

## Voltage-Controlled Attenuator Module

### 100 to 2000 MHz

Rev. V3

#### Features

- FAST SWITCHING: < 0.2  $\mu$ sec, 10 TO 90% (TYP.)  
< 1  $\mu$ sec, 0 TO 100% (TYP.)
- HIGH DYNAMIC RANGE: 40 dB TO 1000 MHz (TYP.)
- LOW VSWR: 1.4:1 (TYP.)

#### Description

The G30 attenuator is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

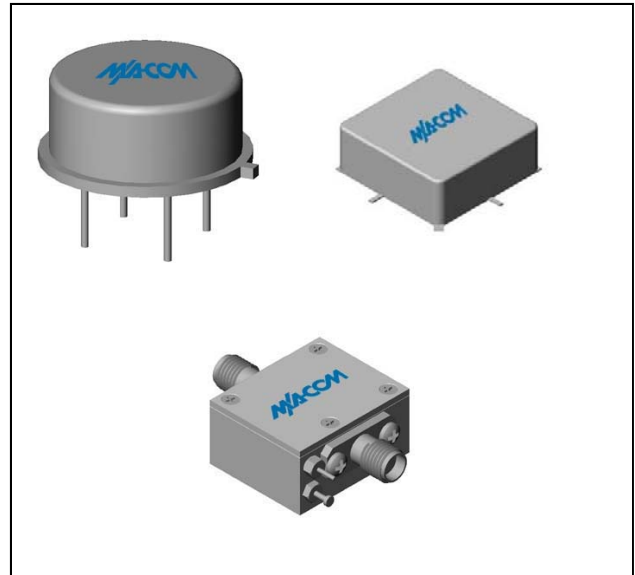
This design uses three pin diodes to provide a non linear attenuation response across a broadband frequency range. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

#### Ordering Information

Part Number	Package
G30	TO-8
SMG30	Surface Mount
CG30 **	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	100-2000	100-2000
Maximum Attenuation Available (min)				
100-500 MHz	dB	>50	40	37
500-1000 MHz	dB	>44	35	32
1000-2000 MHz	dB	>38	30	27
Insertion Loss ( $V_{ctrl} = +15 V$ ) (max)				
100-500 MHz	dB	<2.1	2.8	3.0
500-1000 MHz	dB	<2.3	3.0	3.2
1000-2000 MHz	dB	<3.0	3.5	3.8
VSWR (worst case in attenuation range)				
0-25 dB Attenuation	dB	1.4:1	2.0:1	2.0:1
>25 dB Attenuation	dB	<1.7:1	2.2:1	2.2:1
Flatness Over Frequency (max) (Attenuation = min to 15 dB, 100-1000 MHz)				
100-1000 MHz	dB	$\pm 0.5$	$\pm 1.0$	$\pm 1.0$
1000-2000 MHz	dB	$\pm 1.0$	$\pm 1.5$	$\pm 1.7$
Switching Speed (max.)				
10% - 90%	$\mu$ sec	<0.2	0.4	0.6
0% - 100%	$\mu$ sec	<1	2	3
Bias Voltage	Volts	+15	+15	+15
Bias Current (max)	mA	7	10	12
Control Voltage	Volts	0 to +15	0 to +15	0 to +15
Control Current (max)	mA	7	10	10

\*Over temperature performance limits for part number CG30, guaranteed from 0°C to +50°C only.

