SAC3309

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
3.4~4.2GHz

Rev 2.1

Features

- Frequency：3.4~4.2GHz
- RMS of Phase Accuracy：1°
- Low Insertion Loss：5.5dB
- Positive Voltage Control
- Die Size：3.8mm×1.24mm×0.1mm

Typical Applications

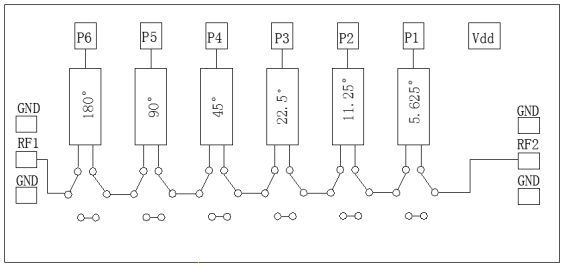
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming Modules
- Phase Cancellation

General Description

SAC3309 is a 6-bit digital phase shifter which works from 3.4 to 4.2GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

SAC3309 features very low RMS phase error of 1 degrees and extremely low insertion loss variation of ±0.5 dB across all phase states. This high accuracy phase shifter is controlled with positive control voltage of 0/+5V.

Functional Diagram



Electrical Performance (T_A=+25℃, V_D=-5V, Control Voltage=0/+5V, Z_O=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency		3.4~4.2		GHz
Input VSWR	—	1.5	—	:1
Output VSWR	—	1.5	—	:1
Insertion Loss	—	-5.5	—	dB
IL Variation	-0.2	—	0.7	dB
Phase Accuracy	-5	—	2.5	°
RMS of Phase Accuracy	—	1	—	°

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

RoHS

SuperApex, LLC
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Absolute Maximum Ratings

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

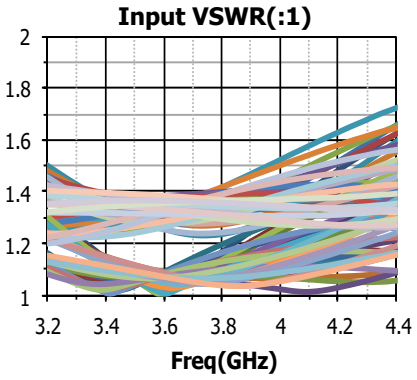
Control Voltage

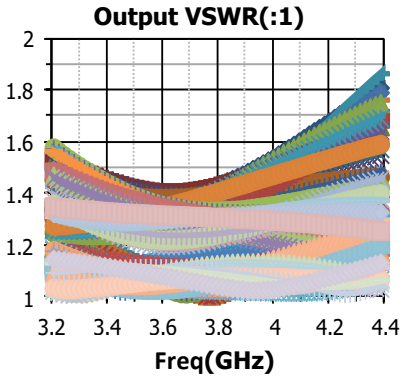
State	Bias
Low	0~ 0.2V
High	4.5~ 5.5V

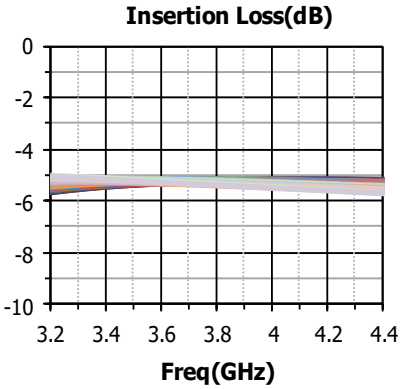
Power Supply

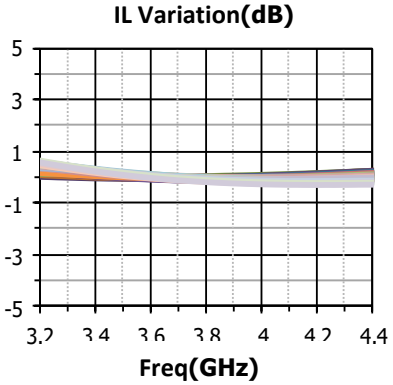
V_D	I_D
-5V	8mA

Typical Performance Curve









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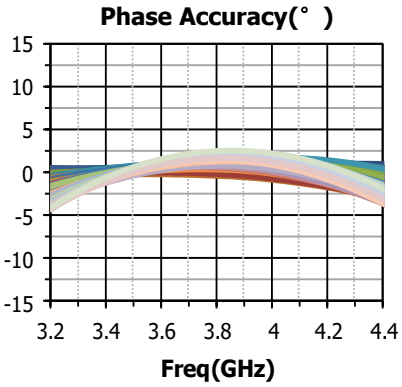
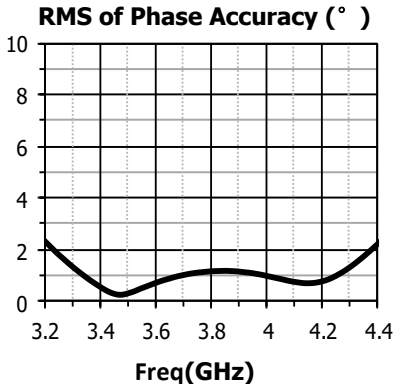
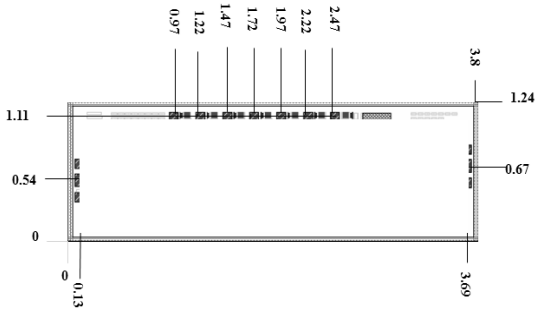
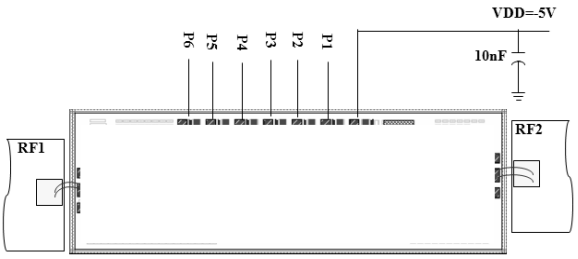




Die Outline
(All dimensions in mm)



Assembly Diagram



Attention:

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

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