

# SAC3301Q6



GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER  
0.9~1.3GHz

Rev 1.2

## Features

- Frequency: 0.9~1.3GHz
- RMS of Phase Accuracy: 2°
- Low Insertion Loss: 5dB
- Positive Voltage Control: 0/+5V
- Size: 6mm×6mm×1.2mm

## Typical Applications

- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Beamforming Modules
- Phase Cancellation

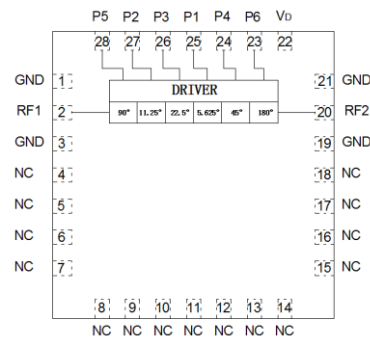
## General Description

SAC3301Q6 is a 6-bit digital phase shifter which works from 0.9 to 1.3 GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

SAC3301Q6 features very low RMS of Phase Accuracy of 2 degree and extremely low insertion loss with variation of  $\pm 0.5$ dB across all phase states. This high accuracy phase shifter is controlled with positive control logic of 0/+5V.

The bare chip is assembled in a 6×6mm of QFN package.

## 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	0.9~1.3			GHz
RF1 Return Loss	—	-20	—	dB
RF2 Return Loss	—	-20	—	dB
Insertion Loss	—	-5	—	dB
IL Variation	—	$\pm 0.5$	—	dB
Phase Accuracy	—	$\pm 3$	—	°
RMS of Phase Accuracy	—	2	—	°

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

Phase	P1	P2	P3	P4	P5	P6
REF	0	0	0	0	0	0
5.625°	1	0	0	0	0	0
11.25°	0	1	0	0	0	0
22.5°	0	0	1	0	0	0
45°	0	0	0	1	0	0
90°	0	0	0	0	1	0
180°	0	0	0	0	0	1
354.375°	1	1	1	1	1	1

