

Digital Attenuator, 32 dB, 2-Bit DC - 2 GHz

AT-272

V 2.00

Features

- Attenuation 16-dB Steps to 32 dB
- Temperature Stability +/- 0.18 dB from -55°C to +85° C Typical
- Ultra Low DC Power Consumption
- Hermetic Surface Mount Package
- Fast Switching Speed, 6 ns Typical

Guaranteed Specifications¹ (From -55°C to + 85°C)

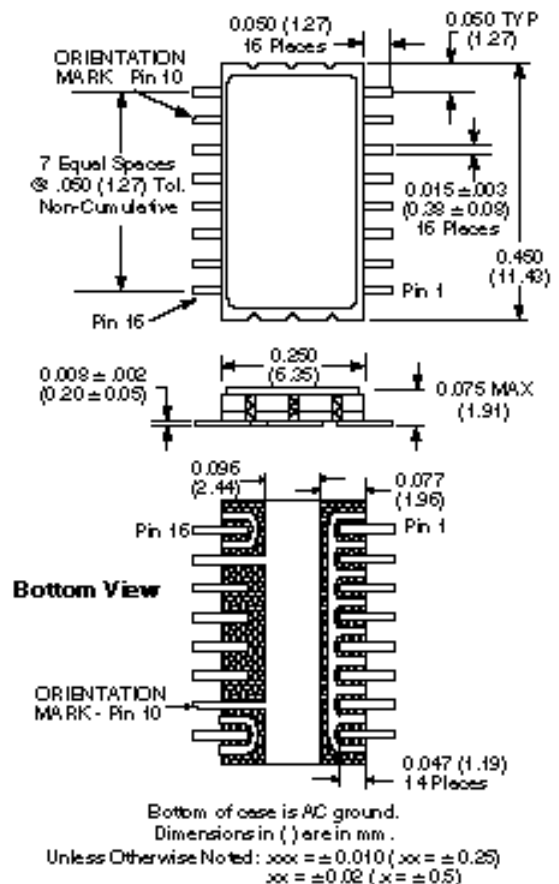
Frequency Range	DC – 2.0 GHz	
Nominal Attenuation²	16 dB Steps to 32 dB	
Attenuation Accuracy	DC – 2.0 GHz	
Any Single Bit	(DC-2 GHz ± 3% of Attenuation Setting in dB) dB	
Any Combination of Bits	(DC-1 GHz ± 3% of Attenuation Setting in dB) dB	
Any Combination of Bits	(1-2 GHz ± 7.5% of Attenuation Setting in dB) dB	
VSWR	DC – 2.0 GHz	1.6:1 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%)			6 ns	Typ
Ton, Toff (50% CTL to 90%/10%)			16 ns	Typ
Transients (in-Band)			15 mV	Typ
Input Power for 1 dB Compression				
0.05 GHz			+27 dBm	Typ
0.5 GHz to 3 GHz			+30 dBm	Typ
Intermodulation Intercept point (for two-tone input power up to +5 dBm)				
Intercept Points	IP2	IP3		
0.05 GHz	+44	+38	dBm	Typ
0.5 GHz to 3 GHz	+68	+48	dBm	Typ
Control Voltages (Complementary Logic)				
Vin Low	0V to -0.2V @ 20 µA Max			
Vin Hi	-5V @ 20 µA typ to -8V @ 100 µA Max			

1. All specifications apply when operated with a 50 ohm impedance at both RF ports.
2. Above reference insertion loss.

CR-6



Ordering Information

Part Number	Package
AT-272 PIN	Ceramic

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

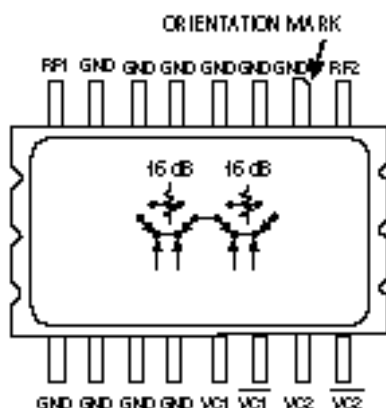
1. Operation of this device above any one of these parameters may cause permanent damage.

Truth Table

Control Inputs				
$\overline{\text{VC2}}$	VC2	$\overline{\text{VC1}}$	VC1	Attenuation (dB)
1	0	1	0	Reference
1	0	0	1	16 dB
0	1	1	0	16 dB
0	1	0	1	32 dB

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

Functional Schematic (Top View)



Typical Performance

