

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 $V_{\text{control}} = +15 \text{ V}$

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.

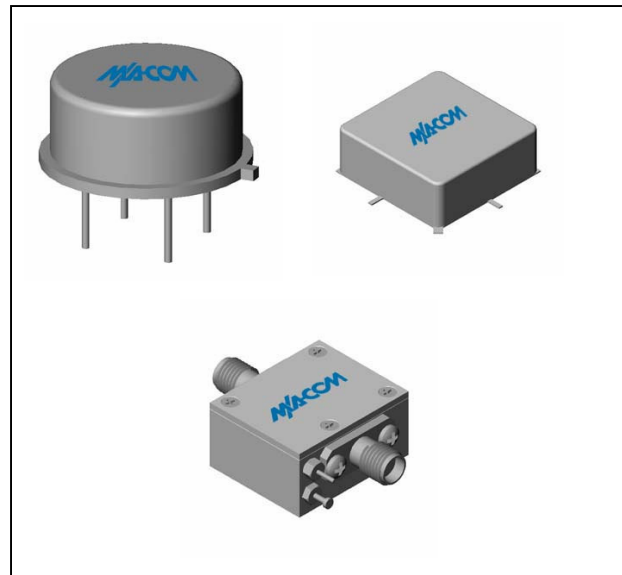
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

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: $Z_0 = 50\Omega$, $V_{CC} = +15 \text{ V}_{DC}$

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	dB	36	31	30
500-1000 MHz	dB	30	25	24
1000-2000 MHz	dB	23	18	17
Insertion Loss ($V_{ctrl} = +15 \text{ V}$) (max)				
5-1000 MHz	dB	2.0	2.5	2.8
1000-2000 MHz	dB	2.5	3.0	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%	µsec	60	120	140
0% - 100%	µsec	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 for additional data sheets and product information.

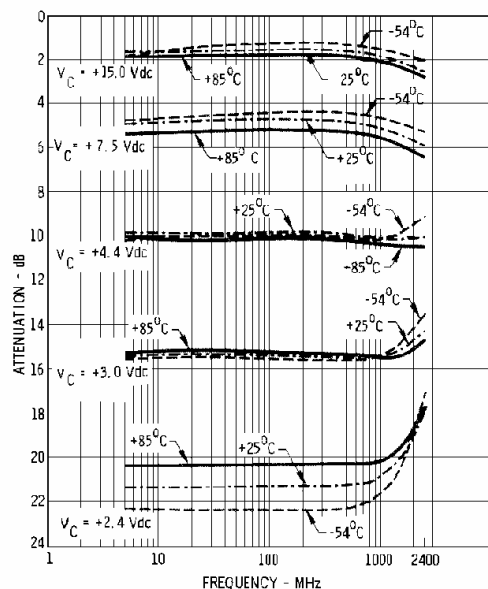
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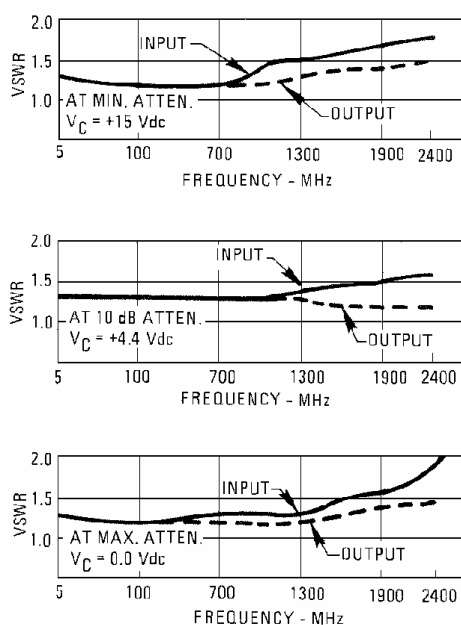
V4

Typical Performance Curves at +25°C

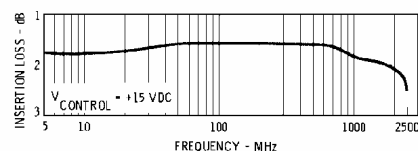
Attenuation vs. Frequency



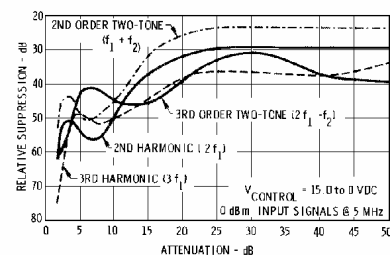
VSWR vs. Frequency



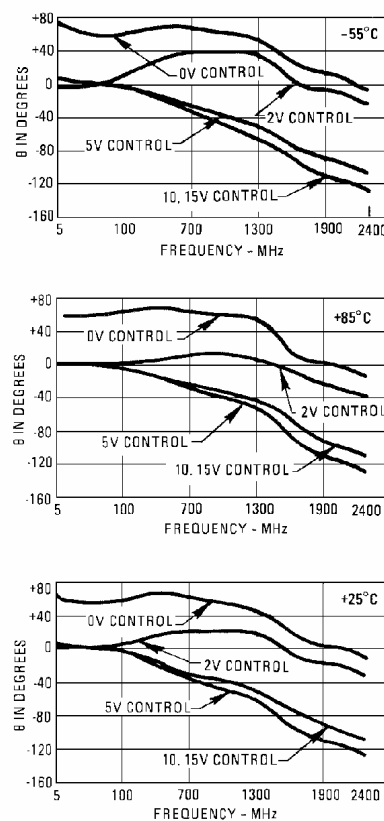
**Insertion Loss vs. Frequency
at $V_{CONTROL} = 15$ V**