## SuperApex, LLC

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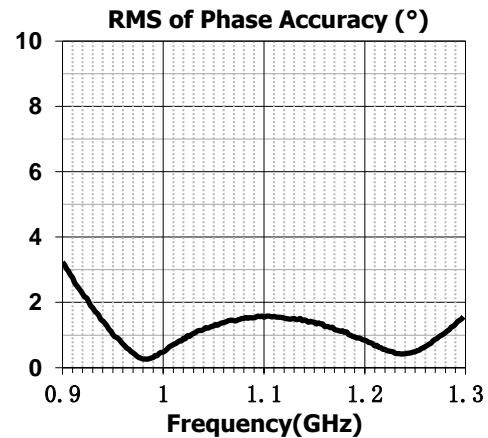
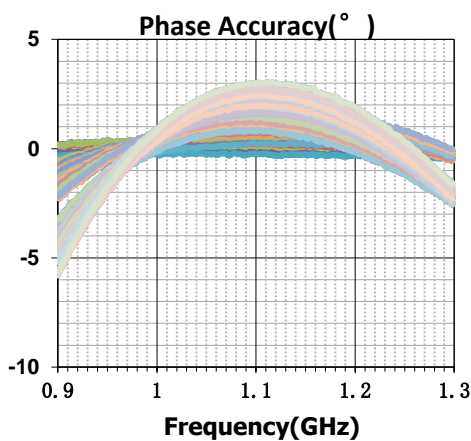
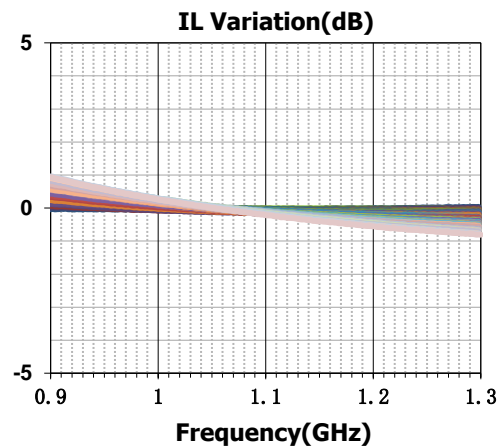
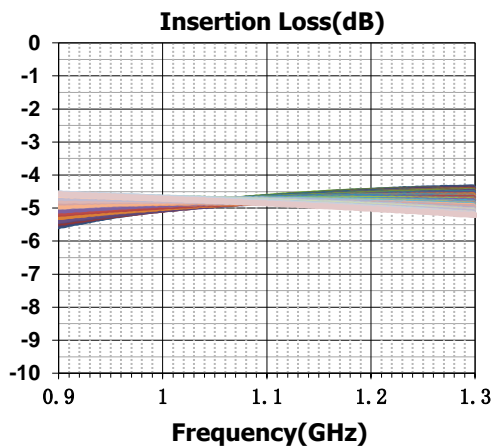
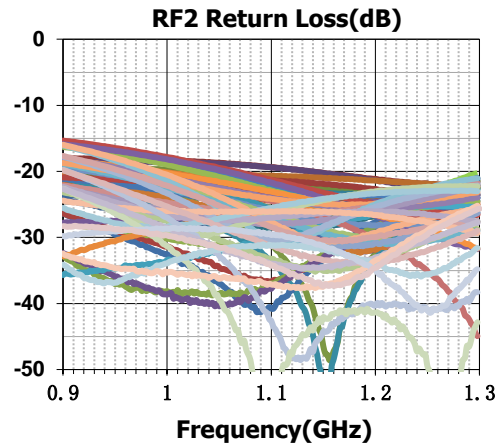
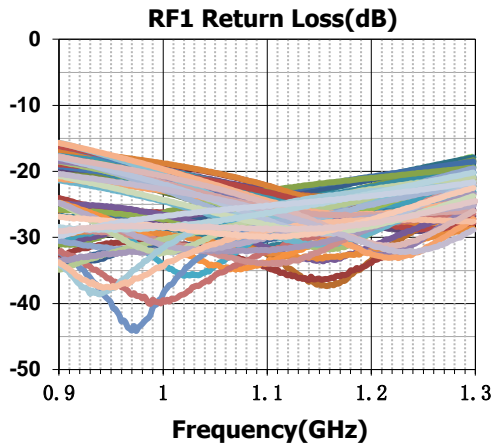
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## Typical Performance Curve



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## Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55°C~+85°C
Maximum Input Voltage	-8V~+0.5V	Storage Temperature	-65°C~+150°C

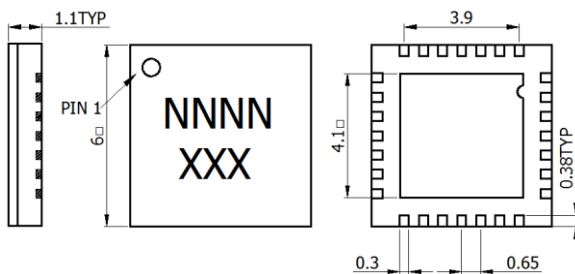
## Logic Voltage

State	Bias
LOW	0~0.2V
HIGH	4.5~5.5V

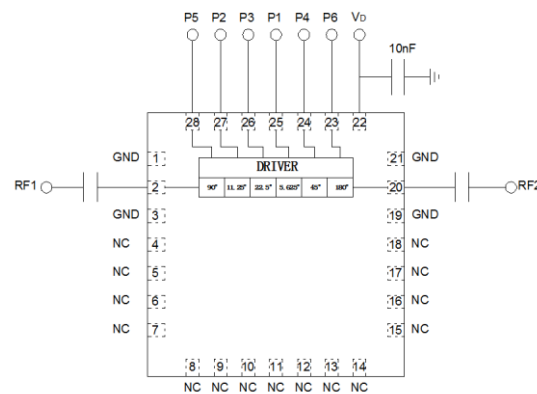
## Power Supply

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

## Outline Drawing (All dimensions in mm)



## Assembly Diagram



### 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+/-5 degree environment before soldering.

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