

SAC3306Q5



GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
5~6GHz

Rev.1.0

Features

- Frequency: 5~6GHz
- RMS of Phase Accuracy: 3°
- Low Insertion Loss: -6dB
- Positive Voltage Control
- Size: 5mm×5mm×1.2mm

Typical Applications

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

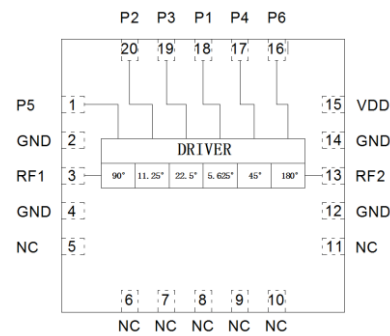
General Description

SAC3306Q5 is a 6-bit digital phase shifter which works from 5 to 6GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

SAC3306Q5 features very low RMS phase error of 3 degrees and extremely low insertion loss variation of ± 0.8 dB across all phase states. This high accuracy phase shifter is controlled with positive control voltage of 0/+5V.

The device is assembled in 5×5mm 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		5~6		GHz
RF1 Return Loss	—	-22	—	dB
RF2 Return Loss	—	-25	—	dB
Insertion Loss	—	-6	—	dB
IL Variation	—	± 0.8	—	dB
Phase Accuracy	-8	-3	2	°
RMS of Phase Accuracy	—	3	—	°

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

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Absolute Maximum Ratings

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

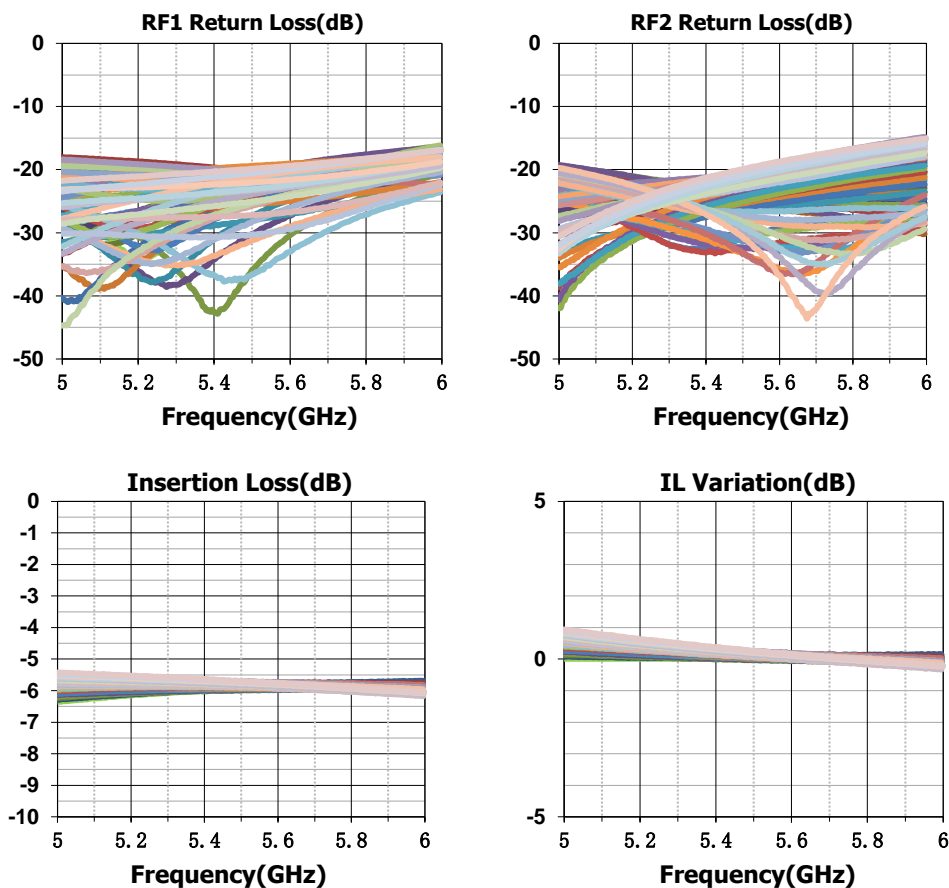
Control Voltage

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

Power Supply

V _D	I _D
-5V	8mA

Typical Performance Curve



SuperApex, LLC

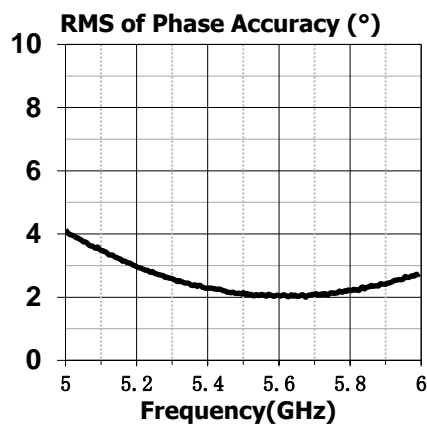
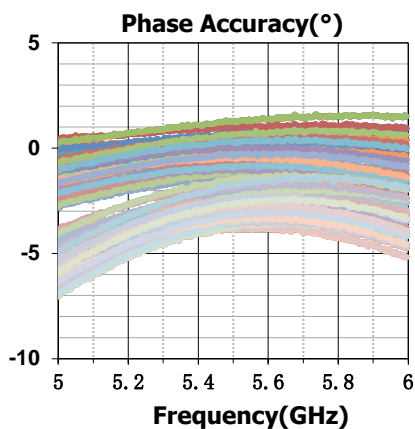
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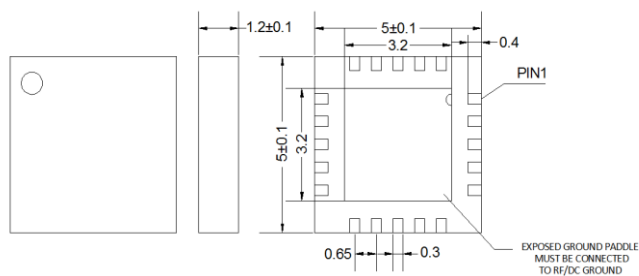


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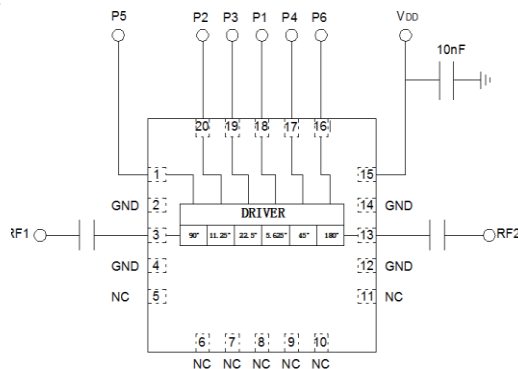
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Outline (All dimensions in mm)



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 ± 5 degree environment before soldering.

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