

SAC3307BQ6



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

Rev 1.0

Features

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

Typical Applications

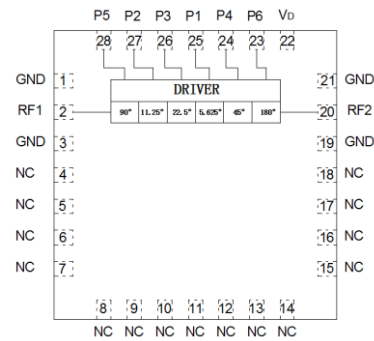
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming Modules

General Description

SAC3307BQ6 is a 6-bit digital phase shifter which works from 8 to 12 GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

SAC3307BQ6 features low RMS phase error and low insertion loss with variation across all phase states. This high accuracy phase shifter is controlled with LVTTTL compatible.

Functional Diagram



Electrical Performance (T_A=+25°C, Control Voltage=0/+5V, Z₀=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency	8~12			GHz
Return Loss of RF1	—	-20	—	:1
Return Loss of RF2	—	-16	—	:1
Insertion Loss	—	-8	—	dB
IL Variation	—	±0.5	—	dB
Phase Accuracy	—	±3	—	°
RMS of Phase Accuracy	—	2	—	°
Input P ₁ dB	—	23	—	dBm

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	+25dBm	Operating Temperature	-55°C~+85°C
V _{DD}	-6V	Storage Temperature	-65°C~+150°C

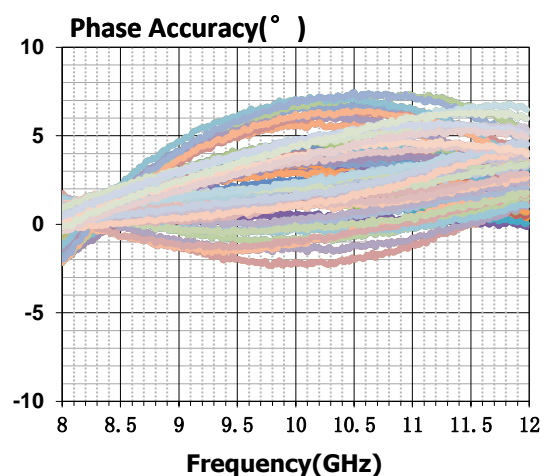
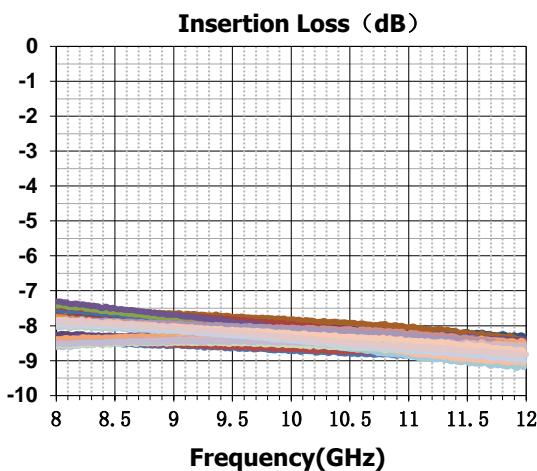
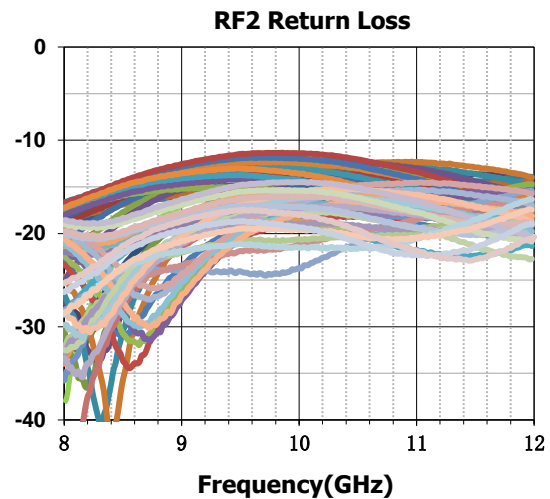
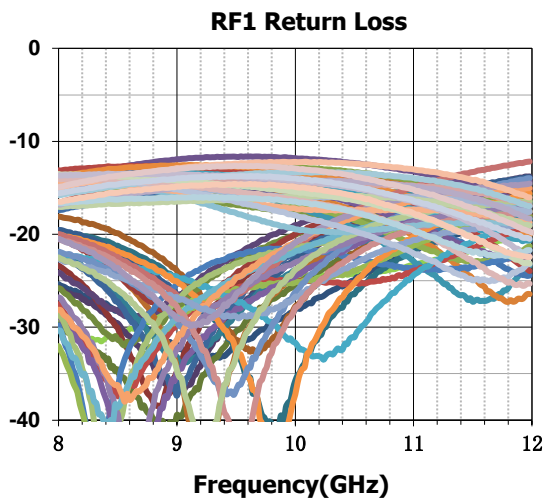
Control Voltage

