

2.25 Volt Voltage Variable Absorptive Attenuator, 42 dB, 1.8 - 2.5 GHz

Lead Free

MAAVSS0001

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Features

- Low Cost SOT-25 **Lead Free** Plastic Package
- Single Positive Voltage Control, 0 to +2.25 Volts
- 42 dB Typical Attenuation Range at 2.4 GHz
- Low DC Power Consumption
- 100% Matte Tin Plating
- Halogen-Free Mold Compound
- 260°C Re-Flow Compatible
- Lead Free Version of AT-119

Description

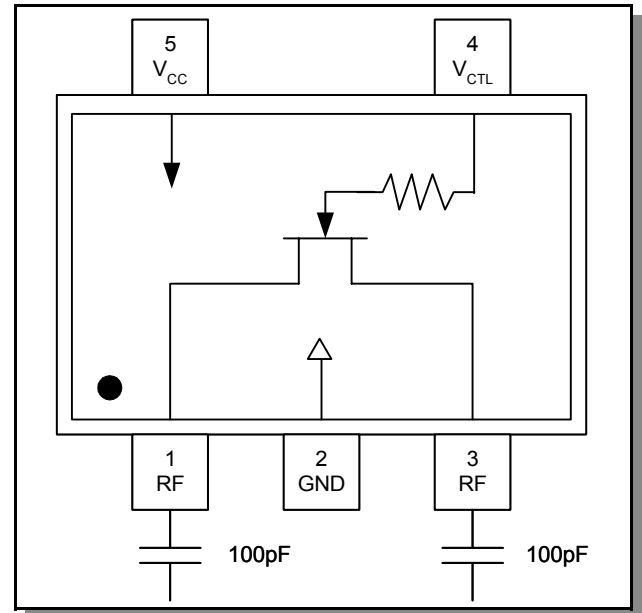
M/A-COM's MAAVSS0001 is a GaAs MMIC voltage variable absorptive attenuator in a low cost, SOT-25 lead free surface mount plastic package. M/A-COM fabricates the MAAVSS0001 with a proven monolithic GaAs 0.5 micron gate process that features full chip passivation for performance and reliability.

Applications

The MAAVSS0001 is ideally suited for applications that require fine tuning, linear attenuation with voltage, and very low power consumption.

Typical applications for the MAAVSS0001 include automatic gain control circuits in satellite radio receivers and other wireless receivers.

Functional Schematic



Electrical Specifications: $T_A = 25^\circ\text{C}$, Frequency = 2.4 GHz, $V_{CC} = 3.3\text{ V}$

Parameter	Test Conditions ^{1,2}	Units	Min	Typ	Max
Insertion Loss	$V_{CTL} = 2.25\text{ V}$	dB	—	2.4	3.2
Maximum Attenuation	$V_{CTL} = 0.5\text{ V}$	dB	37	42	—
Attenuation Slope	$0.75\text{ V} < V_{CTL} < 1.75\text{ V}$	dB/V	24	—	—
Return Loss	$0.0\text{ V} < V_{CTL} < 0.75\text{ V}$	dB	—	6	—
	$0.75\text{ V} < V_{CTL} < 1.75\text{ V}$	dB	—	10	—
	$1.75\text{ V} < V_{CTL} < 2.25\text{ V}$	dB	—	14	—
Input Power for 1dB Change in Attenuation	$0.75\text{ V} < V_{CTL} < 2.25\text{ V}$	dBm	—	10	—
Input 3rd Order Intercept Point	$0.75\text{ V} < V_{CTL} < 2.25\text{ V}$	dBm	—	15	—
Switching Speed	50% V_{CTL} to 10% / 90% RF	nSec	—	100	—
Transients	$V_{CTL} = 3\text{ V}$, In-Band	mV	—	10	—

1. All measurements in a 50-ohm system unless otherwise specified. External DC blocking capacitors are required on all RF Ports.
 2. $V_{CC} = +3.3\text{ V}$ @ 50 μA Max. $V_{CTL} = 0\text{ V}$ to +2.25 V @ 50 μA Max.

