

# Voltage Variable Absorptive Attenuator, 35 dB DC - 2 GHz

## AT-635

V 3.00

### Features

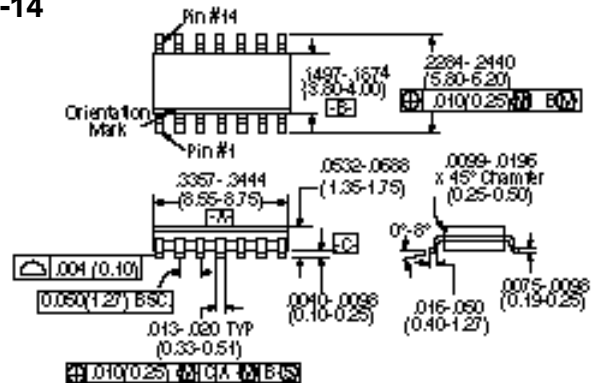
- 35 dB Voltage Variable Attenuation @ 1 GHz
- Single Voltage Control 0 to -4 Volts
- Low DC Power Consumption: 10 mW
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC14 Plastic Package
- Tape and Reel Packaging Available<sup>1</sup>

### Description

M/A-COM's AT-635 is a GaAs MMIC voltage variable absorptive attenuator in a low cost SOIC 14-lead surface mount plastic package. The AT-635 is ideally suited for use where attenuation fine tuning, fast switching and very low power consumption are required. Typical applications include radio, cellular, GPS equipment and other Automatic Gain/Level Control circuits.

The AT-635 is fabricated with a monolithic GaAs MMIC using a mature 1-micron process. The process features full chip passivation for increased performance and reliability.

### SO-14



14-Lead SOP outline dimensions  
Narrow body .150  
(All dimensions per JEDEC No. MS-012-AB, Issue C)  
Dimensions in ( ) are in mm.  
Unless Otherwise Noted: .xxx = ±0.10 (x = ±0.25)  
.xxx = ±0.02 (x = ±0.5)

### Ordering Information

Part Number	Package
AT-635 PIN	SOIC 14-Lead Plastic Package
AT-635TR	Forward Tape & Reel

### Electrical Specifications, $T_A = +25^\circ\text{C}$

Parameter	Test Conditions <sup>2</sup>	Unit	Min.	Typ.	Max
Insertion Loss	DC - 0.1 GHz	dB		6.5	6.7
	DC - 0.5 GHz	dB		6.7	7.0
	DC - 1.0 GHz	dB		7.2	7.4
	DC - 2.0 GHz	dB		7.5	7.8
Flatness (Peak to Peak)	DC-2 GHz	10 dB Attenuation		+/-1.0	+/-1.3
		20 dB Attenuation		+/-1.2	+/-1.5
		30 dB Attenuation		+/-1.2	+/-1.5
VSWR			2.0:1		
Trise, Tfall Ton, Toff Transients	10% to 90% RF, 90% to 10% RF 50% Control to 90% RF, 50% Control to 10% RF In Band	nS		2	
		nS		4	
		mV		30	
Power Handling	Linear Operation	dBm			13
	Absolute Max Input Power	dBm			21
IP <sub>2</sub>	Measured Relative to Input Power (for two-tone input power up to +5 dBm)	0.05 GHz		34	
		0.5 - 2.0 GHz		47	
IP <sub>3</sub>	Measured Relative to Input Power (for two-tone input power up to +5 dBm)	0.05 GHz	18	31 <sup>(3)</sup>	
		0.5 - 2.0 GHz	18.5	36 <sup>(3)</sup>	

1. Refer to "Tape and Reel Packaging" Section, or contact factory.

2. All measurements at 1 GHz in a 50 Ω system, unless otherwise specified. The A control voltage 0 to -4 volts @ 20 μA typ.

3. For levels above 6 dB attenuation. For levels below 6 dB, the minimum specification numbers apply.

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

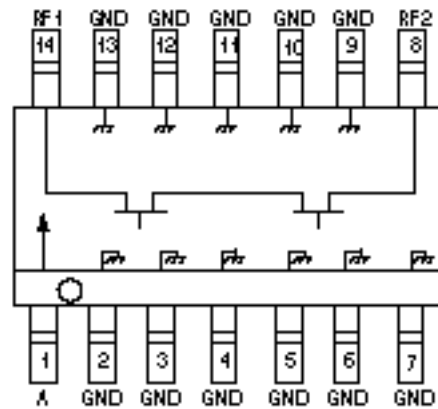
Parameter	Absolute Maximum
Max. Input Power	+21 dBm
Control Voltage	+5 V, -8.5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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

### Pin Configuration

Pin No.	Description	Pin No.	Description
1	A	8	RF2
2	GND	9	GND
3	GND	10	GND
4	GND	11	GND
5	GND	12	GND
6	GND	13	GND
7	GND	14	RF1

### Functional Schematic



### Typical Performance

