

# SAC3410

GaAs MMIC Digital Attenuator  
2~8GHz

Rev 1.2

## Features

- Frequency: 2~8GHz
- Insertion Loss: 2.5dB
- Positive Voltage
- Die Size: 1.38mm×1.21mm×0.1mm

## Typical Applications

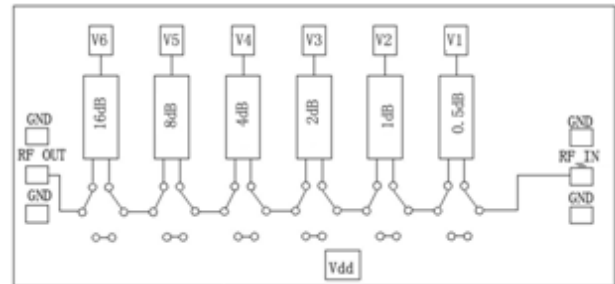
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

## General Description

SAC3410 is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering 2 to 8GHz, the insertion loss is about 2.5dB typically. The attenuator bit values are 0.5dB, 1dB, 2dB, 4dB, 8dB and 16dB for a total attenuation of 31.5dB. Three TTL 0/5V inputs are used to select each attenuation state.

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

## Functional Diagram



## Electrical Performance ( $T_A=+25^{\circ}\text{C}$ , $V_d=5\text{V}$ , Control Voltage=0/5V, $Z_0=50\Omega$ )

Parameter	Min.	Typ.	Max.	Units
Frequency	2~8			GHz
IN VSWR	—	1.5	—	:1
OUT VSWR	—	1.4	—	:1
Insertion Loss	—	2.5	—	dB
Attenuation Accuracy	-1.2	—	0.5	dB
$A_{TT}$ -Phase Error	—	$\pm 20$	—	$^{\circ}$
RMS of Attenuation Accuracy	—	0.4	0.8	dB

## Truth Table ( 0 : 0V, 1 : 5V )

Attenuation	V1	V2	V3	V4	V5	V6
REF	1	1	1	1	1	1
0.5dB	0	1	1	1	1	1
1dB	1	0	1	1	1	1
2dB	1	1	0	1	1	1
4dB	1	1	1	0	1	1
8dB	1	1	1	1	0	1
16dB	1	1	1	1	1	0
31.5dB	0	0	0	0	0	0

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 Website: www.superapexco.com

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## Control Voltage

State	Bias
Low	0~0.5V
High	Vd-0.1V~Vd+0.2V

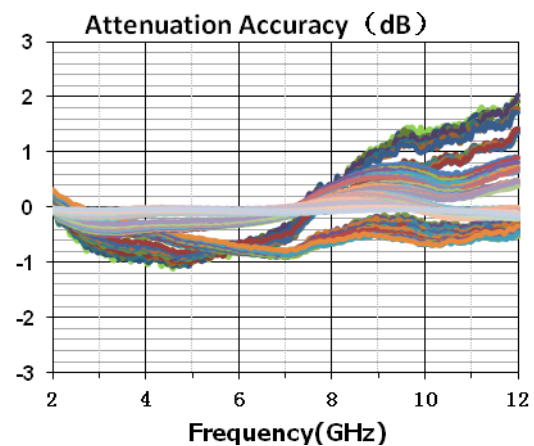
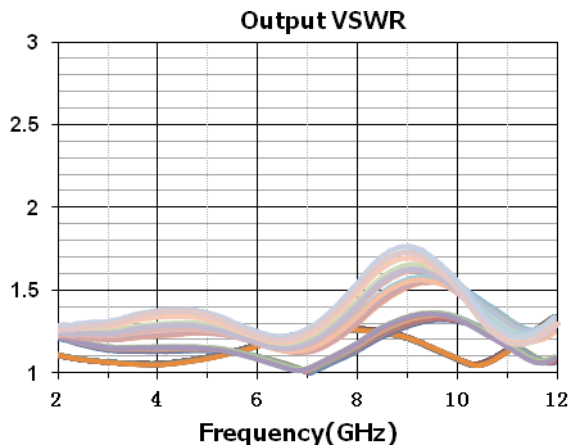
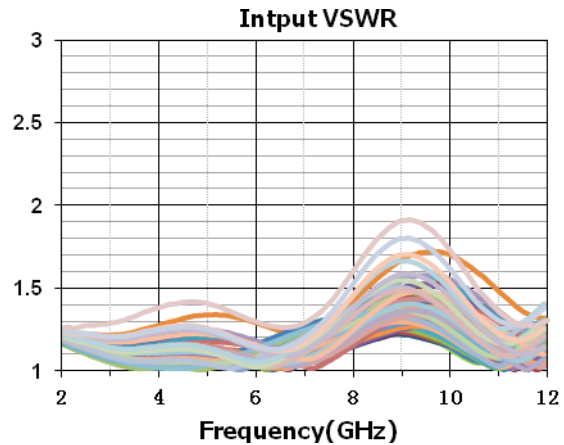
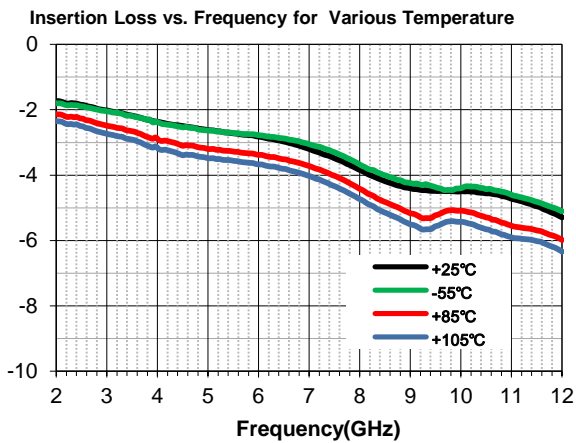
## Absolute Maximum Ratings

