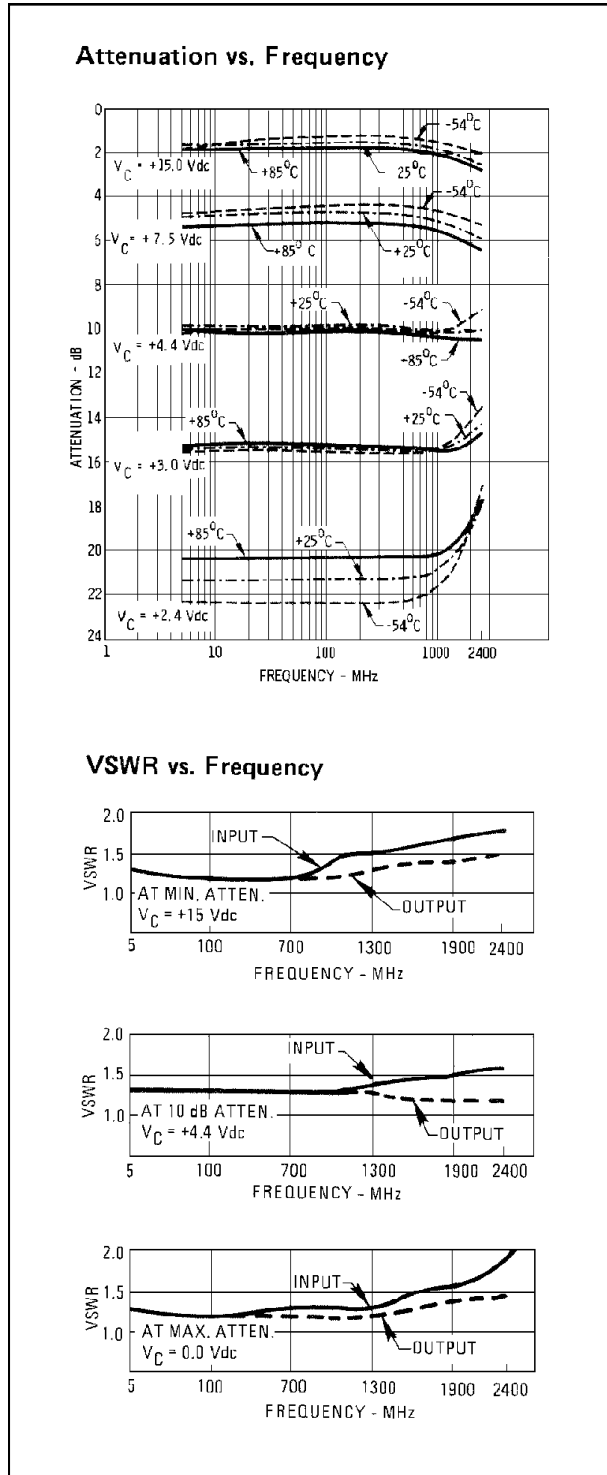
Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	5-2200	5-2000	5-2000
Maximum Attenuation Available (min)	5-500 MHz	36	31	30
	500-1000 MHz	30	25	24
	1000-2000 MHz	23	18	17
Insertion Loss ( $V_{ctrl} = +15 V$ ) (max)	5-1000 MHz	2.0	2.5	2.8
	1000-2000 MHz	2.5	3.0	3.3
VSWR (worst case in attenuation range)	dB	<1.8:1	2.2:1	2.3:1
Flatness Over Frequency (max) (Attenuation = min to 15 dB, 5-1000 MHz)		+/-0.5	+/-1.0	+/-1.2
Switching Speed (max.)	10% - 90%	60	120	140
	0% - 100%	75	125	140
Bias Voltage	Volts	+15	+15	+15
Bias Current	mA	10	15	15
Control Voltage	Volts	0 to +15	0 to +15	0 to +15
Control Current (max)	mA	4	7	7

1 \*Over temperature performance limits for part number CG1, guaranteed from 0°C to +50°C only.

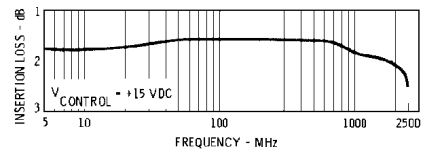
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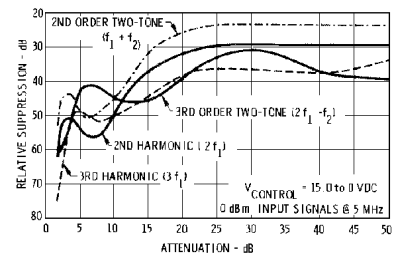
### Typical Performance Curves at +25°C



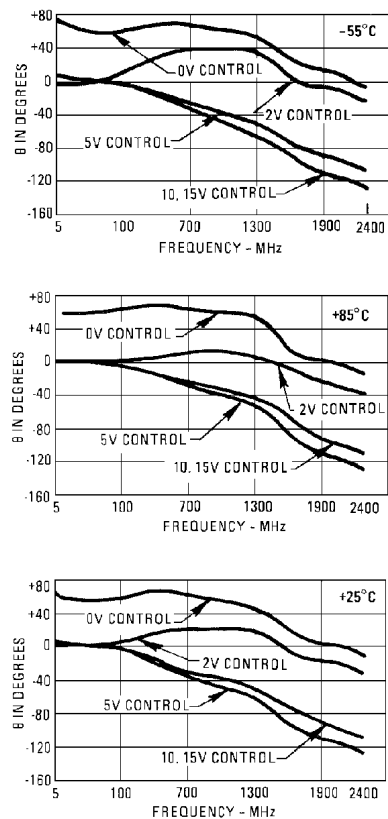
#### Insertion Loss vs. Frequency at $V_{\text{CONTROL}} = 15$ V



