

**Voltage Variable Absorptive Attenuator,  
800 - 1000 MHz**

**AT10-0009  
V8**

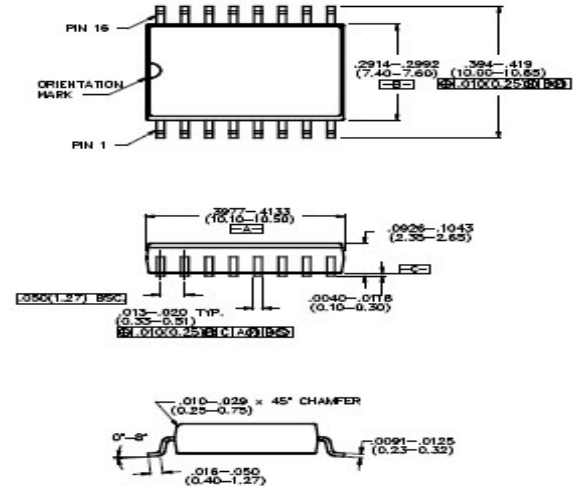
**Features**

- Input IP3: +35 dBm Min. (Full Attenuation Range)
- Input IP3 is **15 -20 dB** Better Than GaAs
- Linear Operation: +20 dBm Typ.
- Plastic SOIC, Wide Body, SMT Package
- 38 dB Dynamic Range (With 30 mA Bias Current)
- Single Control Voltage
- 50 ohm Impedance
- Linear Driver, DR65-0002, Available
- Test Boards are Available
- Tape and Reel Packaging Available

**Description**

M/A-COM's AT10-0009 is a PIN diode based voltage variable attenuator. This device is in a SOIC-16, wide body plastic surface mount package. These attenuators have linear operating power and input intercept point levels 15 - 20 dB better than GaAs FET MMIC voltage variable attenuators. They are ideally suited for use where low distortion, high linear operating power and high dynamic range are required. These devices are optimized for the GSM frequency band, but exhibit excellent performance and repeatability over the entire specified frequency band. The AT10-0009 is ideally suited for wireless communications systems.

**SOW-16**



Package outline conforms to JEDEC standard MS-013AA.

**Electrical Specifications: T<sub>A</sub> = 25°C**

Parameter	Test Conditions	Frequency	Units	Min.	Typ.	Max.
Insertion Loss	0 Volts	800- 1000 MHz	dB	—	3.5	4.2
		925 - 960 MHz	dB	—	3.3	3.9
Attenuation (Above Loss)	12 mA bias current	800- 1000 MHz	dB	30	—	—
		925 - 960 MHz	dB	33	38	—
Attenuation Flatness	0 to 30 dB attenuation	800- 1000 MHz	dB	—	1.5	2.5
		925 - 960 MHz	dB	—	0.4	0.8
VSWR	0 to 30 attenuation	800- 1000 MHz	Ratio	—	1.6:1	2.0:1
		925 - 960 MHz	Ratio	—	1.4:1	1.7:1
Switching Speed	50% Control to 90%/10% RF	800- 1000 MHz	µs	—	—	10.0
Linear Operation	—	800- 1000 MHz	dBm	—	+20	—
Input IP3	Two-tone inputs up to +10 dBm	800- 1000 MHz	dBm	+35	+40	—
I <sub>Control</sub>	—	800- 1000 MHz	mA	—	—	30

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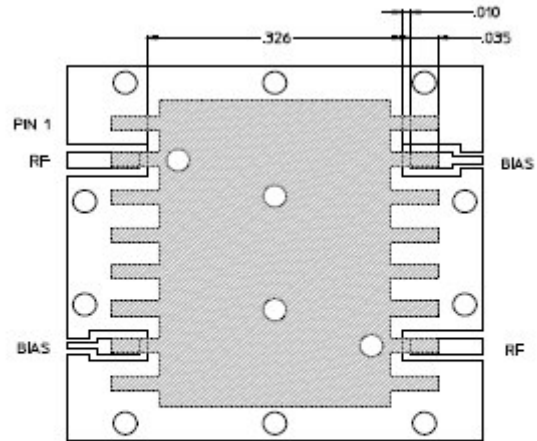
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**Pin Configuration**

