

**Voltage-Controlled Attenuator Module  
5 to 2000 MHz**

**G1 / SMG1**

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  $V_{control} = +15 V$

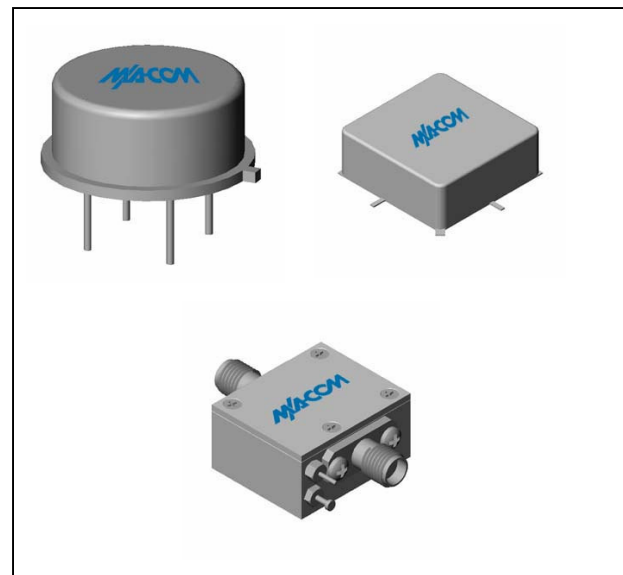
**Description**

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.

