

Voltage Variable Absorptive Attenuator

DC - 2 GHz

AT-250

V 2.00

Features

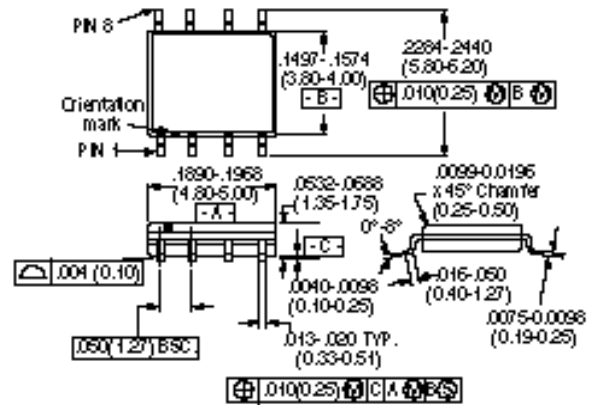
- 12 dB Voltage Variable Attenuation
- Low Intermodulation Products
- Low DC Power Consumption: 50 μ W
- Single Voltage Control 0 to -4 Volts
- Nanosecond Switching Speed
- Temperature Range: -40°C to +85°C
- Low Cost SOIC 8 Lead Plastic Package
- Tape and Reel Packaging Available¹

Description

M/A-COM's AT-250 is a GaAs MMIC voltage variable absorptive attenuator in a low cost SOIC 8-lead surface mount plastic package. The AT-250 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-250 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-8



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

Ordering Information

Part Number	Package
AT-250 PIN	SOIC 8-Lead Plastic Package
AT-250TR	Forward Tape & Reel
AT-250RTR	Reverse Tape & Reel

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

Parameter	Test Conditions ²	Unit	Min.	Typ.	Max.
Insertion Loss	DC - 0.1 GHz	dB		2.9	3.1
	DC - 0.5 GHz	dB		3.0	3.2
	DC - 1.0 GHz	dB		3.2	3.5
	DC - 2.0 GHz	dB		3.4	3.8
Flatness (Peak to Peak)	DC - 0.1 GHz	dB		+/- 0.1	+/- 0.3
	DC - 0.5 GHz	dB		+/- 0.2	+/- 0.4
	DC - 1.0 GHz	dB		+/- 0.5	+/- 0.8
	DC - 2.0 GHz	dB		+/- 1.2	+/- 1.5
VSWR				2.1:1	
Trise, Tfall Ton, Toff Transients	10% to 90% RF, 90% to 10% RF	nS		3	
	50% Control to 90% RF, 50% Control to 10% RF	nS		5	
	In Band	mV		10	
Power Handling	Linear Operation	dBm			13
	Absolute Max Input Power	dBm			21
IP ₂	Measured Relative to Input Power (For two-tone Input Power Up to +5 dBm)	dBm	28 40	34 47	
		0.05 GHz 0.5 - 2.0 GHz			
IP ₃	Measured Relative to Input Power (For two-tone Input Power Up to +5 dBm)	dBm	18 18.5	31 ⁽³⁾ 36 ⁽³⁾	
		0.05 GHz 0.5 - 2.0 GHz			

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. A control voltage 0 to -4 volts @ 20 μ A typ.

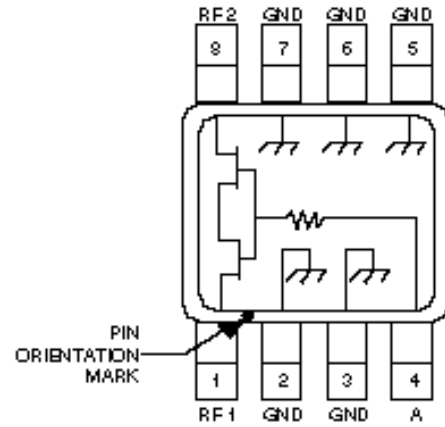
3. For levels above 6 dB attenuation. For levels below 6 dB, the minimum specification numbers apply.

Absolute Maximum Ratings¹

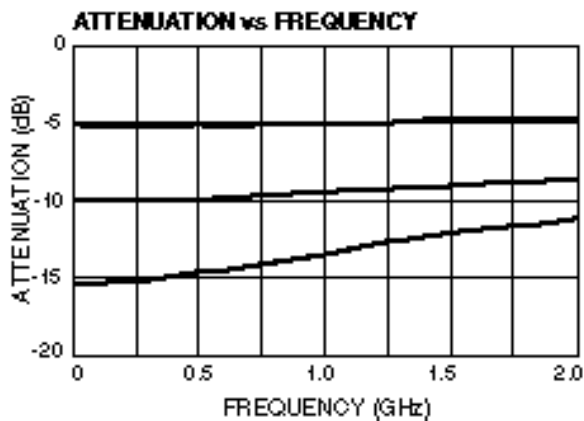
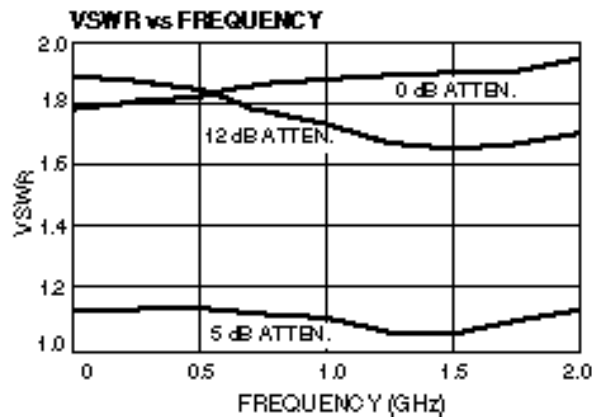
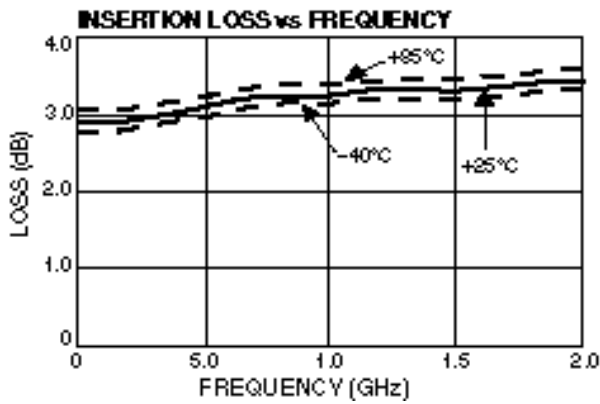
Parameter	Absolute Maximum
Max. Input Power	+21 dBm
Control Voltage	+5 V, -8.5 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C

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

Functional Schematic



Typical Performance



Pin Configuration

Pin No.	Description
1	RF1
2	GND
3	GND
4	A
5	GND
6	GND
7	GND
8	RF2