State	Bias
Low	0~0.3V
High	3~5V

Power Supply

V _D	I _D
-5V	8mA

Typical Performance Curve



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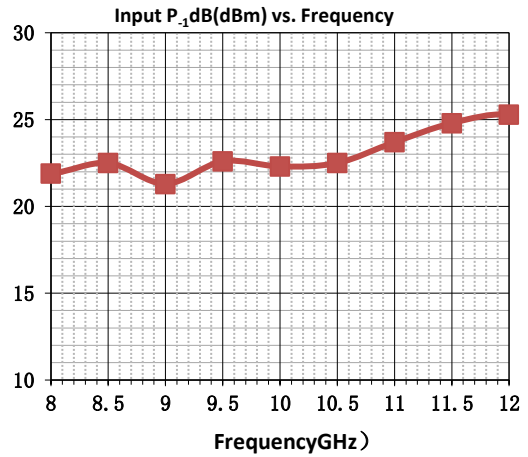
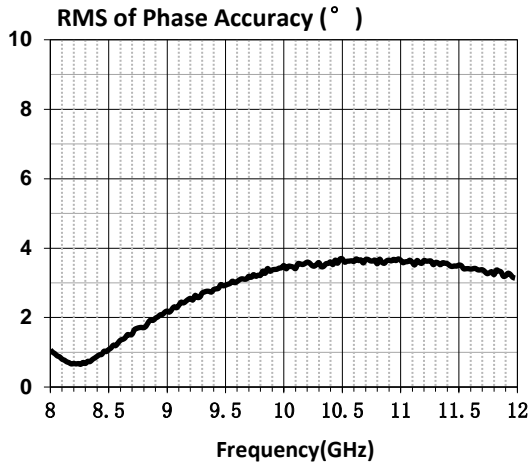
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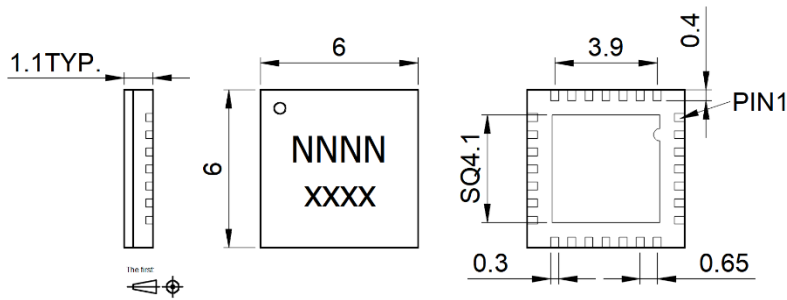


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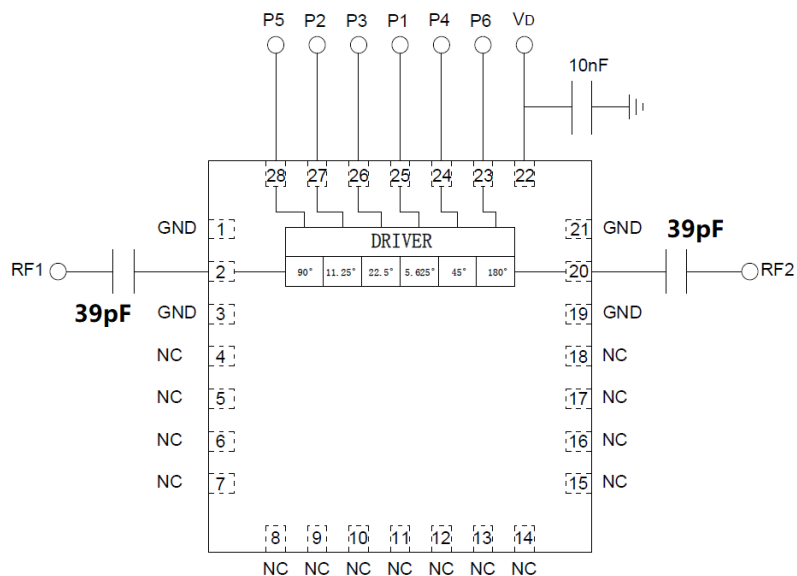
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Outline Drawing (All dimensions in mm)



Assembly Diagram



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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.
3. GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.

SuperApex, LLC

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