

# SAC3402AQ4



GaAs MMIC Digital Attenuator  
DC~6GHz

Rev 1.3

## Features

- Frequency: DC~6GHz
- RMS of Attenuation Accuracy: 0.8dB
- Low Insertion Loss: 2.6dB
- Positive Voltage Control
- Package Size: 4mm×4mm×1.2mm

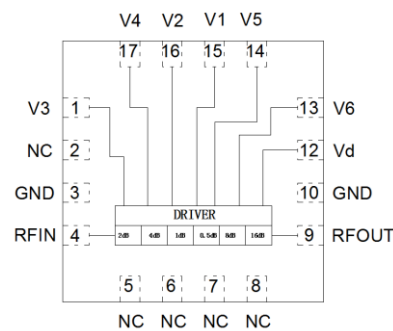
## Typical Applications

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

## General Description

SAC3402AQ4 is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering DC to 6 GHz, the insertion loss is about 2.6dB typically. The attenuator bit values are 0.5dB, 1dB, 2dB, 4dB, 8dB, and 16dB for a total attenuation of 31.5dB. Six LVTTTL-Compatible inputs are used to select each attenuation state.

## 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		DC~6		GHz
Input VSWR	—	1.4	—	:1
Output VSWR	—	1.4	—	:1
Insertion Loss	—	-2.6	—	dB
$A_{TT}$ -Phase Error	-3	—	2.5	°
Attenuation Accuracy	-0.3	—	1.0	dB
RMS of Attenuation Accuracy	—	0.8	—	dB
Amplitude Settling Time	—	100	—	ns

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

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

### SuperApex, LLC

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## Absolute Maximum Ratings

Maximum Input Power(0.5~6GHz)	+23dBm	Operating Temperature	-55°C~+85°C
Bias Voltage	-5.25V	Storage Temperature	-65°C~+150°C

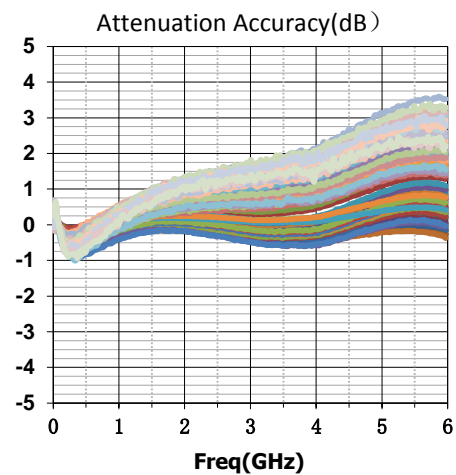
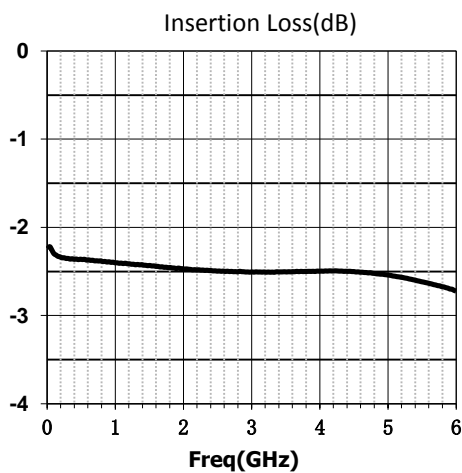
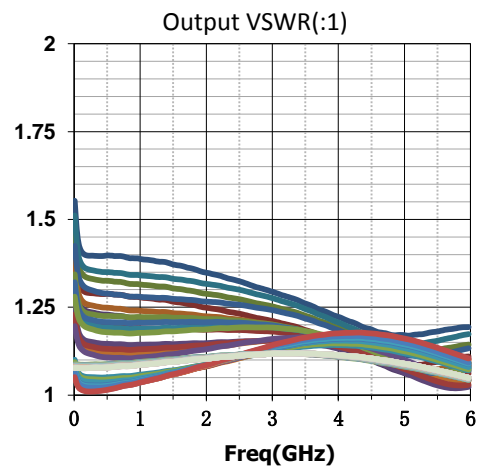
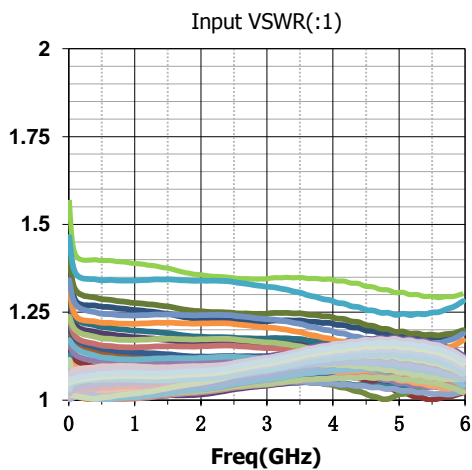
## Control Voltage

