

# SAC3307AQ6

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER  
8~12GHz

Rev 1.1

## Features

- Frequency: 8~12GHz
- Low Insertion Loss: 8dB
- Size: 6mm×6mm×1.1mm

## Typical Applications

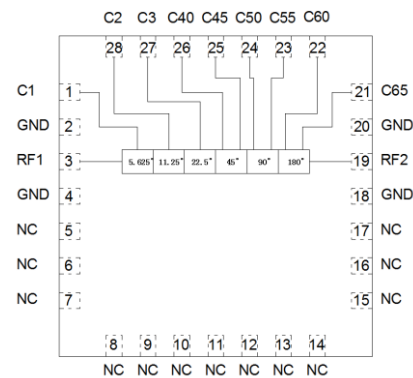
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming Modules
- Phase Cancellation

## General Description

SAC3307AQ6 bare die was packaged in shell of QFN. The sides of a shell is 6mm. The device is a 6-bit digital phase shifter which works from 8 to 12GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

This high accuracy phase shifter is controlled with positive control voltage of 0/-5V.

## Functional Diagram



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

Parameter	Min.	Typ.	Max.	Units
Frequency	8~12			GHz
RF1 Return Loss	—	-20	—	dB
RF2 Return Loss	—	-16	—	dB
Insertion Loss	—	-8	—	dB
IL Variation	—	$\pm 0.5$	—	dB
Phase Accuracy	—	$\pm 4$	—	°

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

Phase	C1	C2	C3	C40	C45	C50	C55	C60	C65
REF	0	0	0	0	1	0	1	0	1
-5.625°	1	0	0	0	1	0	1	0	1
-11.25°	0	1	0	0	1	0	1	0	1
-22.5°	0	0	1	0	1	0	1	0	1
-45°	0	0	0	1	0	0	1	0	1
-90°	0	0	0	0	1	1	0	0	1
-180°	0	0	0	0	1	0	1	1	0
-354.375°	1	1	1	1	0	1	0	1	0

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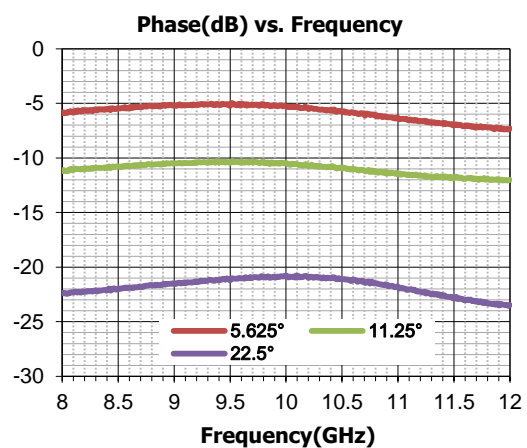
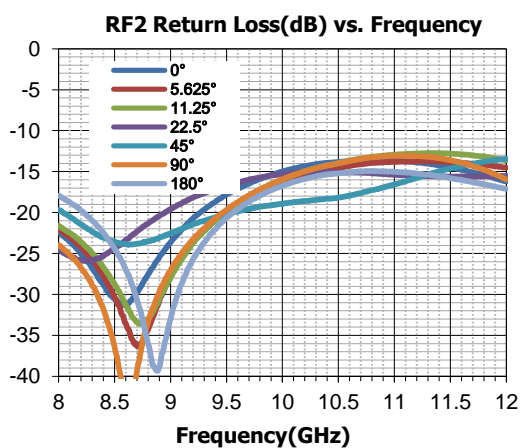
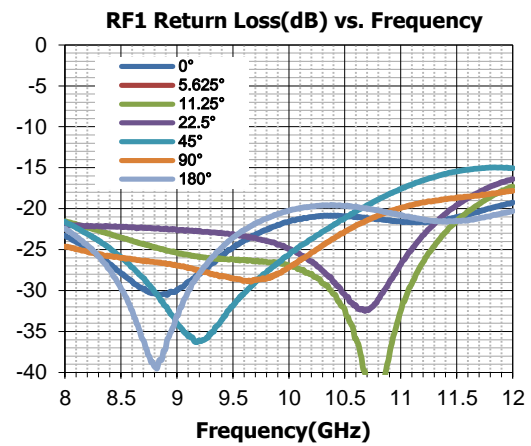
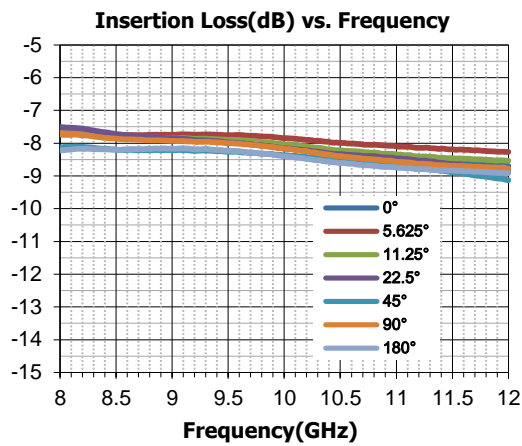
## Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55°C~+85°C
Maximum Input Voltage	-8V	Storage Temperature	-65°C~+150°C

## Control Voltage

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

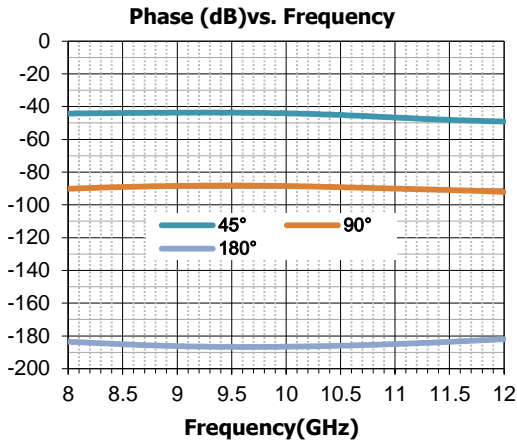
## Typical Performance Curve



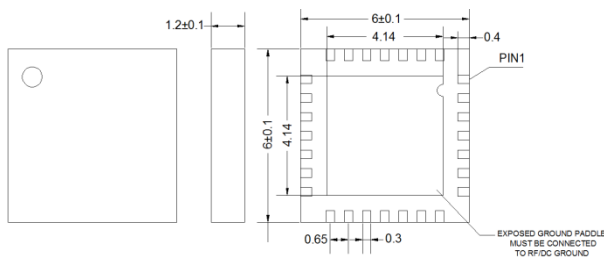
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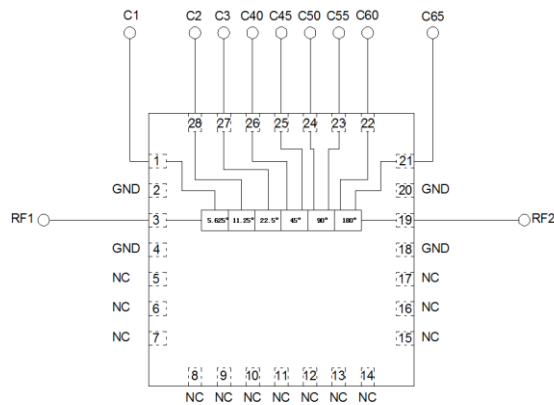
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## Outline Drawing (all dimensions in mm)



## 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.