

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

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.

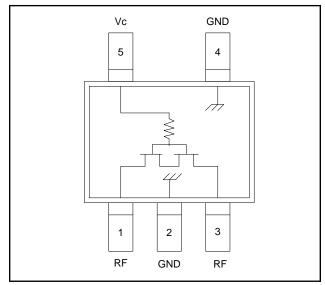
Ordering Information^{1,2}

Part Number	Package		
AT-255	Bulk Package		
AT-255TR	1000 piece reel		
AT-255SMB	Sample Board		

1. Reference Application Note M513 for reel size information.

2. All sample boards include 5 loose parts.

Functional Schematic ³



3. $V_C = -3 V$ to 0 V @ 25 μ A maximum.

Pin Configuration

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

Absolute Maximum Ratings⁴

Parameter Absolute Maxim	
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

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

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1

Rev. V7



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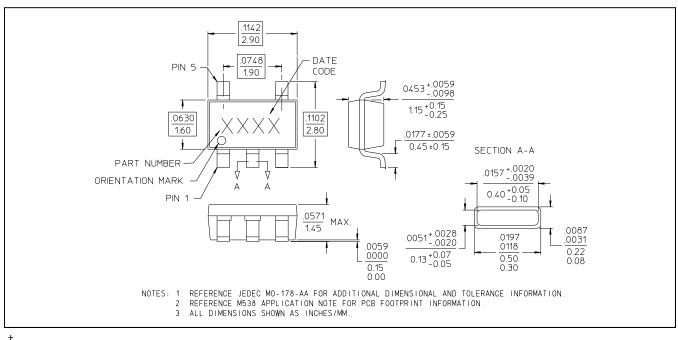
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Electrical Specifications: $T_A = 25^{\circ}C$, $Z_0 = 50 \Omega$

Parameter	Test Conditions	Units	Min.	Тур.	Max.
Insertion Loss ⁵	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	—

5. Insertion loss varies 0.003 dB/°C.

SOT-25[†]



[†] Meets JEDEC moisture sensitivity level 1 requirements.

2

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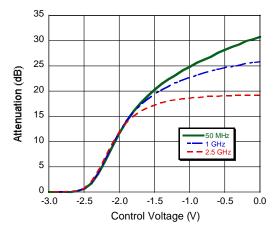


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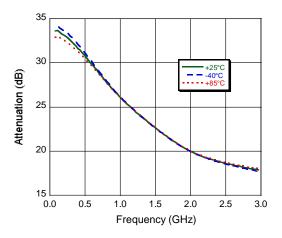
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Typical Performance Curves

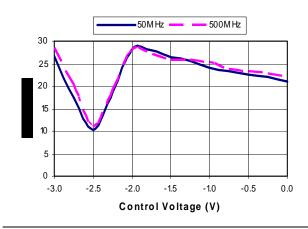
Relative Attenuation vs. Control Voltage



Maximum Relative Attenuation vs. Frequency



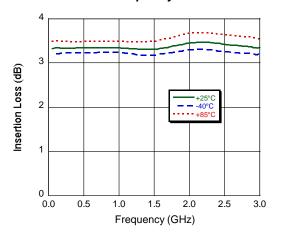




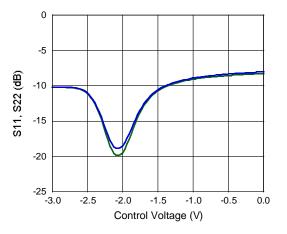
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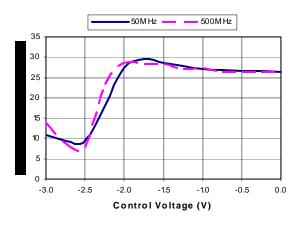
Insertion Loss vs. Frequency



Return Loss vs. Control Voltage @ 900 MHz







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