

Digital Attenuator, 15 dB, 4-Bit DC - 2 GHz

AT-212

V 2.00

Features

- Attenuation 1-dB Steps to 15 dB
- Temperature Stability ± 0.18 dB from -55°C to $+85^{\circ}\text{C}$ Typical
- Ultra Low DC Power Consumption
- Hermetic Surface Mount Package
- Fast Switching Speed, 10 ns Typical

Guaranteed Specifications¹ (From -55°C to $+85^{\circ}\text{C}$)

Frequency Range	DC - 2.0 GHz	
Nominal Attenuation ²	1 dB Steps to 15 dB	
Attenuation Accuracy	DC - 2.0 GHz	
Any Single Bit	± 0.10 dB + 3% if Attenuation Setting in dB	
Any Combination of Bits	± 0.15 dB + 3% if Attenuation Setting in dB	
VSWR	DC - 2.0 GHz	1.5:1 dB Max
Reference Insertion Loss	DC - 2.0 GHz	2.0 dB Max

Operating Characteristics

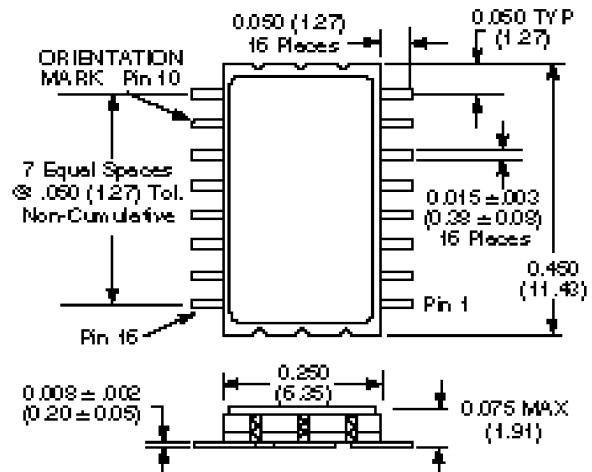
Impedance	50 Ohms Nominal		
Switching Characteristics			
Trise, Tfall (10% to 90%)	10 ns Typ		
Ton, Toff (50% C+L to 90%/10% RF)	15 ns Typ		
Transients (in band)	18 mV Typ		
Input Power for 1 dB Compression			
.005 GHz	+22 dBm Typ		
.05 GHz to 5 GHz	+28 dBm Typ		
Intermodulation Intercept Point (for two-tone input power up to +5 dBm)			
Intercept Points	IP ₂	IP ₃	
.005 GHz to 5 GHz	+49	+45	dBm
.05 GHz to 5 GHz	+72	+50	dBm
Control Voltages (Complementary Logic)			
V _{IN} Low	0 V to -0.2 V @ 20µA Max		
V _{IN} Hi	-5 V @ 10µA typ to -8 V @ 200 µA Max		

1. All specifications apply with 50 ohm connected to all RF ports.
2. Above reference insertion loss.
3. Contact the factory for standard or custom screening requirements.

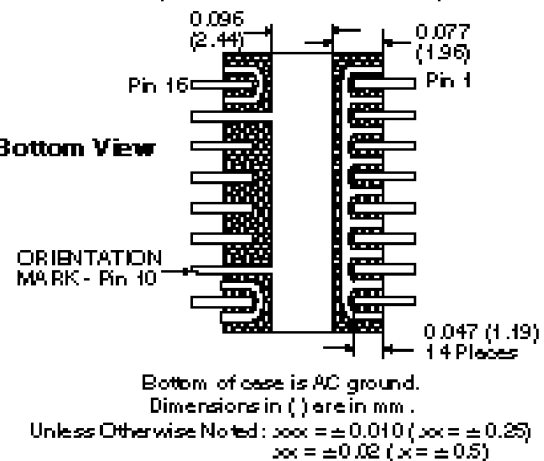
Ordering Information

Model No.	Package
AT-212 PIN	Surface Mount

CR-6



Bottom View

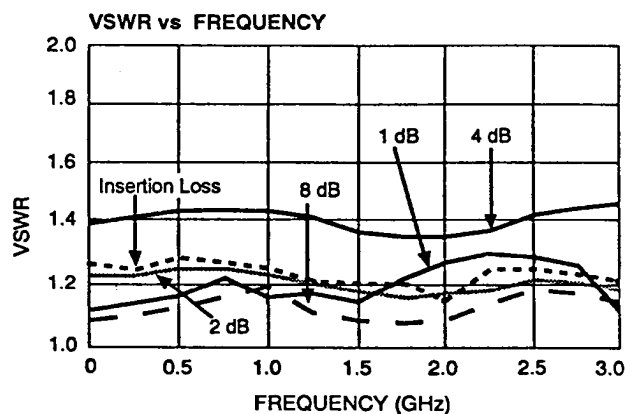
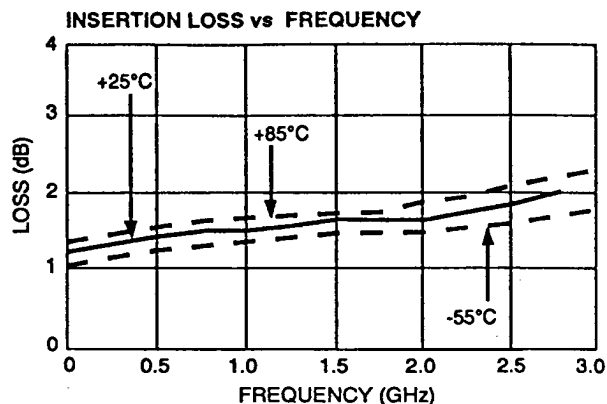


Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Max Input Power	
0.05 GHz	+27 dBm
0.5 - 2.0 GHz	+34 dBm
Control Voltage	+5 V, -8.5 V
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +150°C

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

Typical Performance



Truth Table

Control Inputs								Attenuation (dB)
$\overline{VC4}$	VC4	$\overline{VC3}$	VC3	$\overline{VC2}$	VC2	$\overline{VC1}$	VC1	
1	0	1	0	1	0	1	0	Reference
0	1	1	0	1	0	1	0	1 dB
1	0	0	1	1	0	1	0	2 dB
1	0	1	0	0	1	1	0	4 dB
1	0	1	0	1	0	0	1	8 dB
0	1	0	1	0	1	0	1	15 dB

"0" = Vin Low, Vin Low = 0 V, "1" = Vin High, Vin High = -5 V

Functional Schematic (Top View)