**Product Image**



**Ordering Information**

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

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

**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

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

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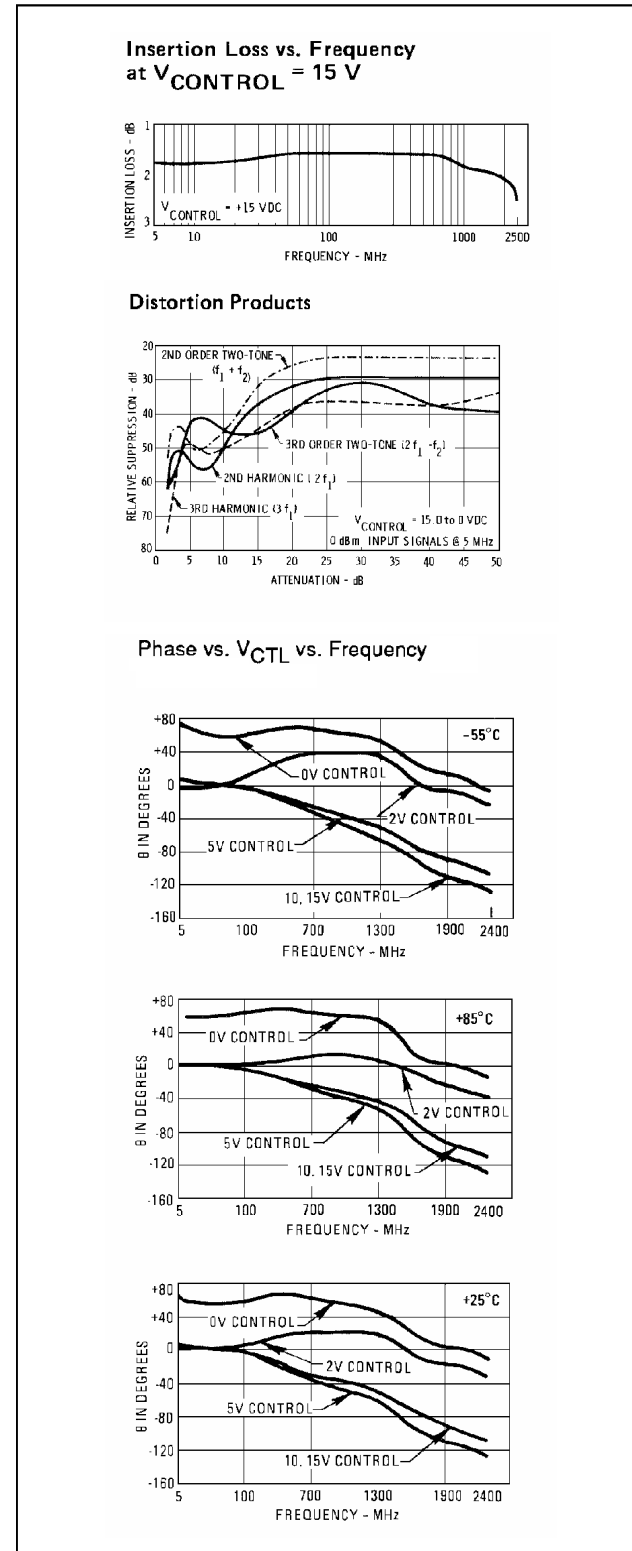
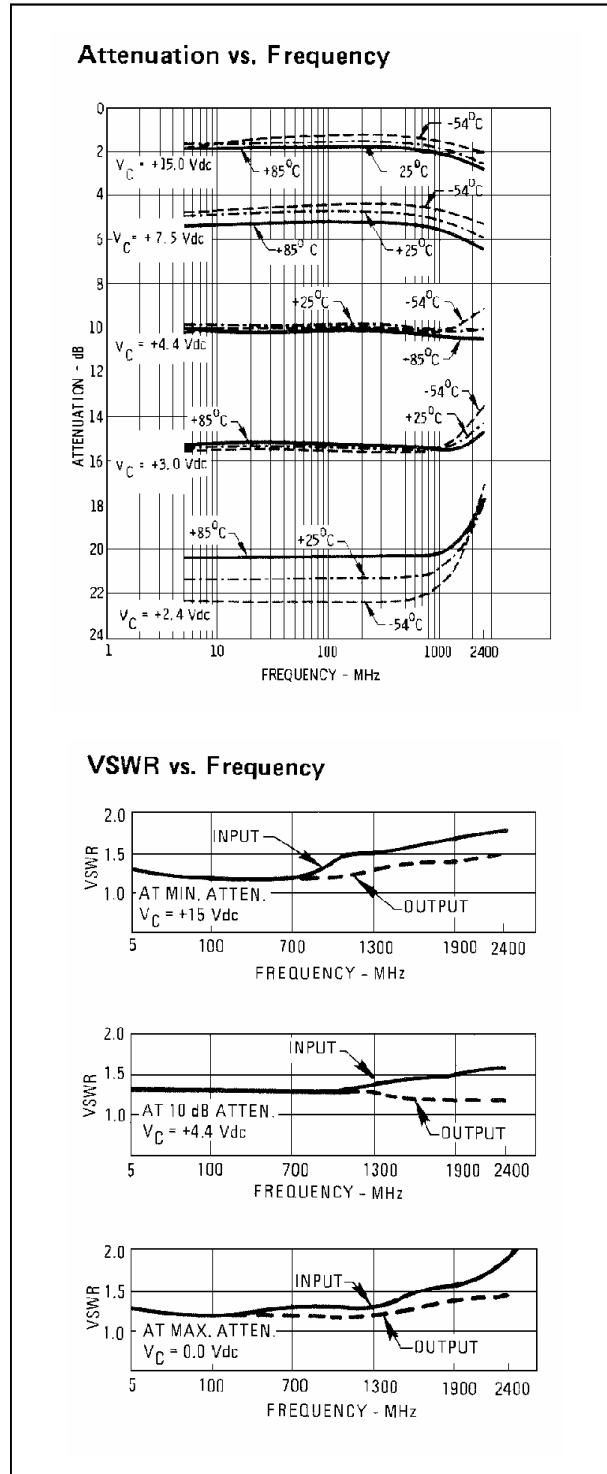
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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**Typical Performance Curves at +25°C**



