

AT-309

- 20 dB Voltage Variable Attenuation
- Very Low Power Consumption: 50 μ W
- Low Intermodulation Products
- Dual Voltage Control 0 to -4 Volts
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC8 Plastic Package
- Tape and Reel Packaging Available¹

M/A-COM's AT-309 is a GaAs MMIC voltage variable absorptive attenuator in a low cost SOIC 8-LD surface mount plastic package. The AT-309 is ideally suited for use where attenuation fine tuning, fast switching and very low power consumption are required. Typical applications include radio, cellular, and GPS equipment and other Automatic Gain/Level Control circuits.

Technical drawing of a rectangular component with dimensions and tolerances:

- PIN 8**: Located at the top left corner.
- Orientation mark**: A small square feature on the bottom edge.
- PIN 1**: Located at the bottom left corner.
- Dimensions and Tolerances**:
 - Top width: .0099-.0196 x 45° Chamfer (.025-.050)
 - Bottom width: .0075-.0098 (.019-.025)
 - Right side width: .016-.050 (.040-.127)
 - Left side width: .004-.0098 (.010-.025)
 - Top length: .1497-.1574 (3.80-4.00) - B -
 - Bottom length: .1890-.1968 (4.80-5.00) - A -
 - Center length: .0532-.0688 (1.35-1.75) - C -
 - Overall length: .2284-.2440 (5.80-6.20)
 - Surface texture: .004 (0.10)
 - Surface texture: .013-.020 TYP. (0.33-0.51)
 - Surface texture: .050 (1.27) BSC.
- Feature Control Frames**:
 - Top right: $\oplus .010(0.25) \text{ M B M}$
 - Bottom center: $\oplus .010(0.25) \text{ M C A M BS}$

Unless Otherwise Noted: .xxx = ± 0.010 (.xx = ± 0.25)
 .xx = ± 0.02 (.x = ± 0.5)

SOIC 8 Lead
Forward Tape & Reel
Reverse Tape & Reel

Parameter	Test Conditions ²		Unit	Min.	Typ.	Max
Insertion Loss		DC – 0.1 GHz	dB		0.7	0.9
		DC – 0.5 GHz	dB		0.8	1.0
		DC – 1.0 GHz	dB		0.9	1.2
		DC – 2.0 GHz	dB		1.2	1.4
Flatness (Peak to Peak)		DC – 0.1 GHz	dB		+/-0.5	+/-0.8
		DC – 0.5 GHz	dB		+/-0.5	+/-0.8
		DC – 1.0 GHz	dB		+/-0.8	+/-1.0
		DC – 2.0 GHz	dB		+/-1.0	+/-1.2
VSWR (Matched)					1.4:1	
Trise, Tfall	10% to 90% RF, 90% to 10% RF		nS		6	
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF		nS		8	
Transients	In Band		mV		10	
One dB Compression Point	Input Power (Over Attenuation Range)	0.05 GHz	dBm		18	
	Input Power (Over Attenuation Range)	0.5 – 2.0 GHz	dBm		21	
2nd Order Intercept	Measured Relative (Over Attenuation Range)	0.05 GHz	dBm		47	
	to Input Power (Over Attenuation Range) (for two-tone input power up to +5 dbm)	0.5 – 2.0 GHz	dBm		40	
3rd Order Intercept	Measured Relative (Over Attenuation Range)	0.05 GHz	dBm		39	
	to Input Power (Over Attenuation Range) (for two-tone input power up to +5 dbm)	0.5 – 2.0 GHz	dBm		32	

2. All measurements at 1 GHz in a 50Ω system, unless otherwise specified. The A and B control voltages vary 0 to -4V @ 20 μA typ.

Telephone: 800-366-2266

Voltage Variable Absorptive Attenuator, 20 dB

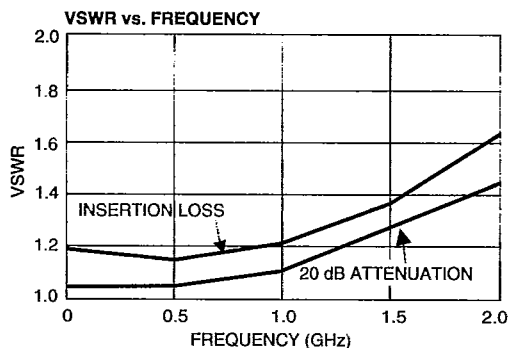
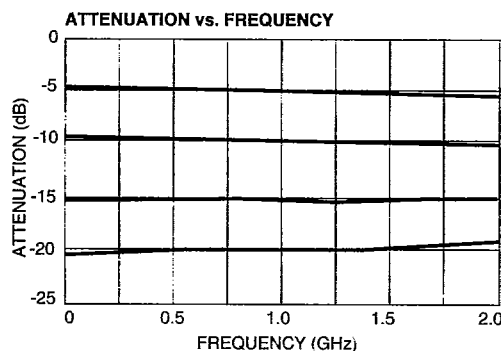
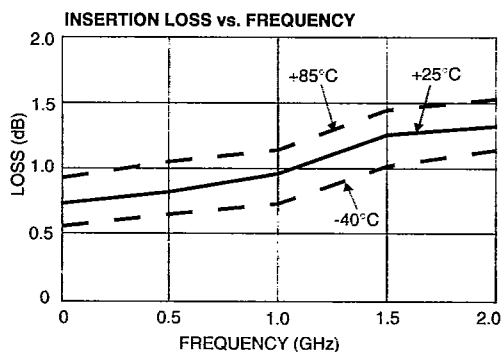
AT-309

Absolute Maximum Ratings

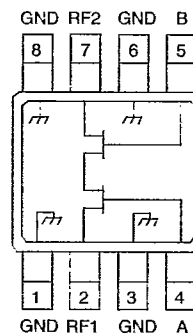
Parameter	Absolute Maximum ¹
Max. Input Power	
50 MHz	+27 dBm
500-2000 MHz	+30 dBm
Control Voltage	+5V, -8.5V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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

Typical Performance

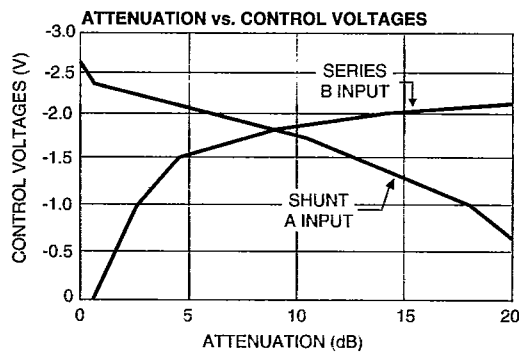


Functional Schematic

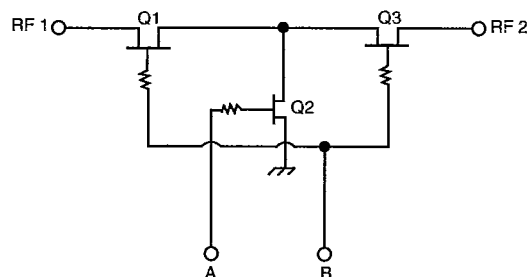


Pin Configuration

Pin No.	Description
1	GND
2	RF1
3	GND
4	A
5	B
6	GND
7	RF2
8	GND



Electrical Schematic



Specifications Subject to Change Without Notice