Maximum Input Power	Maximum Input Voltage
+23dBm	+5.5V
Operating Temperature	Storage Temperature
-55°C~+85°C	-65°C~+150°C

## Power Supply

V <sub>D</sub>	I <sub>D</sub>
5V	4mA

## Typical Performance Curve



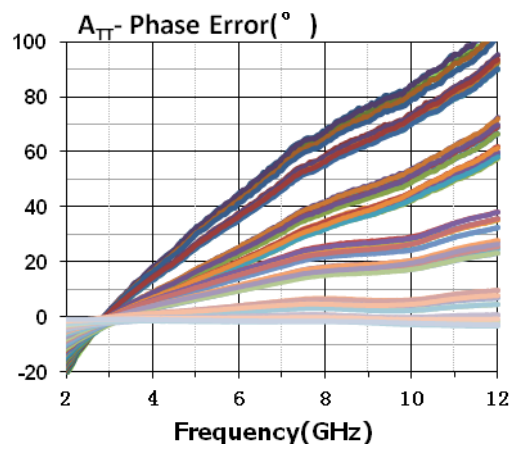
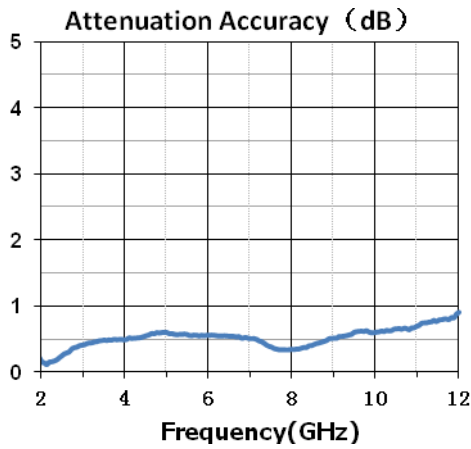
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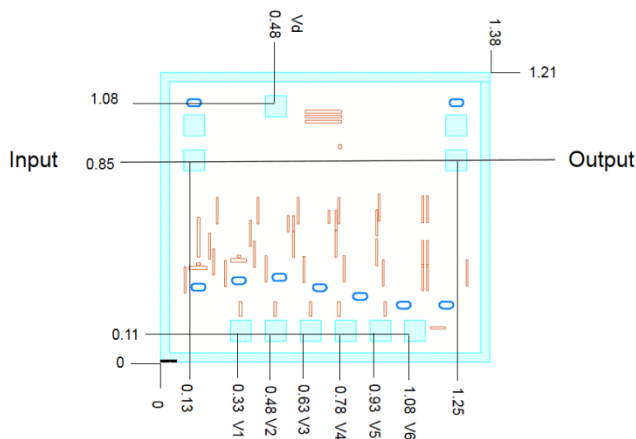
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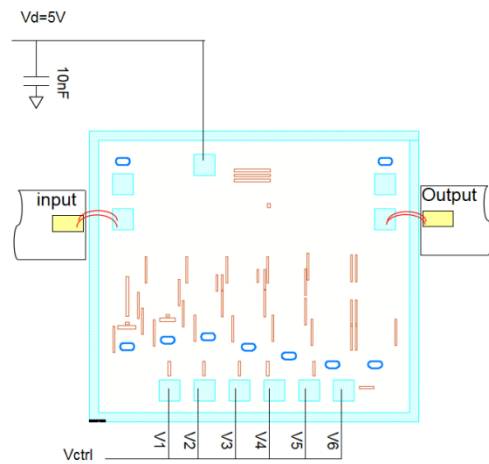
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**Die Outline**  
(all dimensions in mm)



**Assembly Diagram**



**Attention:**

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

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