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

AT-357

V3.00

Features

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

Guaranteed Specifications[1]

(-55°C to +85°C)

Frequency Range		DC to 2.0 GHz
Nominal Attenuation [2]		1 dB Steps to 31 dB
Attenuation Accuracy		
DC – 1.0 GHz		±(0.2 dB + 2% of Attenuation Setting in dB) dB
1.0 – 2.0 GHz		±(0.2 dB + 2% of Attenuation Setting in dB) dB
VSWR	DC – .025 GHz	2.2:1 Max
	.025 – 0.5 GHz	1.8:1 Max
	0.2 – 2.0 GHz	1.5:1 Max
	0.5 – 1.0 GHz	1.4:1 Max
Reference Insertion Loss	DC – 0.5 GHz	5.5 dB Max
	0.5 – 1.0 GHz	6.0 dB Max
	1.0 – 2.0 GHz	6.5 dB Max

Operating Characteristics

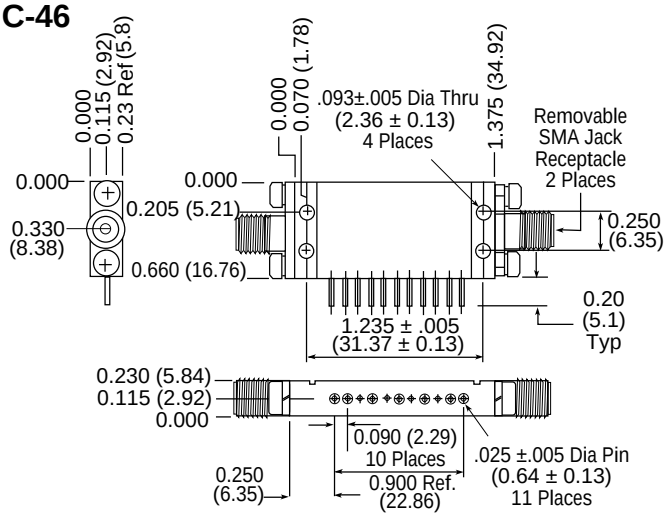
Impedance			50 Ohms Nominal
Switching Characteristics			
Ton, (50% CTL to 90% RF)			160 ns Typ
Toff (50% CTL to 10% RF)			80 ns Typ
Trise, (10% RF to 90% RF)			15 ns Typ
Tfall (90% RF to 10% RF)			3 ns Typ
Switching Transients (unfiltered)			130 mV Typ
Input Power for 1 dB Compression			
0.5 – 2.0 GHz			28 dBm Typ
0.05 GHz			15 dBm Typ
Intermodulation Intercept Point (for two-tone input power up to +5 dBm)			
Intercept Points	IP2	IP3	
0.5 – 2.0 GHz	+55	+47	dBm Typ
0.05 GHz	+45	+28	dBm Typ
Bias Power			+15 VDC @ 5 mA Max
			-12 VDC @ 3 mA Max
Control			5 line, TTL Data Bus
Vin Low (0)			0.0 to 0.8V @ 1 µA Max
Vin High (1)			2.4 to 5.0V @ 1 µA Max

1. All specifications apply when operated with bias voltages of +15 VDC and -12VDC and a 50 ohm impedance at both RF ports.
2. Above reference insertion loss.
3. Contact the factory for standard or custom screening requirements.

Ordering Information

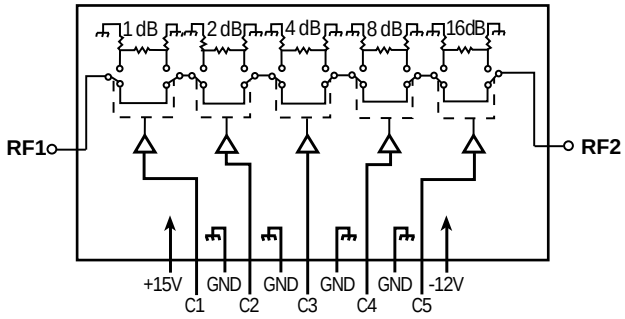
Model No.	Package
AT-357 SMA	Connectorized