Pin No.	Function	Pin No.	Function
1	GND	9	GND
2	RF	10	RF
3	GND	11	GND
4	GND	12	GND
5	GND	13	GND
6	GND	14	GND
7	Bias <sup>1</sup>	15	Bias <sup>1</sup>
8	GND	16	GND

1. Bias currents may be applied to pin 7 or 15. The unused pin should be isolated.

**Recommended PCB Configuration**



LINE IMPEDANCE 50Ω  
#030 PLATED THROUGH HOLES  
USE ONLY ONE BIAS LINE. THE OTHER BIAS  
MUST BE LEFT OPEN (NO TRACE BEYOND PAD)

**Absolute Maximum Ratings <sup>2</sup>**

Parameter	Absolute Maximum
Max. Input Power	+27
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +125°C

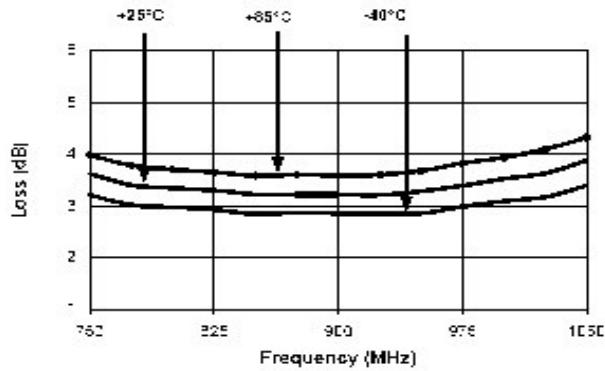
2. Operation of this device above any one of these parameters may cause permanent damage.

**Ordering Information**

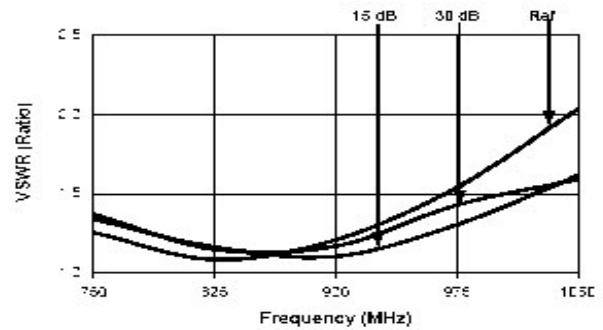
Part Number	Package
AT10-0009	Tube
AT10-0009TR	Tape and Reel (1K Reel)
AT10-0009-TB	Unit Mounted on Test Board
DR65-0002-TBG	Unit with Driver on Test Board

**Typical Performance Curves**

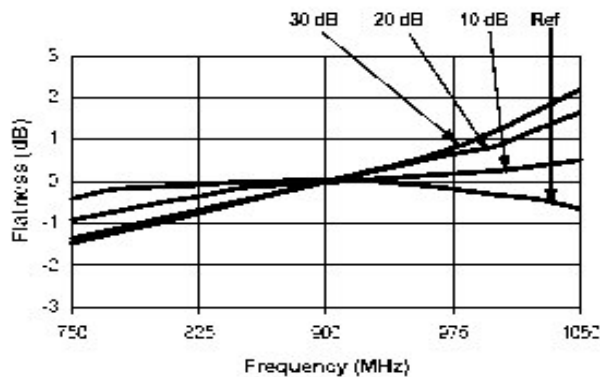
**Insertion Loss**



**Typical VSWR @ +25°C**



**Attenuation Flatness (dB) @ +25°C**



**Attenuation vs. Bias Current  
Frequency = 1000 MHz**

