

tyco
Electronics

**RoHS
Compliant**

M/A-COM

Voltage-Controlled Attenuator Module 500 to 4000 MHz

G40 / SMG40

V3

Features

- WIDE BAND PERFORMANCE
- EXCELLENT INSERTION LOSS: < 3.0 dB (TYP.)
- HIGH DYNAMIC RANGE: 30 dB TO 3000 MHz (TYP.)
- FAST SWITCHING: < 0.5 μ sec, 10 TO 90% (TYP.)
< 2 μ sec, 0 TO 100% (TYP.)

Description

The G40 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
G40	TO-8
SMG40	Surface Mount
CG40 **	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	500-4200	500-4000	500-4000
Maximum Attenuation Available (min)				
500-1000 MHz	dB	>39	34	33
1000-2000 MHz	dB	>33	28	27
2000-3000 MHz	dB	>30	25	24
3000-4000 MHz	dB	>28	23	22
Insertion Loss				
500-2000 MHz	dB	2.2	3.0	3.5
2000-4000 MHz	dB	2.7	3.5	4.0
VSWR				
500-3000 MHz	dB	<1.7:1	2.2:1	2.3:1
3000-4000 MHz	dB	<1.7:1	2.2:1	2.3:1
Flatness Over Frequency (max) (Attenuation = min to 15 dB, 500-1000 MHz)				
500-3000 MHz	dB	± 0.3	± 0.8	± 1.0
500-4000 MHz	dB	± 1.2	± 1.6	± 2.0
Switching Speed (max.)				
10% - 90%	μ sec	<0.5	0.8	0.9
0% - 100%	μ sec	<2	4	5
Bias Voltage	Volts	+15	+15	+15
Bias Current (max)	mA	9.5	12	13
Control Voltage	Volts	0 to +15	0 to +15	0 to +15
Control Current (max)	mA	6	10	11

* Over temperature performance limits for part number CG40, guaranteed from 0°C to +50°C only.

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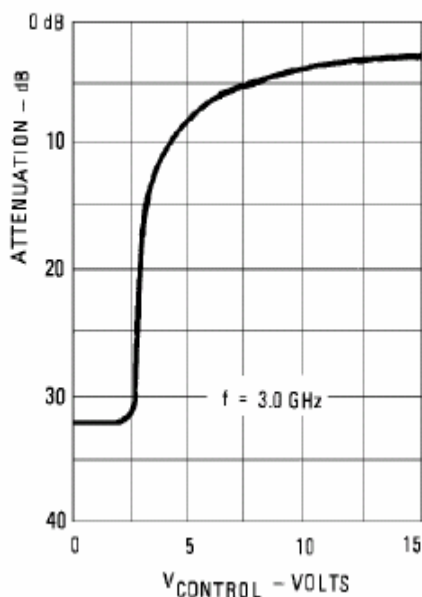
**Voltage-Controlled Attenuator Module
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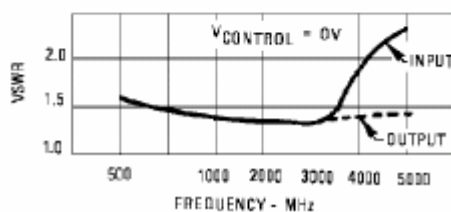
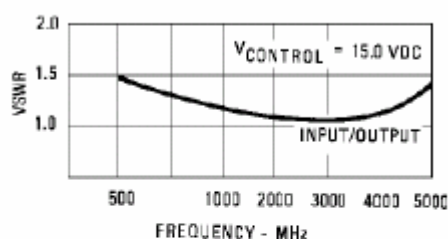
V3

