SAC3401

GaAs MMIC Digital Attenuator
DC~4GHz

Rev 2.1

Features

- Frequency：DC~4GHz
- RMS of Attenuation Accuracy：0.25dB
- Low Insertion Loss：0.7dB
- Positive Voltage Control
- Die Size：1.0mm×1.25mm×0.1mm

Typical Applications

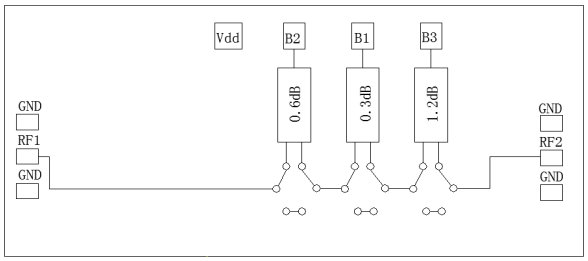
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

General Description

SAC3401 is a broadband 3-bit GaAs digital attenuator MMIC chip. Covering DC to 4 GHz, the insertion loss is less than 0.7 dB typically. The attenuator bit values are 0.3dB (LSB), 0.6dB, 1.2dB for a total attenuation of 2.1dB. Three TTL +5/-5V inputs are used to select each attenuation state.

The chip offers full passivation for increased reliability and moisture protection.

Functional Diagram



Electrical Performance (T_A=+25℃,V_D=+5V,Control Voltage=-5/+5V,Z_O=+50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency		DC~4		GHz
Input VSWR	—	1.15	—	:1
Output VSWR	—	1.15	—	:1
Insertion Loss	—	-0.7	—	dB
A_{TT}-Phase Error	-3.8	—	0.2	°
Attenuation Accuracy	-0.2	—	0.4	dB
RMS of Attenuation Accuracy	—	0.25	—	dB

Truth Table (0 : -5V, 1 : +5V)

Attenuation State	Bit1	Bit2	Bit3
REF	1	1	1
0.3dB	0	1	1
0.6dB	1	0	1
1.2dB	1	1	0
2.1dB	0	0	0

SuperApex Corporation
Address: 111 Barclay Boulevard, Ste. 211, Lincolnshire, IL 60069,USA
Tel: 1-847-573-9866, 1-847-505-8319
E-mail: sales@superapexco.com
Website: www.superapexco.com

Absolute Maximum Ratings

Maximum Input Power	+23dBm	Operating Temperature	-55℃～+85℃
Maximum Input Voltage	+8V	Storage Temperature	-65℃～+150℃

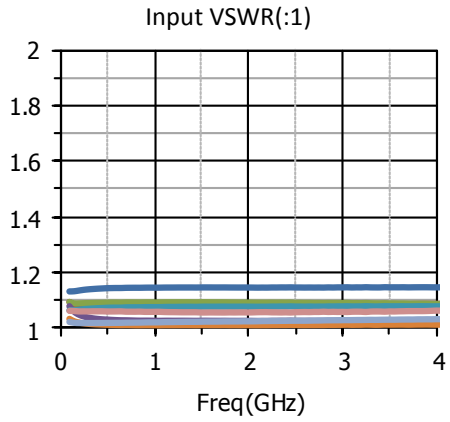
Control Voltage

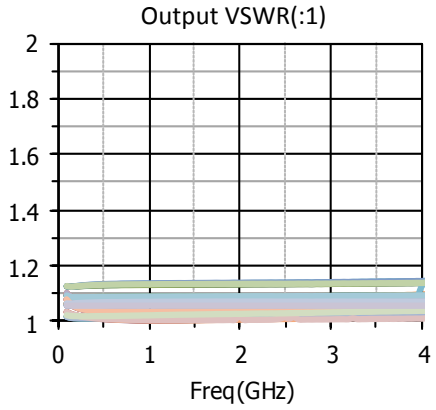
State	Bias
Low	-5.5~ -4.5V
High	4.5~ 5.5V