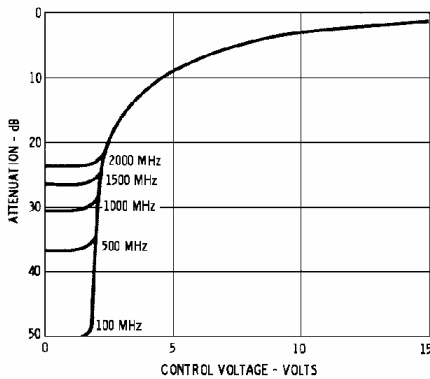
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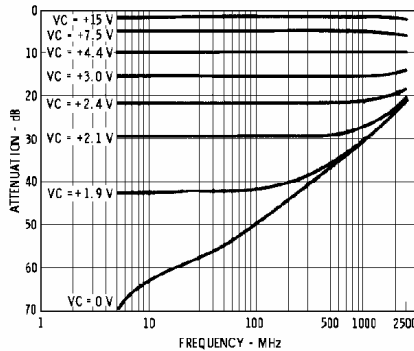
V4

**Typical Performance Curves at +25°C**

**Attenuation vs. Control Voltage**



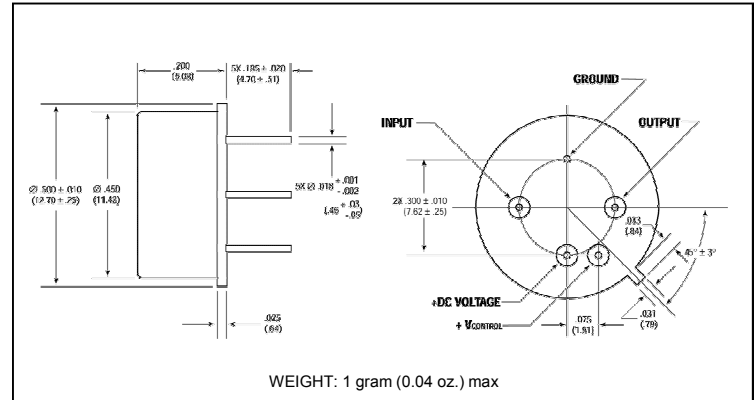
**Attenuation vs.  $V_{CTL}$  vs. Frequency**



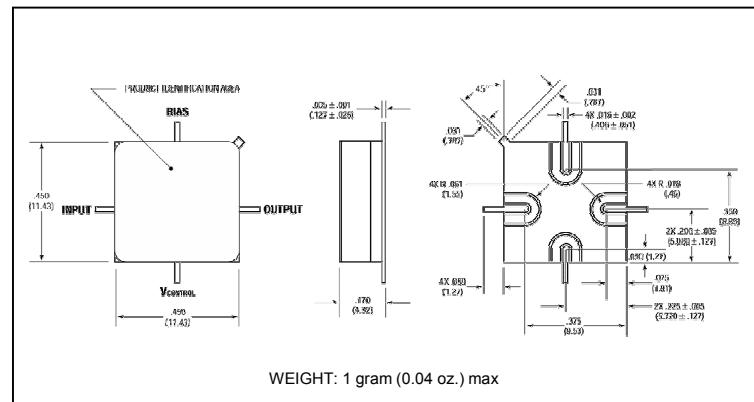
**Absolute Maximum Ratings**

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 µsec max.)	1 W
"S" Series Burn-In Temperature (case)	125°C

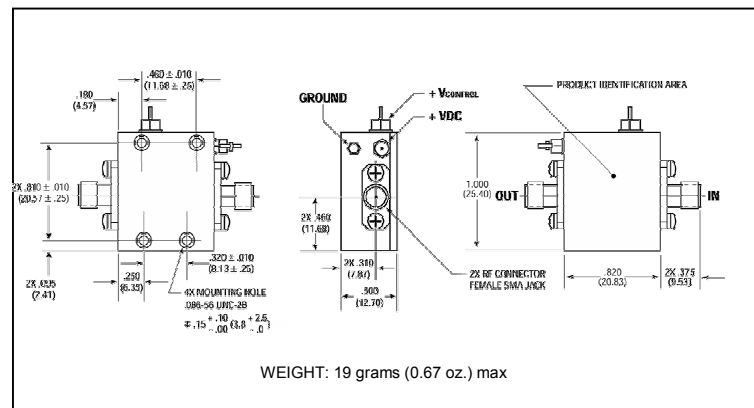
**Outline Drawing: TO-8 \***



**Outline Drawing: Surface Mount \***



**Outline Drawing: SMA Connectorized \***



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