State	Bias
Low	0~0.3V
High	3.3~5V

## Power Supply

V <sub>D</sub>	I <sub>D</sub>
-5V	9mA

## Typical Performance Curve



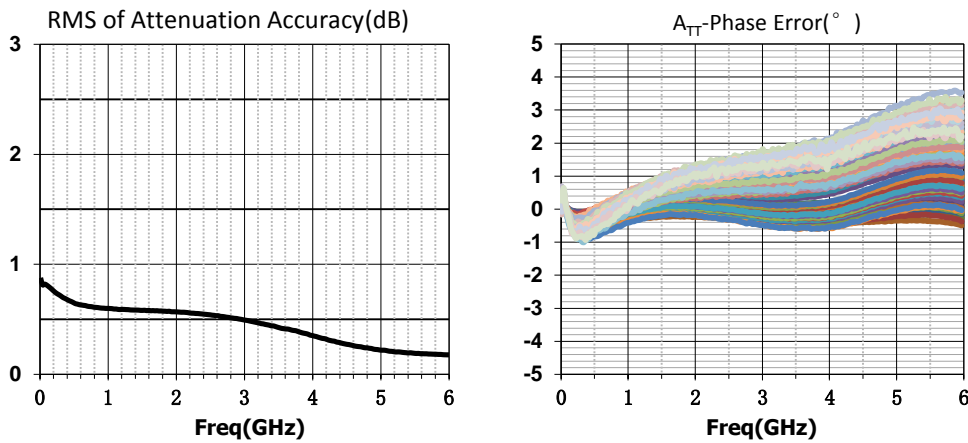
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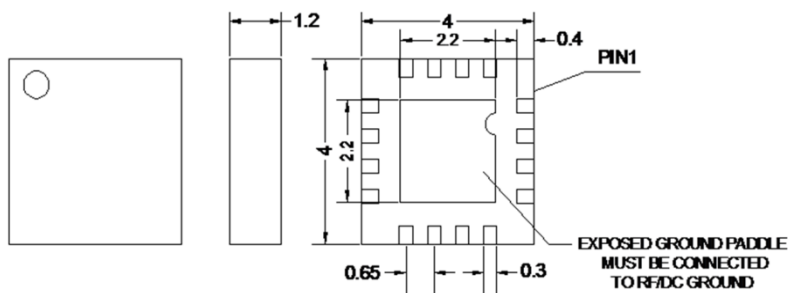
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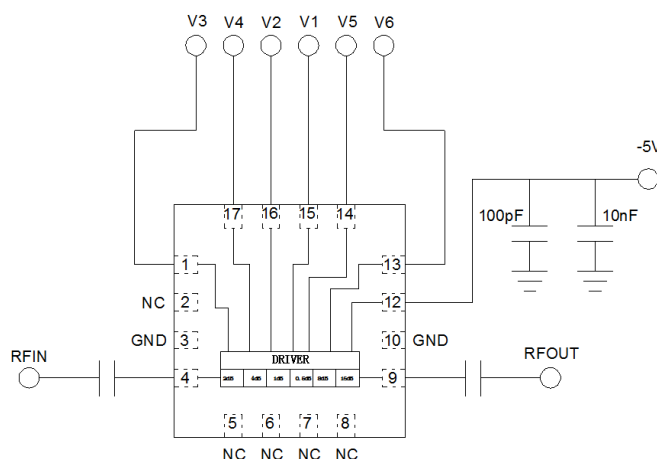
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## Outline Drawing (All dimensions in mm)



## Assembly Diagram



### Attention:

1. The moisture resistant grade of products is 2A, the storage environment  $\leq 30^\circ\text{C}/60\%\text{RH}$ , The surrounding workshop Life is 4 weeks.
2. After un-packing, It is necessary to bake the parts for 6 hours in  $125\pm 5$  degree environment before soldering.

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