

# Voltage Variable Absorptive Attenuator, 30 dB 0.5 - 2 GHz AT-110

#### Features

- Single Positive Voltage Control 0 to +5 Volts
- 30 dB Voltage Variable Attenuation
- ±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
- Fast Switching Speed

### Description

M/A-COM's AT-110 is a linear GaAs MMIC voltage variable absorptive attenuator in a low-cost SOIC 8-lead surface mount plastic package. The AT-110 has a faster switching speed than the AT-108 or AT-109. The AT-110 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-110 is fabricated with a monolithic GaAs MMIC using a mature 1-micron process. The process features full chip passivation for increased performance and reliability.

## Typical Electrical Specifications<sup>1</sup>, T<sub>A</sub> = +25°C



#### **Ordering Information**

Part Number	Package		
AT-110	SOIC 8-Lead Plastic Package		
AT-110TR	Forward Tape & Reel*		
AT-110RTR	Reverse Tape & Reel*		

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

Parameter	Test Conditions	Units	Min.	Тур.	Max.
Insertion Loss	0.5 - 1.0 GHz	dB		2.8	3.0
	1.0 - 2.0 GHz	dB		3.3	3.6
Attenuation	0.5 - 16 GHz	dB	30		
	1.0 - 26 GHz	dB	25		
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		0.2	
Ton, Toff	50% Control to 90% RF, Control to 10% RF	μS		0.2	
Transients	In-band	mV		70	

1. All measurements at 1 GHz in a 50from ground or any other voltage. system, unless otherwise specified. The RF ports must be blocked outside of the package V 2.00

## Absolute Maximum Ratings<sup>1</sup>

Parameter	Absolute Maximum
Maximum Input Power	+21 dBm
Supply Voltage V <sub>CC</sub>	-1 V, +8 V
Control Voltage V <sub>C</sub>	-1 V, V <sub>CC</sub> +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  $\pm$  0.5 VDC @ 300  $\mu A$  max.  $V_{C} = 0$  VDC to +5 VDC @ 6 mA max. External DC blocking capacitors are required on all RF ports.





**INSERTION LOSS vs FREQUENCY** 