C-46



Bottom of case is AC ground.
Dimensions in ( ) are in mm.
Unless Otherwise Noted: .xxx = ± 0.010 (.xx = ± 0.25)
.xx = ± 0.02 (.x = ± 0.5)

Functional Schematic (Top View)



Truth Table

Control Input					Attenuator 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
"1" = Logic High (TTL)					"0" = Logic Low (TTL)

North America: Tel. (800) 366-2266 Fax (800) 618-8883 ■ Asia/Pacific: Tel. +81 (03) 3226-1671 Fax +81 (03) 3226-1451 ■ Europe: Tel. +44 (1344) 869 595 Fax +44 (1344) 300 020

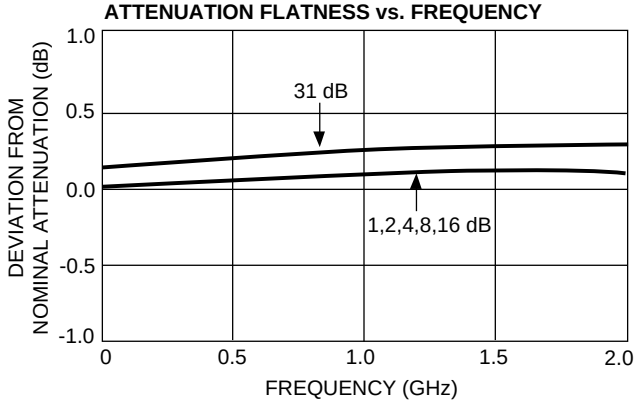
Absolute Maximum Ratings [1]

Parameter	Absolute Maximum[1]
Max. Input Power	
0.05 GHz	+27 dBm
0.5 – 2.0 GHz	+32 dBm
Bias Voltage	
+15V Supply (V+)	-0.7V to + 18V
-12V Supply (V-)	-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

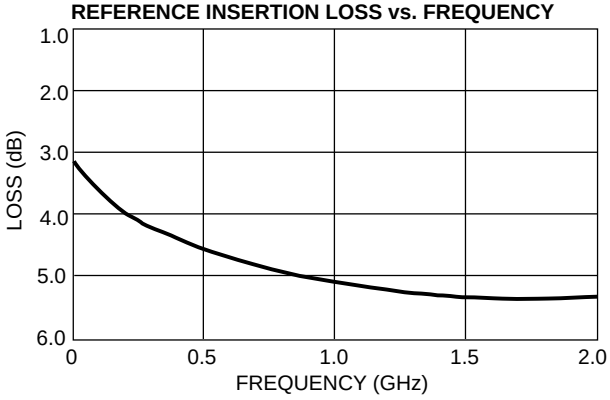
Note: 1. Operation of this device above any one of these parameters may cause permanent damage.

Typical Performance

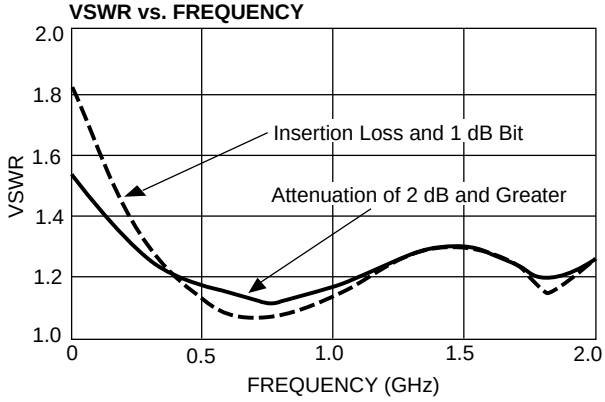
ATTENUATION FLATNESS vs. FREQUENCY



REFERENCE INSERTION LOSS vs. FREQUENCY



VSWR vs. FREQUENCY



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