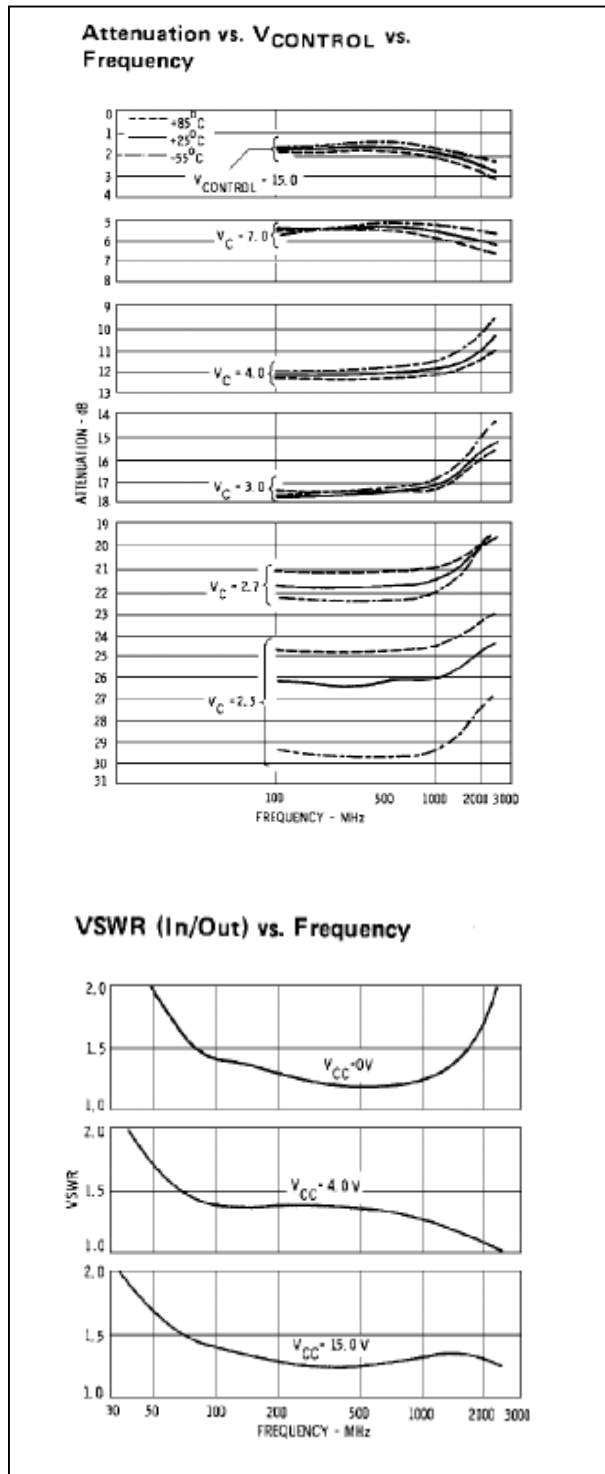
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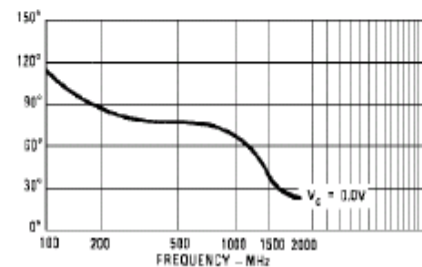
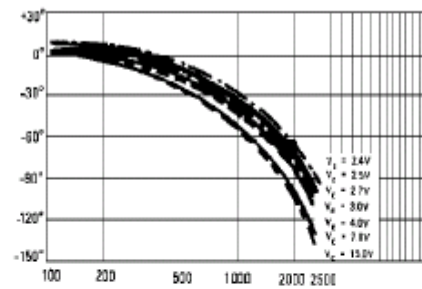
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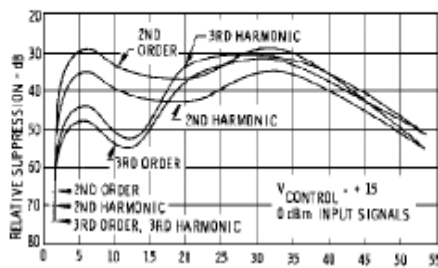
## Typical Performance Curves at +25°C



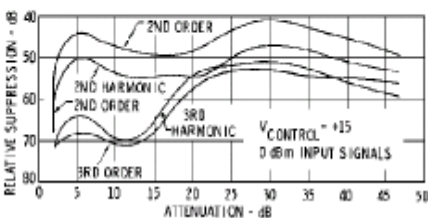
## Phase vs. $V_{\text{CONTROL}}$ vs. Frequency