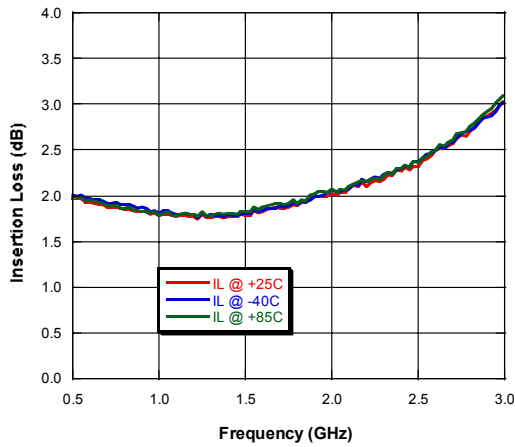
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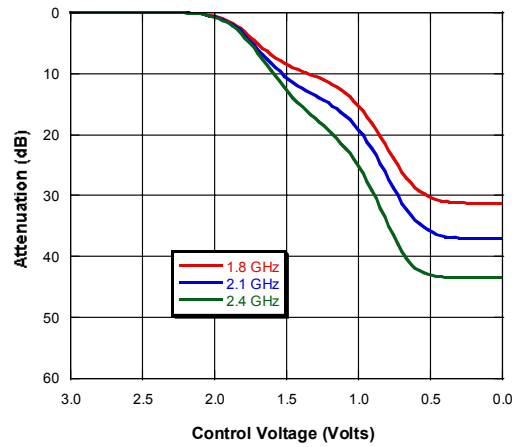
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 ■ **Asia/Pacific:** Tel. +81-44-844-8296, Fax +81-44-844-8298
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Typical Performance Curves

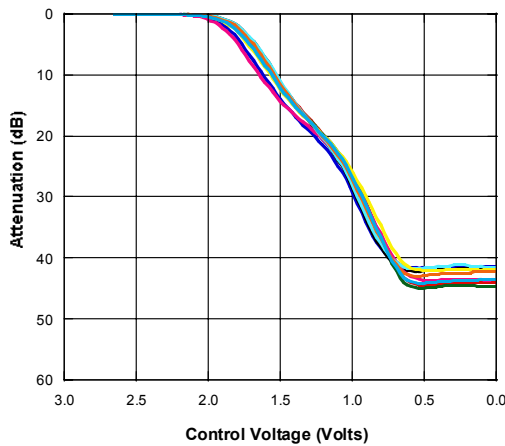
Insertion Loss vs. Frequency
@ 2.25 V Control Voltage