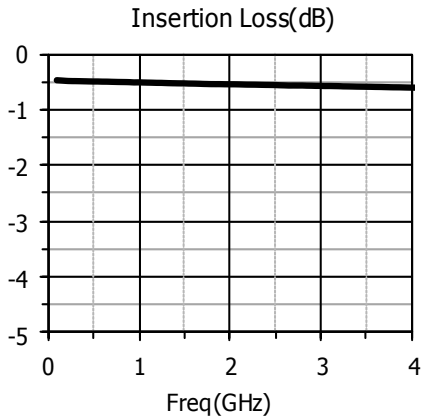
Power Supply

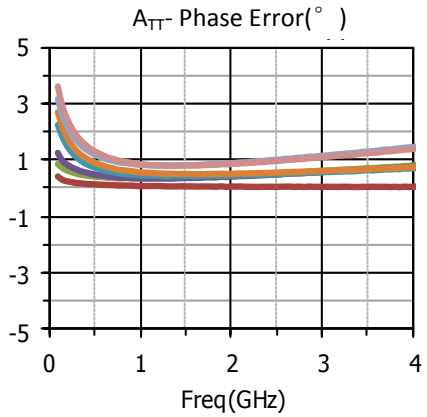
V_D	I_D
5V	2mA

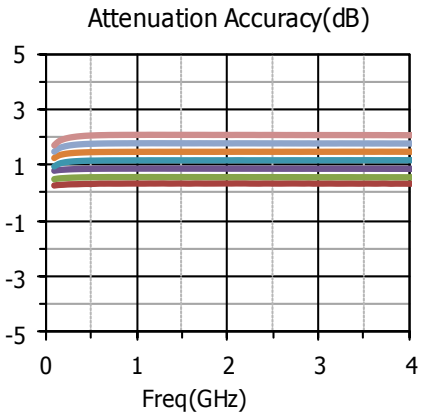
Typical Performance Curve

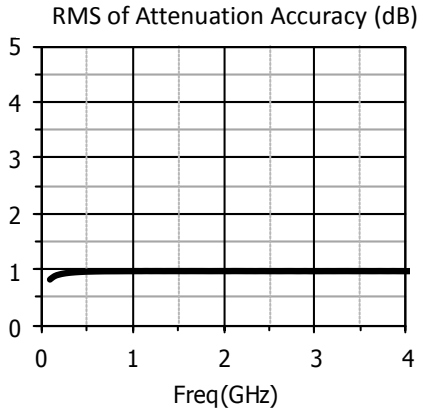




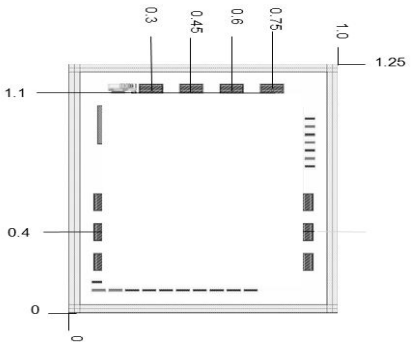




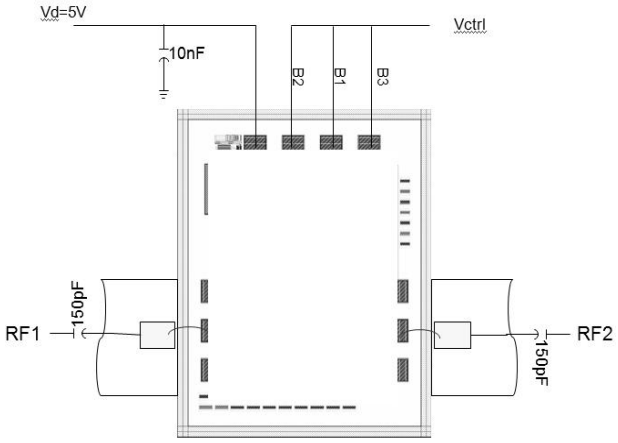




Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.