Typical Performance Curves at +25°C

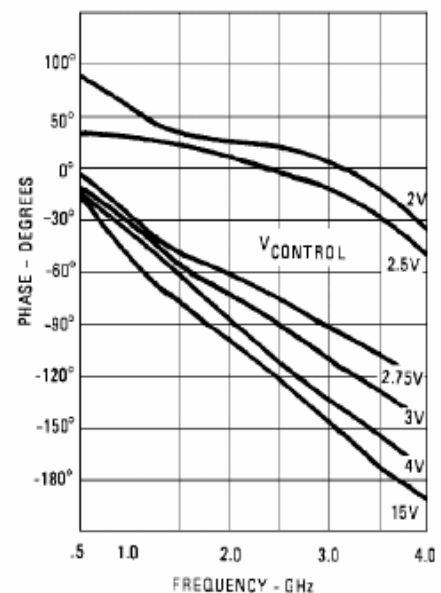
Attenuation vs. Control Voltage



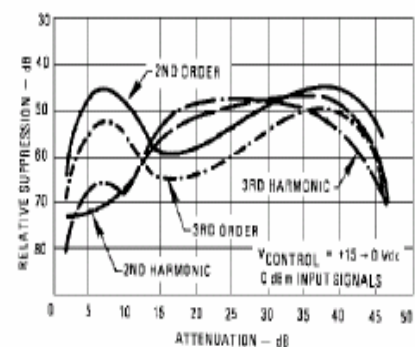
VSWR



Phase vs. V_{CONTROL} vs. Frequency



Distortion Products vs. Attenuation at 500 MHz



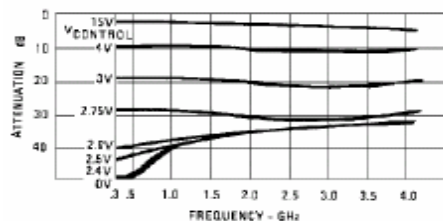
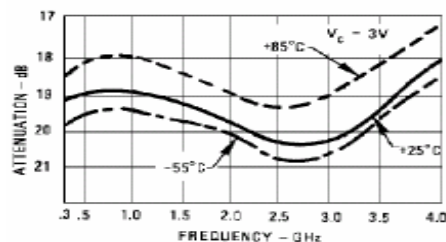
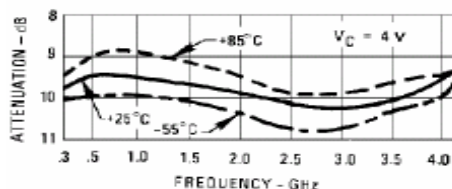
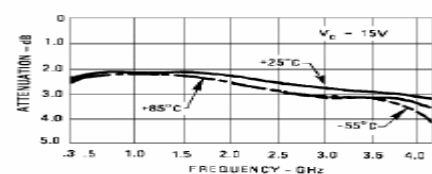
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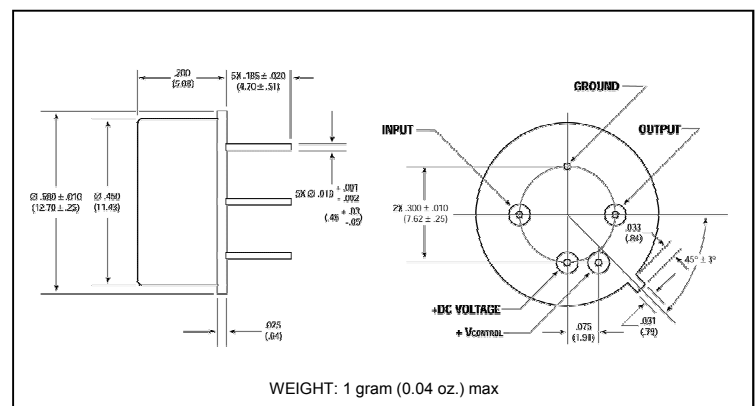
Attenuation vs. V_{Control} vs. Frequency



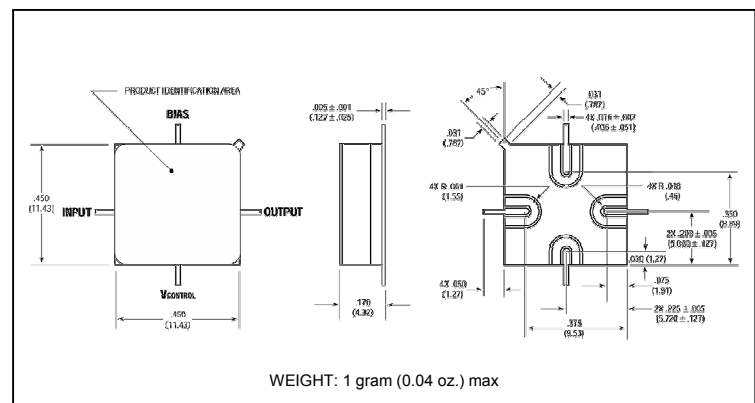
Absolute Maximum Ratings

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

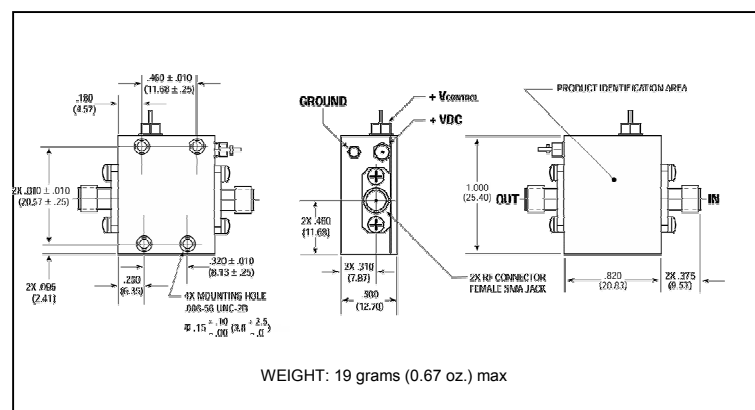
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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