## Distortion Products vs. Attenuation at 100 MHz



## Distortion Products vs. Attenuation at 500 MHz

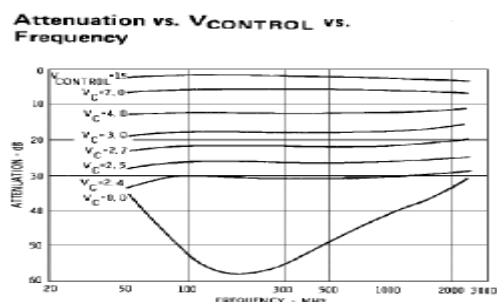
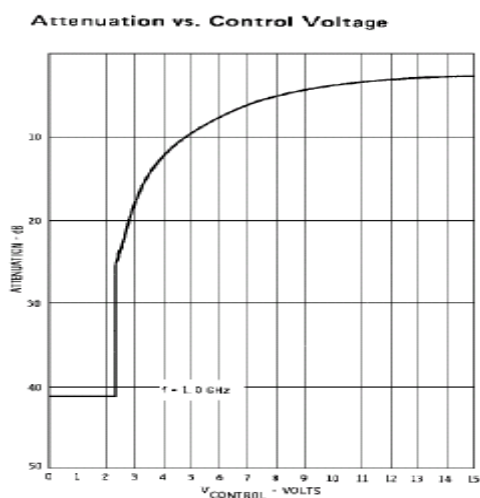


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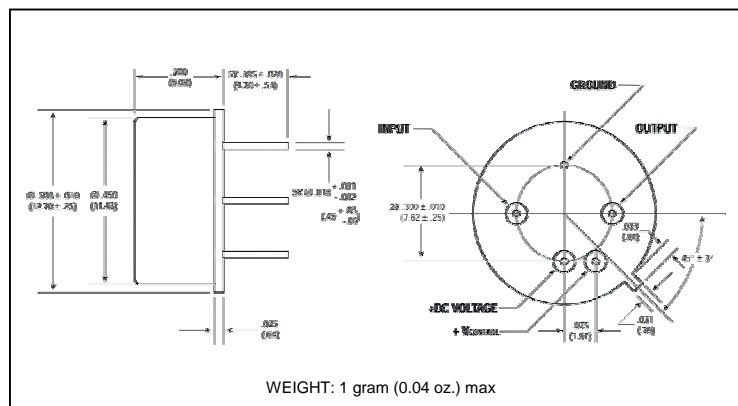
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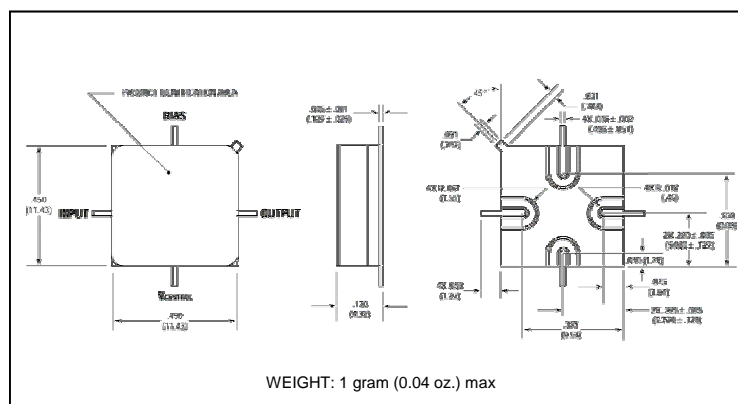
## Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Maximum Case Temperature	125°C
Maximum DC Voltage	+18 V
Maximum DC Bias Voltage	+20 V
Maximum Short Term RF Input power (1 minute max.)	200 mW
Maximum Peak Power (3 µsec max.)	1 W
“S” Series Burn-In Temperature (case)	+125°C

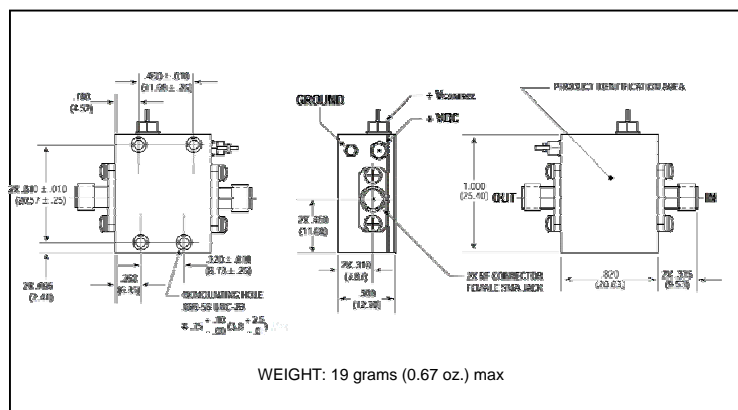
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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

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