G1 / SMG1

Voltage-Controlled Attenuator Module
5 to 2000 MHz

Rev. V4

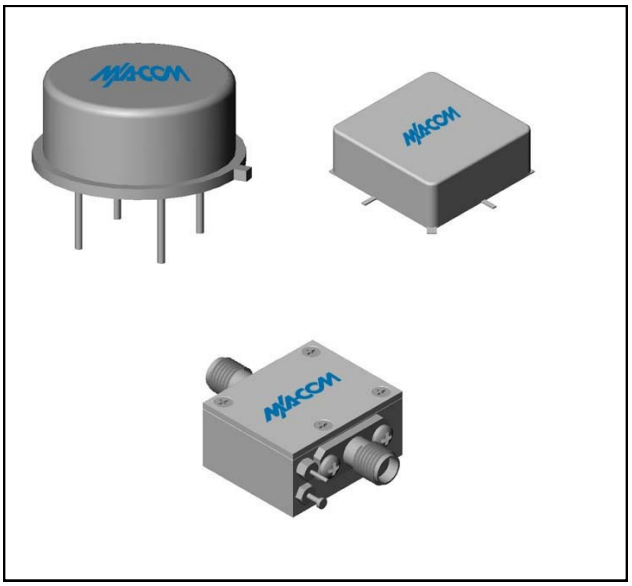
Features

- 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.

Product Image



Ordering Information

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

** The connectorized version is not RoHs compliant.

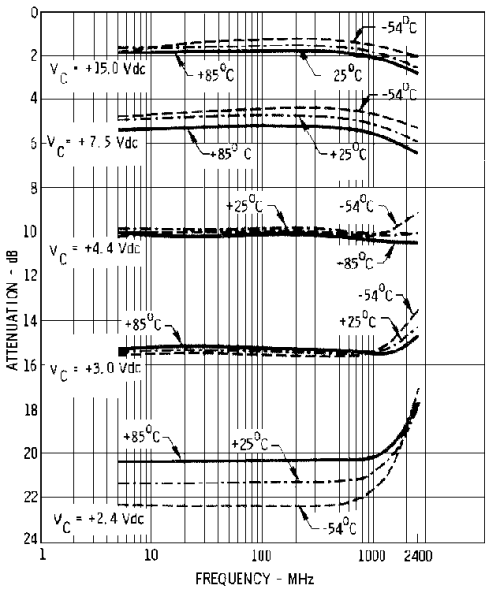
Electrical Specifications: Z_0 = 50Ω, V_{CC} = +15 V_{DC}

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

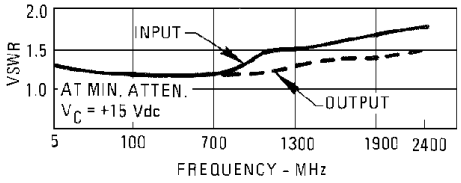
1 *Over temperature performance limits for part number CG1, guaranteed from 0°C to +50°C only.

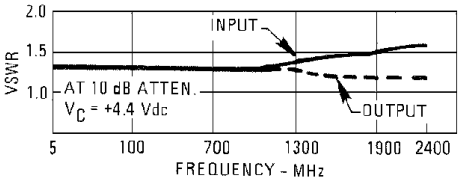
Typical Performance Curves at +25°C

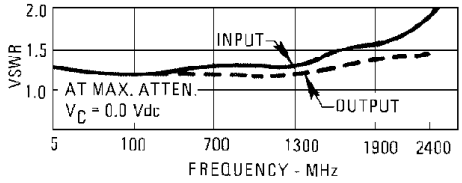
Attenuation vs. Frequency



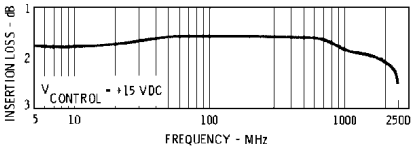
VSWR vs. Frequency



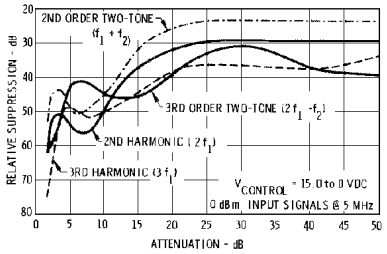




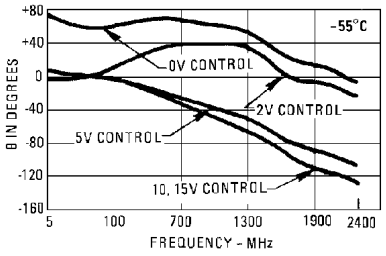
Insertion Loss vs. Frequency at $V_{CONTROL}$ = 15 V

