

## Features

- Frequency: 12~18GHz
- RMS of Attenuation Accuracy: 1.5dB
- Insertion Loss: 3.8dB
- Positive Voltage Control
- Size: 4mm×4mm×1.2mm

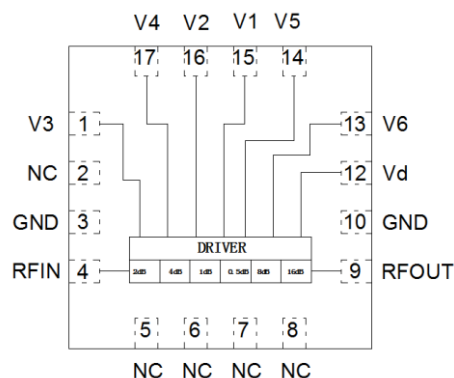
## Typical Applications

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

## General Description

SAC3405Q4 is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering 12 to 18GHz, the insertion loss is about 3.8 dB 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.

## 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	12~18			GHz
Input VSWR	—	1.45	—	:1
Output VSWR	—	1.5	—	:1
Insertion Loss	—	-3.8	-5	dB
$A_{TT}$ -Phase Error	-3	—	8	°
Attenuation Accuracy	-0.5	—	3.5	dB
RMS of Attenuation Accuracy	—	1.5	2.5	dB

## 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

# SAC3405Q4



GaAs MMIC Digital Attenuator  
12~18GHz

Rev 1.2

### Control Voltage

State	Bias
Low	0~0.2V
High	4.5~5.5V

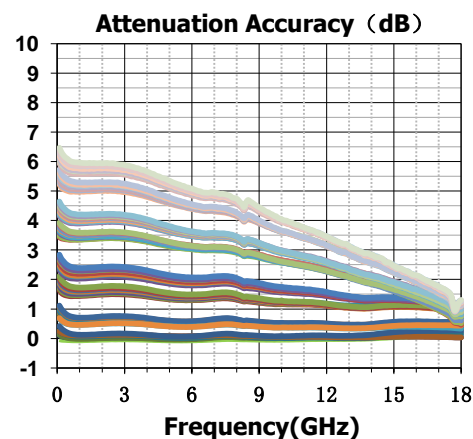
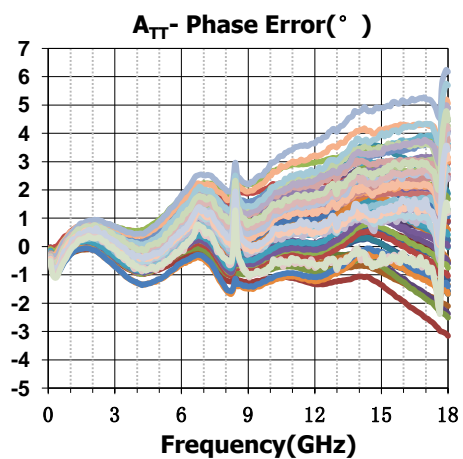
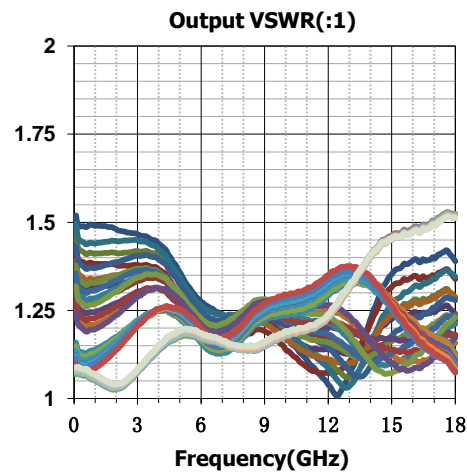
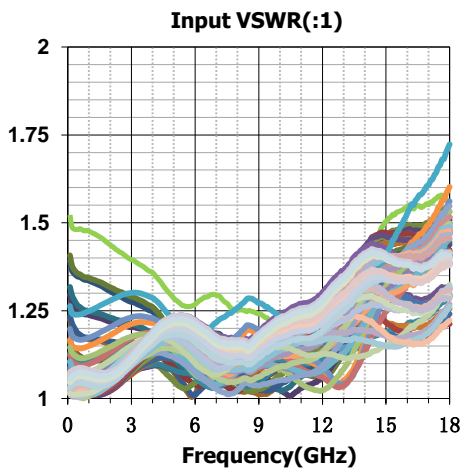
### Power Supply

V <sub>D</sub>	I <sub>D</sub>
-5V	8mA

### Absolute Maximum Ratings

Maximum Input Power	Maximum Input Voltage
+23dBm	-8V~+0.5V
Operating Temperature	Storage Temperature
-55°C~+85°C	-65°C~+150°C

## Typical Performance Curve



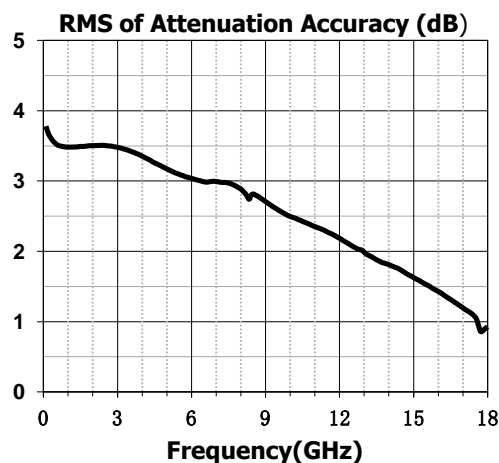
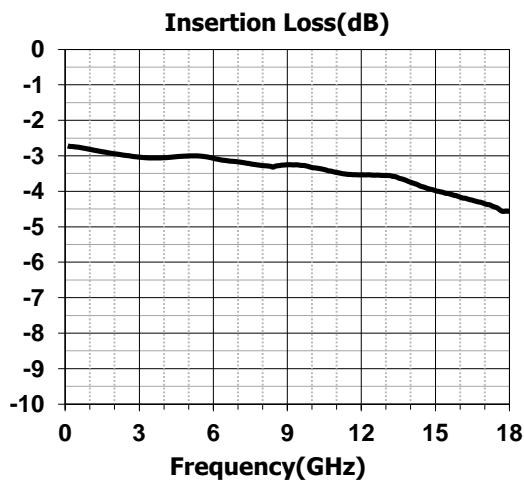
### SuperApex Corporation

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

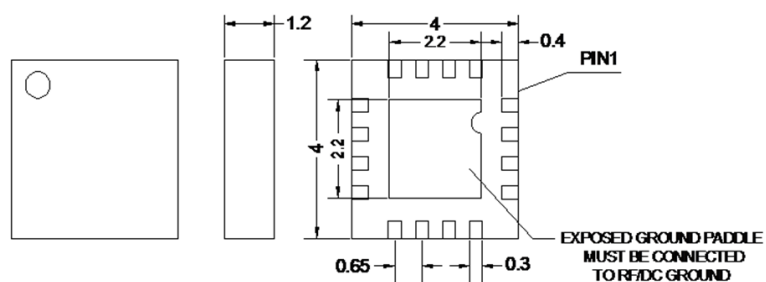
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## Outline Drawing (all dimensions in mm)



### Attention:

1. The moisture resistant grade of products is 2A, the storage environment  $\leq 30^{\circ}$  C/60% 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.