M/A-COM

Digital Attenuator, 32 dB, 2-Bit, TTL Driver DC - 2.0 GHz

Features

- Attenuation: 16.0 dB Steps to 32 dB
- Low DC Power Consumption
- Hermetic Surface Mount Package
- Integral TTL Driver
- 50 ohm Impedance
- Temperature Stability: ±0.18 dB from -55°C to +85°C Typ.
- Tape and Reel Packaging Available

Description

M/A-COM's AT-273 is a GaAs FET digital attenuator with a 16.0 dB minimum step size and a 32 dB total attenuation range. This attenuator and integral TTL driver is in a hermetically sealed ceramic 16-lead surface mount package. The AT-273 is ideally suited for use where accuracy, fast switching, very low power consumption and low intermodulation products are required. Typical applications include dynamic range setting in precision receiver circuits and other gain/leveling control circuits. Environmental screening is available. Contact the factory for information.

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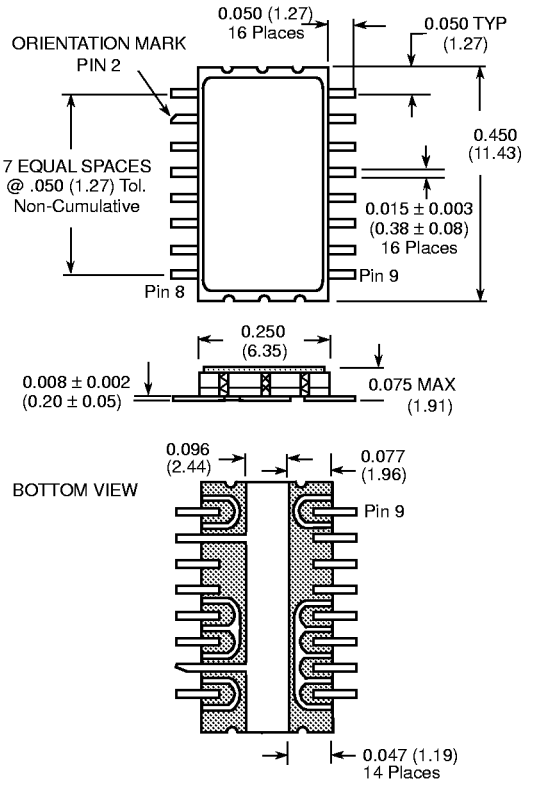

Ordering Information

Part Number	Package
AT-273	Bulk Packaging
AT-273-TR	Tape and Reel[1]

1. Check with the factory for available quantities and reel size.

Electrical Specifications T_A = +25°C

Parameter	Test Conditions	Frequency	Units	Min	Typical	Max
Insertion Loss	—	DC - 0.5 GHz	dB	—	—	1.6
		DC - 1.0 GHz	dB	—	—	1.7
		DC - 2.0 GHz	dB	—	—	1.9
Attenuation Accuracy	C1 Bit	DC - 2.0 GHz	± 3% of attenuation setting in dB			
	Full Attenuation (32 dB)	DC - 0.5 GHz	± 3% of attenuation setting in dB			
		DC - 1.0 GHz	± 3% of attenuation setting in dB, -1 dB			
		DC - 2.0 GHz	± 3% of attenuation setting in dB, -3 dB			
VSWR	Full Range	DC - 2.0 GHz	Ratio	—	—	1.6:1
Trise, Tfall	10% to 90%		nS	—	7	—
Ton, Toff	50% Cntl to 90%/10% RF		nS	—	28	—
Transients	In-Band (peak to peak)		mV	—	30	—

V5.00

Electrical Specifications T_A = +25°C

Parameter	Test Conditions	Frequency	Units	Min	Typical	Max
1 dB Compression	Input Power	0.05 GHz	dBm	—	+20	—
	Input Power	0.5 - 2.0 GHz	dBm	—	+28	—
Input IP_3	Two-tone inputs up to +5 dBm	0.05 GHz	dBm	—	+38	—
		0.5 - 2.0 GHz	dBm	—	+48	—
Input IP_2	Two-tone inputs up to +5 dBm	0.05 GHz	dBm	—	+44	—
		0.5 - 2.0 GHz	dBm	—	+68	—
Vcc	—	—	V	4.5	5.0	5.5
-Vee	—	—	V	-8.0		-5.0
Vctl	Logic (0) TTL	—	V	0.0	—	0.8
Vctl	Logic (1) TTL	—	V	2.0	—	5.0
Input Leakage Current (Low)	0 to 0.8 V	—	µA	—	—	1.0
Input Lekage Current (High)	2.0 to 5.0 V	—	µA	—	—	1.0
Icc	Vcc = 4.5 to 5.5V Vctl = 0 to 0.8V, or V_{CC} -2.1 V to V_{CC}	—	mA	—	—	2.0
-Iee	Vee = -5.0 to -8.0 V	—	mA	—	—	-1

Absolute Maximum Ratings [2]

Parameter	Absolute Maximum
Max. Input Power	
0.05 GHz	+27 dBm
0.5 - 2.0 GHz	+34 dBm
+Vcc	+5.5V
-Vee	-8.5V
Control Voltage	-0.5 to Vcc + 0.5V
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +150°C

2. Operation of this device above any one of these parameters may cause perament damage.

Pin Configuration

Pin #	Function	Pin #	Function
1	C2	9	RF1
2	GND	10	GND
3	C1	11	GND
4	GND	12	GND
5	GND	13	V_{EE}
6	GND	14	V_{CC}
7	GND	15	NC
8	RF2	16	NC

Truth Table

C1	C2	Attenuation
0	0	Loss, Reference
0	1	16.0 dB
1	1	30.0 dB

0 = TTL Low; 1 = TTL High

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