

## GaAs Digital Attenuator 31 dB, 5 - Bit, DC - 2 GHz

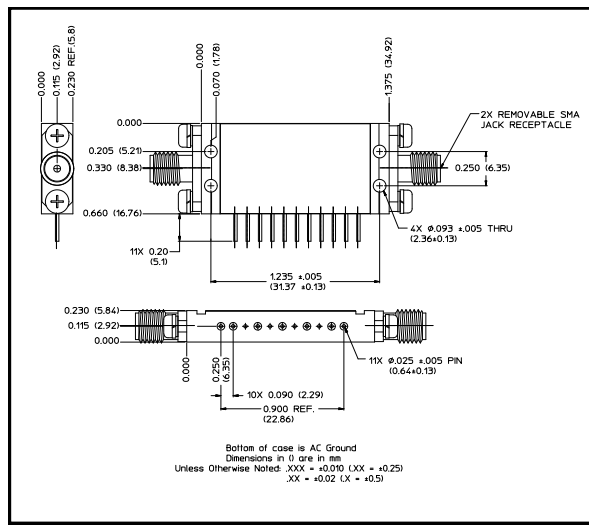
Rev. V4

### Features

- n Attenuation 1 dB Steps to 31 dB
- n TTL Control Interface
- n Hermetic Connectorized Housing

### Description

### C-46



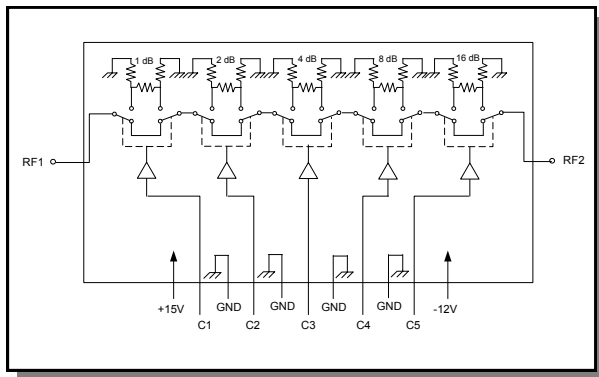
### Electrical Specifications <sup>1</sup>: T<sub>A</sub> = -55°C to +85°C

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Nominal Attenuation <sup>2</sup>	1 dB Steps to 31 dB					
Attenuation Accuracy		DC - 1.0 GHz 1.0 - 2.0 GHz		± (0.2 dB +2% of Atten Setting in dB) dB ± (0.2 dB +2% of Atten Setting in dB) dB		
VSWR		DC - .025 GHz .025 - 0.5 GHz 0.2 - 2.0 GHz 0.5 - 1.0 GHz	Ratio	—	—	2.2:1 1.8:1 1.5:1 1.4:1
Reference Insertion Loss		DC - 0.5 GHz 0.5 - 1.0 GHz 1.0 - 2.0 GHz	dB	—	—	5.5 6.0 6.5
Impedance	—	—	Ohms	—	50	—
T <sub>on</sub> T <sub>off</sub>	50% CTL to 90% RF 50% CTL to 10% RF	—	ns	—	160	—
Trise Tfall	10% RF to 90% RF 90% RF to 10% RF	—	ns	—	15 3	—
Transients	Unfiltered	—	mV	—	130	—
1 dB Compression	Input Power	0.5 - 2.0 GHz 0.05 GHz	dBm	—	28	—
IP2	Two-Tone Input Power up to +5 dBm	0.5 - 2.0 GHz 0.05 GHz	dBm	—	+55 +45	—
IP3	Two-Tone Input Power up to +5 dBm	0.5 - 2.0 GHz 0.05 GHz	dBm	—	+47 +28	—

**Electrical Specifications <sup>1</sup>: T<sub>A</sub> = -55°C to +85°C**

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Bias Power	+15 VDC	—	mA	—	—	5
	-12 VDC	—	mA	—	—	3
Vin Low (0)	0.0 to 0.8V	—	μA	—	—	1
Vin High (1)	2.4 to 5.0V	—	μA	—	—	1

**Functional Schematic (Top View)**



**Truth Table**

Control Input					Attenuation Setting
C1	C2	C3	C4	C5	
0	0	0	0	0	Reference
1	0	0	0	0	1 dB
0	1	0	0	0	2 dB
0	0	1	0	0	4 dB
0	0	0	1	0	8 dB
0	0	0	0	1	16 dB
Any Combination					Sum of Bits Selected

**Absolute Maximum Ratings <sup>4</sup>**

Parameter	Absolute Maximum
Max Input Power 0.05 GHz 0.5 - 2.0 GHz	+27 dBm +32 dBm
Bias Voltage +15V Supply (V+) -12V Supply (V-)	-0.7V to +18V -15V to +0.7V
Control Voltage	(V-) -2V to (V+) +2V (or 30 mA, whichever comes first)
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +150°C

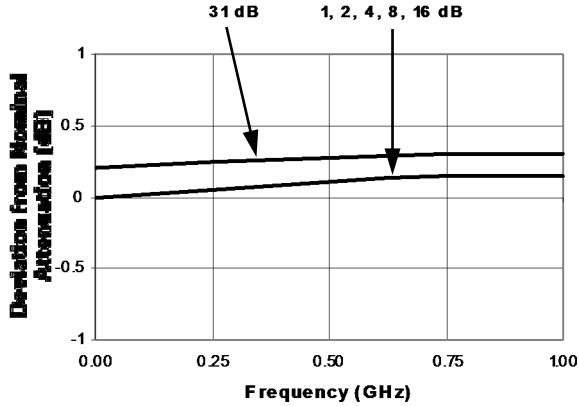
"1" = Logic High (TTL)

"0" = Logic Low (TTL)

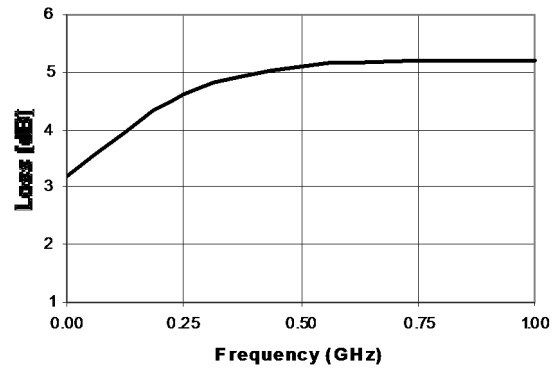
4. Operation of this device above any one of these parameters may cause permanent damage.

## Typical Performance Curves

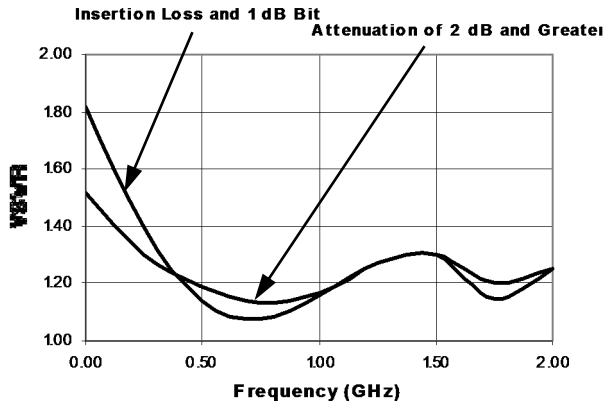
**Attenuation Flatness vs. Frequency**



**Ref. Insertion Loss vs. Frequency**



**VSWR vs. Frequency**



## Ordering Information

Part Number	Package
AT-357 SMA	C-46

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