

Voltage Variable Absorptive Attenuator, 1700 - 2000 MHz

AT10-0017
V6

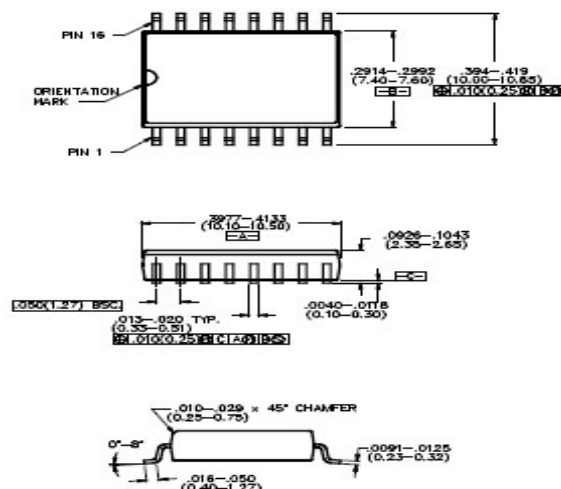
Features

- Input IP3: +31 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
- 35 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 AT10-0017 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 PCS frequency band, but exhibit excellent performance and repeatability over the entire specified frequency band. The AT10-0017 is ideally suited for wireless communications systems.

SOW-16



Package outline conforms to JEDEC standard MS-013AA.

Electrical Specifications: $T_A = 25^\circ\text{C}$

Parameter	Test Conditions	Frequency	Units	Min.	Typ.	Max.
Insertion Loss	0 Volts	1700– 2000 MHz 1930 - 1990 MHz	dB dB	— —	— 2.5	3.5 3.0
Attenuation (Above Loss)	10 mA bias current	1700– 2000 MHz 1930 - 1990 MHz	dB dB	28 30	— 35	— —
Attenuation Flatness	0 to 30 dB attenuation	1700– 2000 MHz 1930 - 1990 MHz	dB dB	— —	1.5 0.4	2.0 0.6
VSWR	0 to 30 attenuation	1700– 2000 MHz 1930 - 1990 MHz	Ratio Ratio	— —	1.6:1 1.5:1	1.8:1 1.7:1
Switching Speed	50% Control to 90%/10% RF	1700– 2000 MHz	μs	—	—	3.0
Linear Operation	—	1700– 2000 MHz	dBm	—	+20	—
Input IP3	Two-tone inputs up to +10 dBm	1700– 2000 MHz	dBm	+31	—	—
I _{Control}	—	1700– 2000 MHz	mA	—	—	30

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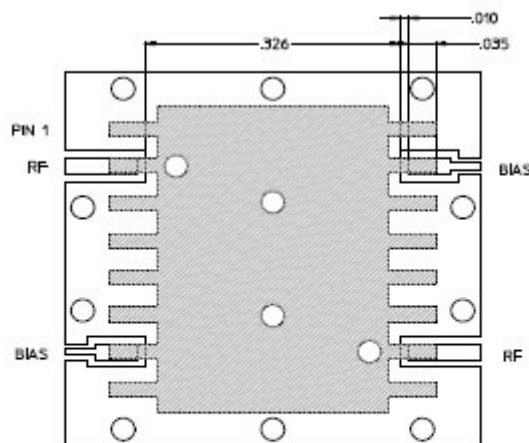
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Pin Configuration

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 ¹	15	Bias ¹
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 ²

Parameter	Absolute Maximum
Max. Input Power 1700– 2000 MHz	+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

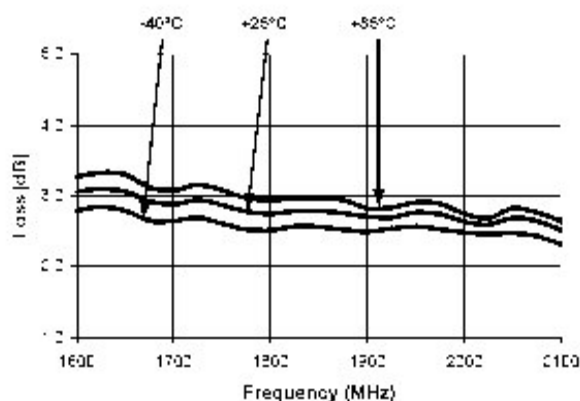
Part Number	Package
AT10-0017	Tube
AT10-0017TR	Tape and Reel (1K Reel)
AT10-0017-TB	Unit Mounted on Test Board
DR65-0002-TBP	Unit with Driver on Test Board

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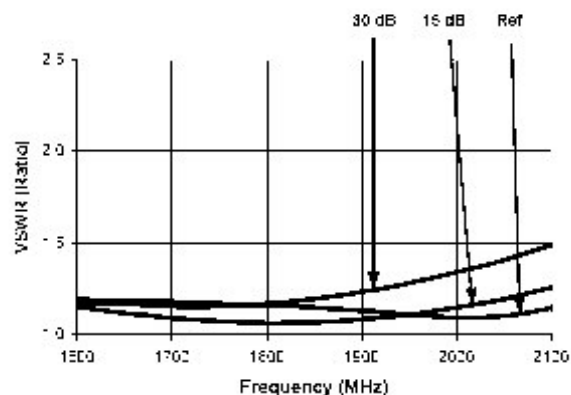
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Typical Performance Curves

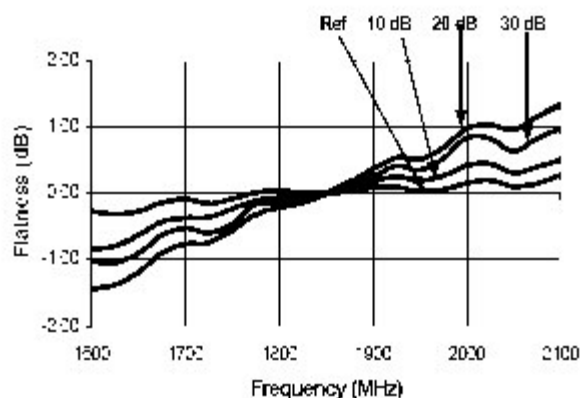
Insertion Loss



Typical VSWR @ +25°C



Attenuation Flatness (dB) @ +25°C



Attenuation vs. Bias Current, Frequency = 2000 MHz