#### Distortion Products



#### Phase vs. $V_{\text{CTL}}$ vs. Frequency

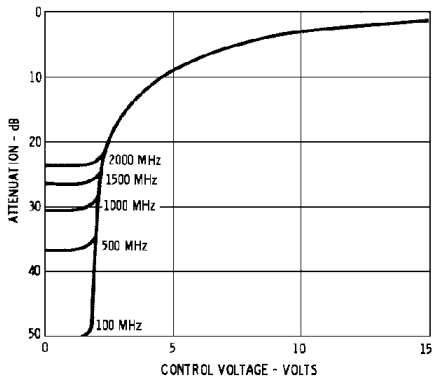


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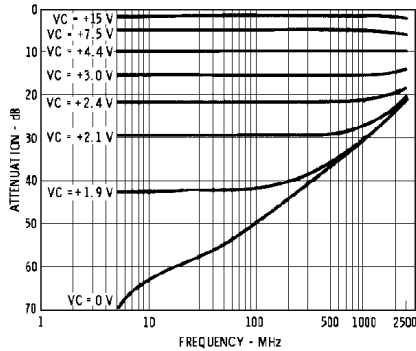
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### Typical Performance Curves at +25°C

Attenuation vs. Control Voltage



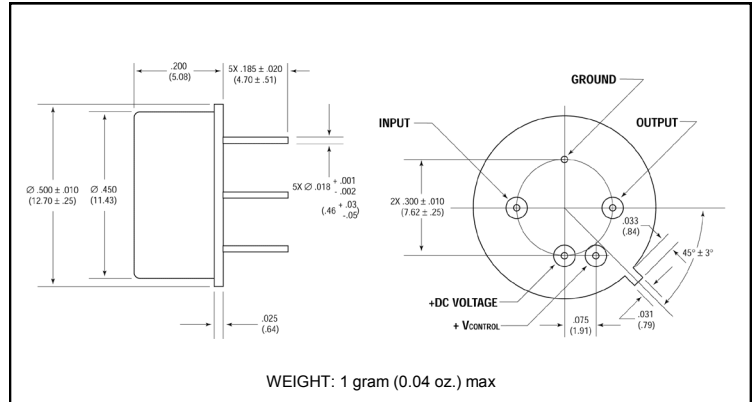
Attenuation vs.  $V_{CTL}$  vs. Frequency



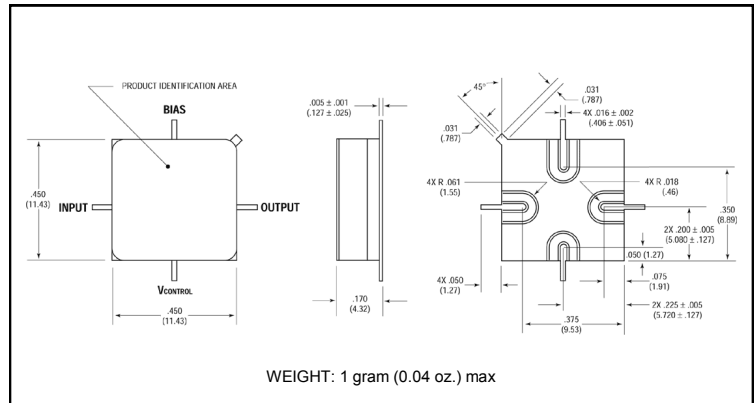
### Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
DC Voltage	+18 V
Continuous Input Power	+20 dBm
Short Term Input power (1 minute max.)	200 mW
Peak Power (3 $\mu$ sec max.)	1 W
"S" Series Burn-In Temperature (case)	125°C

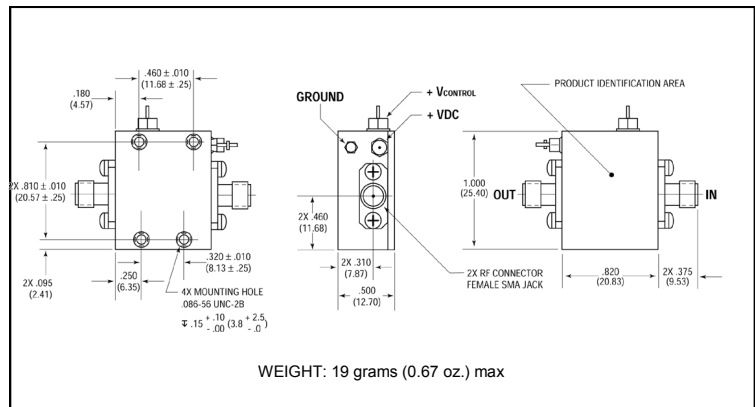
### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.

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