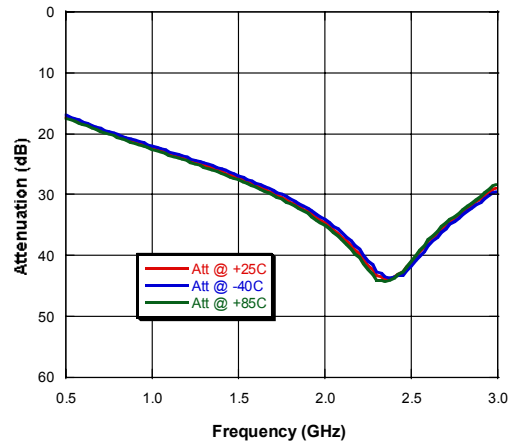
Attenuation vs. Control Voltage
@ +25°C



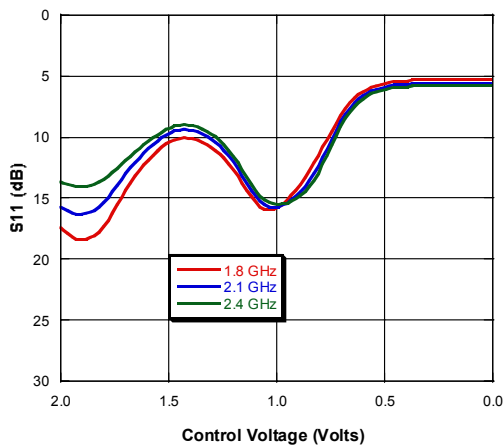
Typical Device Variation, 2.4 GHz



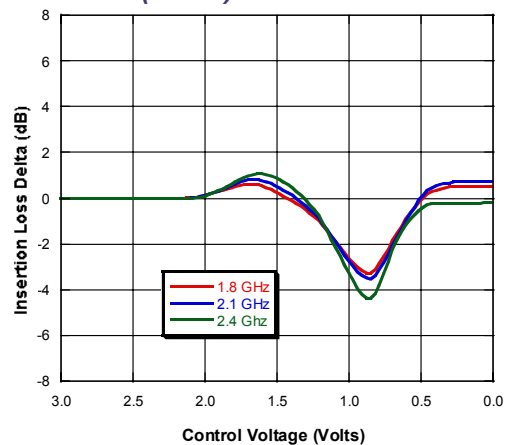
Attenuation vs. Frequency
@ 0.0 V Control Voltage



Return Loss vs. Control Voltage



Insertion Loss Delta Normalized
to +25°C (-40°C)



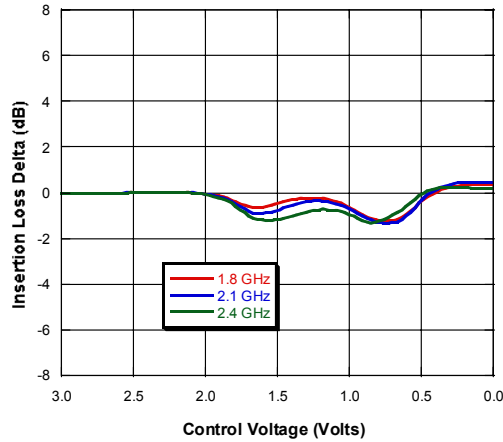
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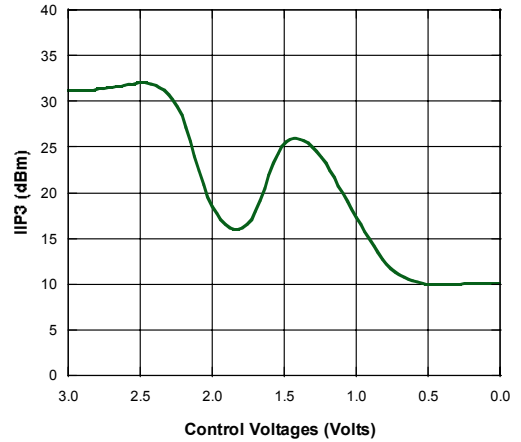
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Typical Performance Curves

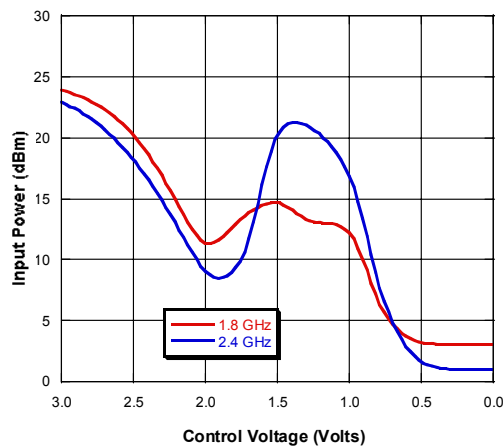
Insertion Loss Delta Normalized to +25°C (+85°C)



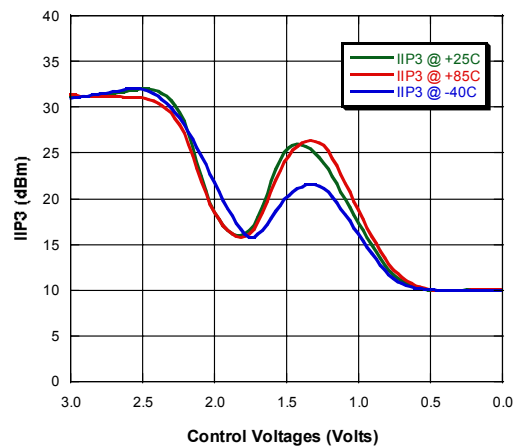
Input IP3 vs. Control Voltage @ +25°C



Input Power for 1 dB Change in Attenuation



Input IP3 vs. Control Voltage over Temperature



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