



#### Features

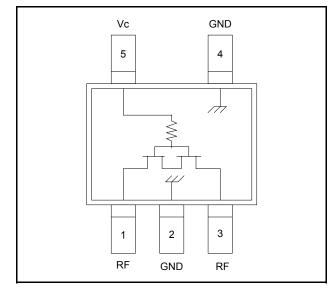
- Single Voltage Control: 0 to -3 Volts
- 25 dB Attenuation Range at 0.9 GHz
- Low DC Power Consumption
- SOT-25 Plastic Package
- Tape and Reel Packaging Available

#### Description

M/A-COM's AT-255 is a GaAs MMIC voltage variable absorptive attenuator in a low cost SOT-25 surface mount plastic package. The AT-255 is ideally suited for use where variable attenuation, fine tuning, and very low power consumption are required.

Typical applications include radio, cellular, GPS equipment and automatic gain/level control circuits. The AT-255 is fabricated using a mature 1-micron GaAs MESFET process. The process features full chip passivation for increased performance and reliability.

## Functional Schematic<sup>1</sup>



1.  $V_c$  = -3 V to 0 V @ 25  $\mu$ A maximum.

## **Pin Configuration**

Pin No.	Function	Pin No.	Function
1	RF Port	4	Ground
2	Ground	5	Vc
3	RF Port		

## Absolute Maximum Ratings<sup>2</sup>

Parameter	Absolute Maximum		
Input Power	+21 dBm		
Control Voltage $V_C$	-8 V to +0.5 V		
Operating Temperature	-40°C to +85°C		
Storage Temperature	-65°C to +150°C		

2. Exceeding any one or combination of these limits may cause permanent damage to this device.

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Visit www.macom.com for additional data sheets and product information.

## **Ordering Information**

Part Number	Package		
AT-255	SOT-25 Plastic		
AT-255TR	1000 piece reel		

Note: Reference Application Note M513 for reel size information.

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# 3 Volt Voltage Variable Attenuator 25 dB, DC-2.5 GHz

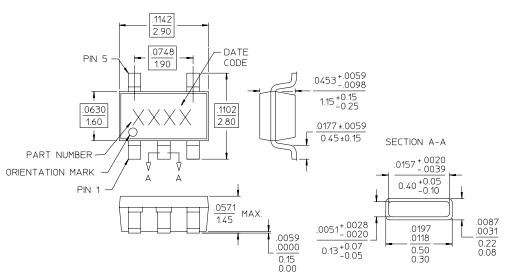
AT-255 V7

# Electrical Specifications: $T_A = 25^{\circ}C$ , $Z_0 = 50 \Omega$

Parameter	Test Conditions	Units	Min	Тур	Max
Insertion Loss <sup>3</sup>	DC—2.0 GHz	dB	_	3.6	4.2
Attenuation	DC—1.0 GHz 1.0—2.0 GHz	dB dB	23 18	25 20	_
Flatness (Peak-to-Peak)	0.5—1.0 GHz 1.0—2.0 GHz	dB dB		<u>+</u> 7 <u>+</u> 5	<u>+</u> 10 <u>+</u> 8
VSWR	DC—2.0 GHz	Ratio	—	3:1	—
Trise, Tfall	10% to 90% RF, 90% to 10% RF	nS	—	10	—
Ton, Toff	50% Control to 90% RF, 50% Control to 10% RF	nS	_	20	—
Transients	In Band	mV	—	10	—

3. Insertion loss varies 0.003 dB/°C.

## **SOT-25**



NOTES: 1. REFERENCE JEDEC MO-178-AA FOR ADDITIONAL DIMENSIONAL AND TOLERANCE INFORMATION. 2. REFERENCE M538 APPLICATION NOTE FOR PCB FOOTPRINT INFORMATION. 3. ALL DIMENSIONS SHOWN AS INCHES/MM.

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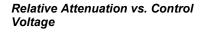
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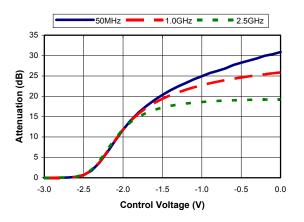
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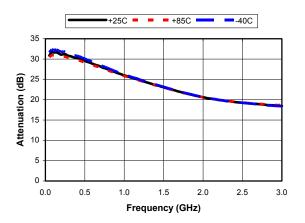


#### **Typical Performance Curves**

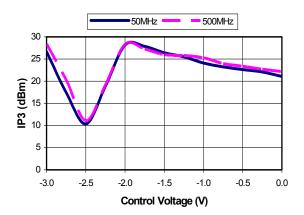




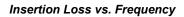
#### Maximum Relative Attenuation vs. Frequency

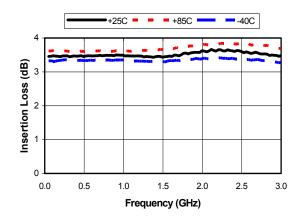


Input IP3 vs. Control Voltage



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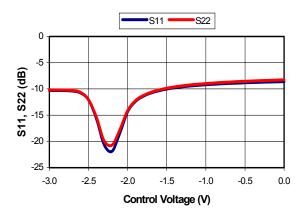


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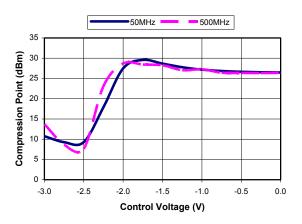
AT-255

**V7** 

Return Loss vs. Control Voltage @ 900 MHz



Input P1dB vs. Control Voltage



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