Distortion Products



Phase vs. V_{CTL} vs. Frequency



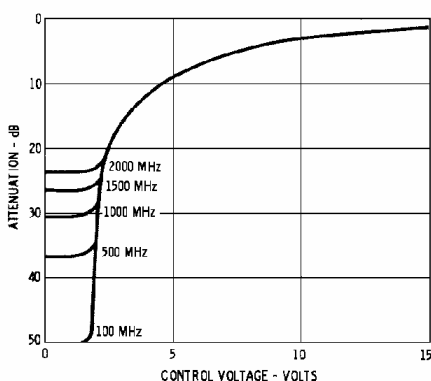
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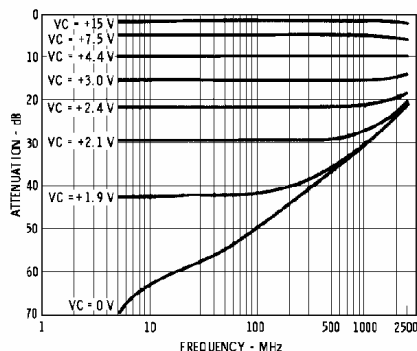
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Typical Performance Curves at +25°C

Attenuation vs. Control Voltage



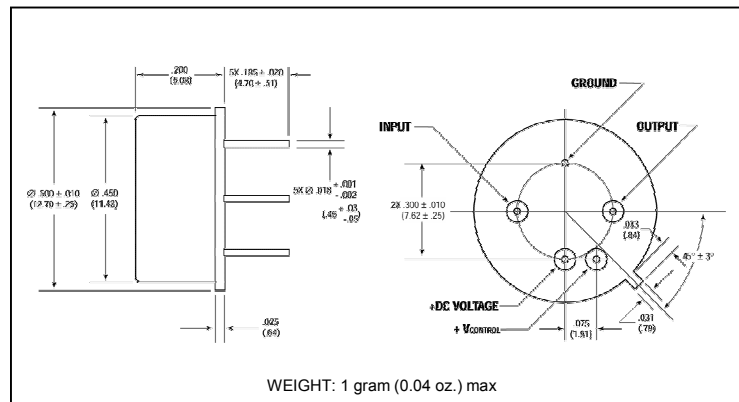
Attenuation vs. V_{CTL} vs. Frequency



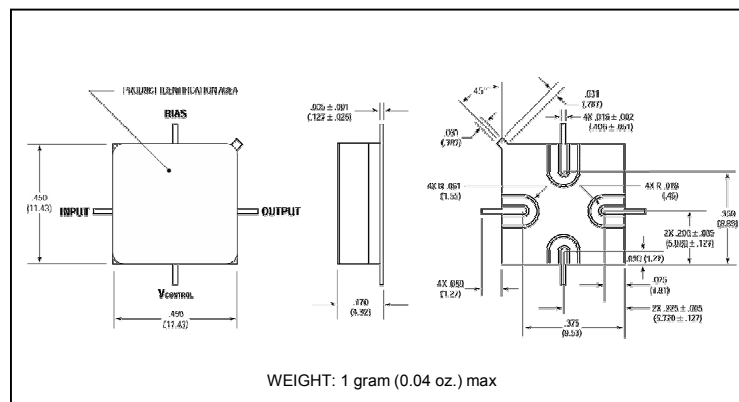
Absolute Maximum Ratings

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

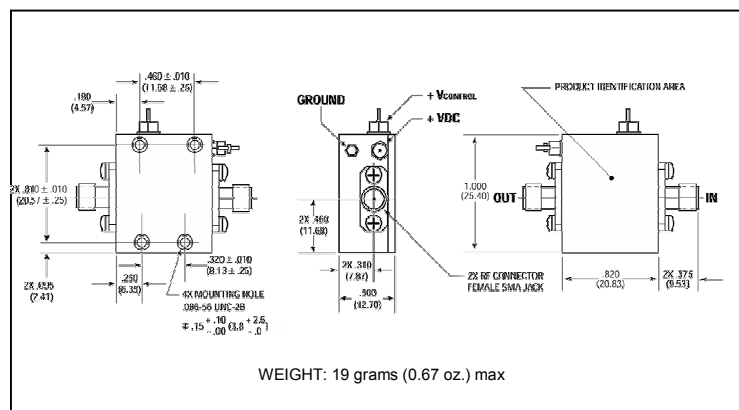
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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