

Voltage Variable Absorptive Attenuator, 35 dB 0.5 - 2 GHz AT-109

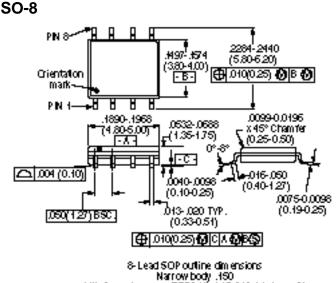
Features

- Single Positive Voltage Control 0 to +5 Volts
- 35 dB Attenuation Range at 0.9 GHz
- ±2 dB Linearity from BSL
- Low DC Power Consumption
- Temperature Range: -40°C to +85°C
- Low-Cost SOIC 8 Plastic Package
- Tape and Reel Packaging Available

Description

M/A-COM's AT-109 is a GaAs MMIC voltage variable absorptive attenuator in a low-cost SOIC 8-lead surface mount plastic package. The AT-109 is more linear than the higher attenuation range AT-108. The AT-109 is ideally suited for use where linear attenuation fine tuning and very low power comsumption are required. Typical applications include radio, cellular, GPS equipment and automatic gain/level control circuits.

The AT-109 is fabricated with a monolithic GaAs MMIC using a mature 1-micron process. The process features full chip passivation for increased performance and reliability.



Narrow body .150 (All dimensions per JEDEC No. MS-012-AA, Issue C) Dimensions in () are in mm. Unless Otherwise Noted: $poor = \pm 0.010 (por = \pm 0.25)$ $poor = \pm 0.02 (pr = \pm 0.5)$

Ordering Information

Part No.	Part No. Package	
AT-109	SOIC 8-Lead Plastic Package	
AT-109TR	Forward Tape & Reel*	
AT-109RTR	Reverse Tape & Reel*	

 If specific reel size is required, consult factory for part number assignment.

Parameter	Test Conditions ¹	Unit	Min.	Тур.	Max
Insertion Loss	0.5 - 1.0 GHz	dB		2.5	2.7
	1.0 - 2.0 GHz	dB		3.2	3.5
Attenuation	0.5 - 1.0 GHz	dB	35		
	1.0 - 2.0 GHz	dB	30		
Flatness	0.5 - 1.0 GHz	dB		±0.5	±0.8
(Peak-to-Peak)	1.0 - 2.0 GHz	dB		±1.2	±1.5
VSWR				2:1	
Trise, Tfall	10% to 90% RF, 90% to 10% RF	μS		25	
Ton, Toff	50% Control to 90% RF, Control to 10% RF	μS		35	
Transients	In-band	mV		12	

1. All measurements at 1 GHz in a 50-Ω system, unless otherwise specified. The RF ports must be blocked outside of the package from ground or any other voltage.

Electrical Specifications¹, $T_A = +25^{\circ}C$

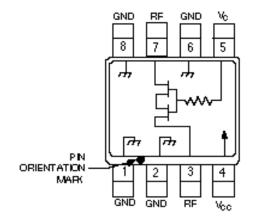
V 2.00

Absolute Maximum Ratings¹

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Parameter		Absolute Maximum			
	Maximum Input Power	+21 dBm			
	Supply Voltage V _{CC}	-1 V, +8 V			
	Control Voltage V _{CC}	-1 V, V _{CC} + 0.5 V			
	Operating Temperature	-40°C to +85°C			
	Storage Temperature	-65°C to +150°C			

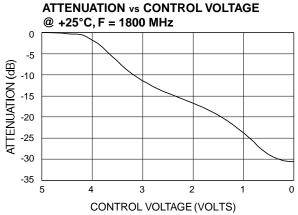
1. Operation of this device above any one of these parameters may cause permanent damage.

Functional Schematic

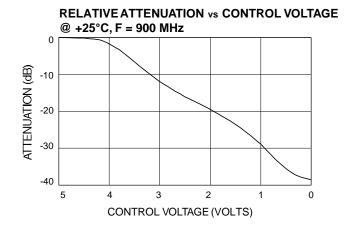


 V_{CC} = +5 VDC ±0.5 VDC @ 50 μA max. V_{C} = 0 VDC to +5 VDC @ 50 μA max. External DC blocking capacitors are required on all RF ports.

Typical Performance



INSERTION LOSS vs FREQUENCY 4.0 3.0 LOSS (dB) 2.0 1.0 0 0.5 1.0 2.0 1.5 FREQUENCY (GHz)



ATTENUATION vs TEMPERATURE, NORMALIZED TO +25°C, F = 900 MHz