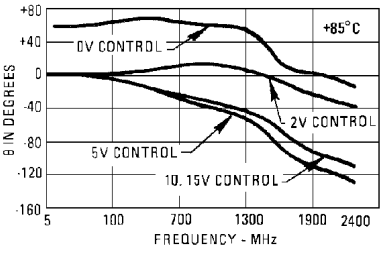


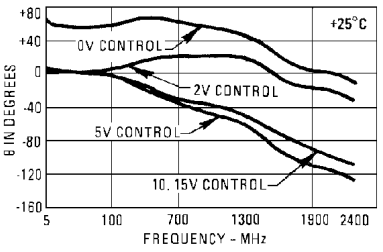
Distortion Products



Phase vs. V_{CTL} vs. Frequency

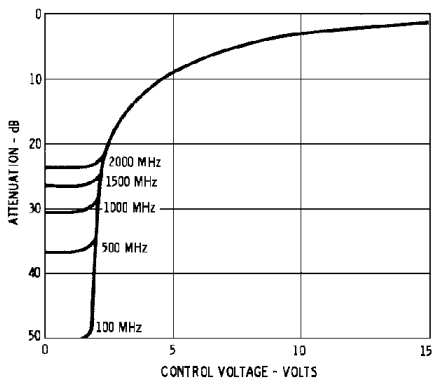




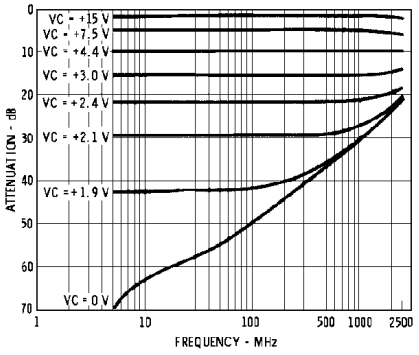


Typical Performance Curves at +25°C

Attenuation vs. Control Voltage



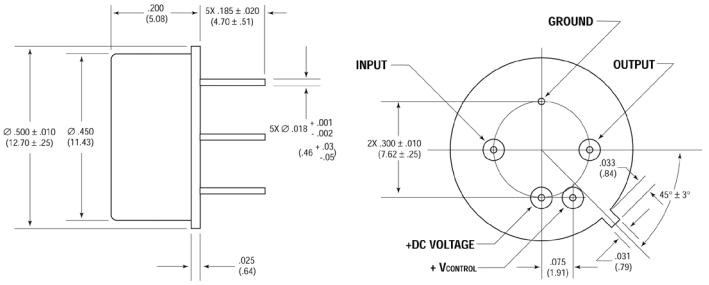
Attenuation vs. V_{CTL} vs. Frequency



Absolute Maximum Ratings

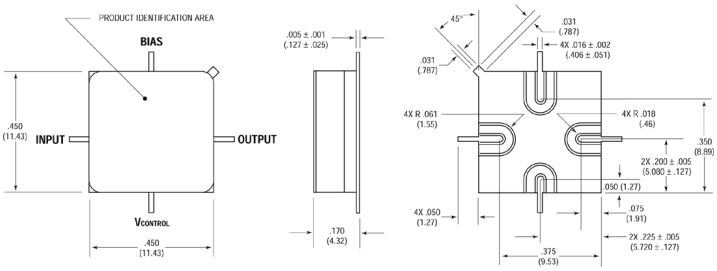
Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	125ºC
DC Voltage	+18 V
Continuous Input Power	+20 dBm
Short Term Input power (1 minute max.)	200 mW
Peak Power (3 µsec max.)	1 W
"S" Series Burn-In Temperature (case)	125ºC

Outline Drawing: TO-8 *



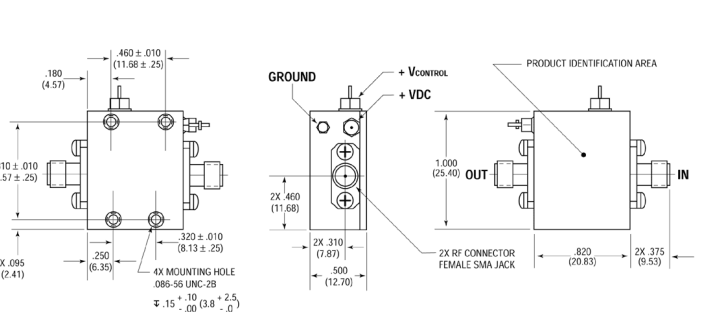
WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 19 grams (0.67 oz.) max

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