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 Specifications[1]

(From -55°C to + 85°C)

Frequency Range		DC – 2.0 GHz
Nominal Attenuation[2]		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

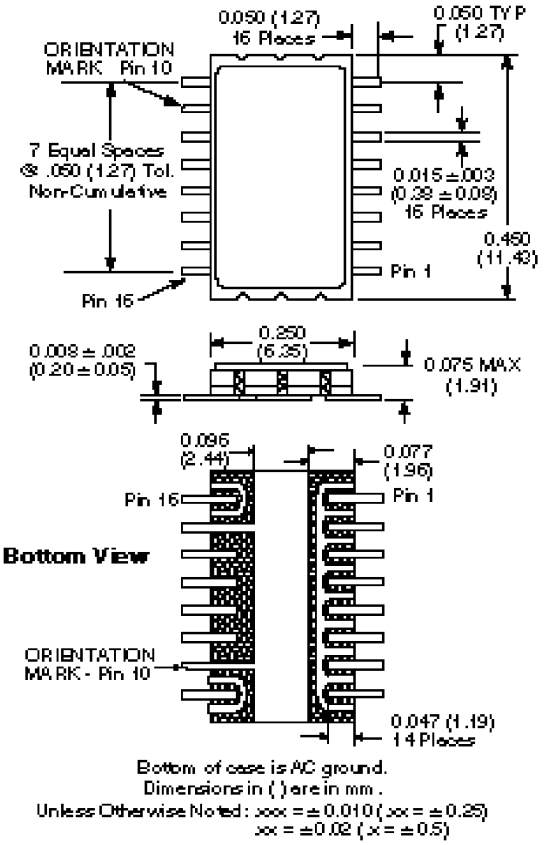
Intermodulation Intercept point (for two-tone input power up to +5 dBm)

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 Ratings[1]

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

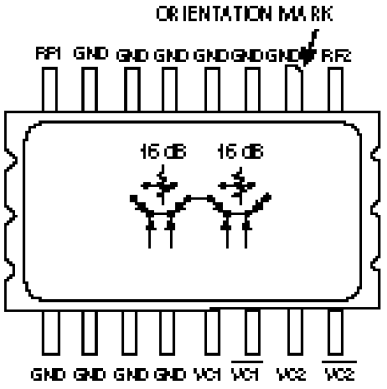
1. Operation of this device above any one of these parameters may cause permanent damage.

Truth Table

Control Inputs				
$\overline{VC2}$	VC2	$\overline{VC1}$	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