SAC3307B

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

Rev 1.1

Features

- Frequency：8～12GHz
- Low Insertion Loss：8dB
- Size：3.74mm×1.25mm×0.1mm

Typical Applications

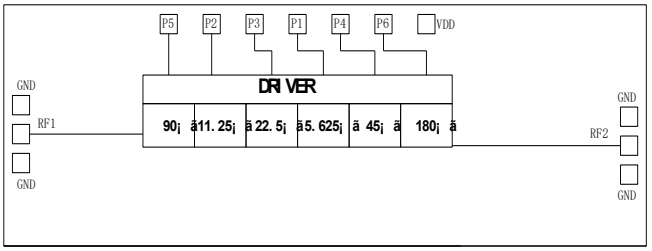
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming Modules
- Phase Cancellation

General Description

SAC3307B 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.

SAC3307B features very low RMS phase error of 2 degrees and extremely low insertion loss variation of ±0.5dB 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℃, Control Voltage=0/+5V,Z_O=50Ω)

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

RoHS

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Absolute Maximum Ratings

Maximum Input Power	+25dBm	Operating Temperature	-55℃～+85℃
V_{DD}	-6V	Storage Temperature	-65℃～+150℃

Control Voltage

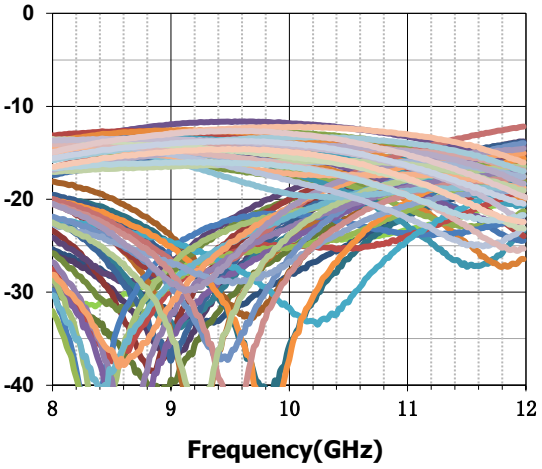
State	Bias
Low	0~0.2V
High	3~5V

Power Supply

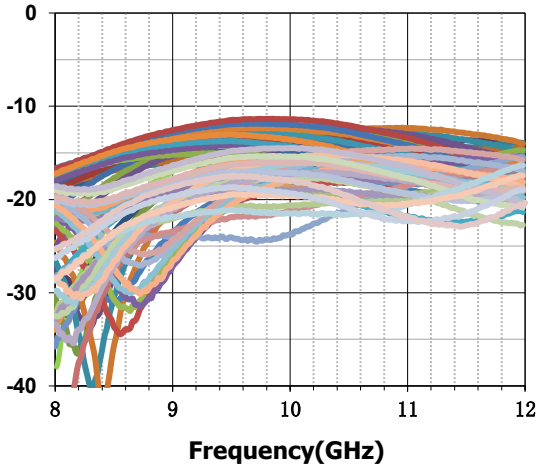
V_{DD}	I_{DD}
-5V	8mA

Typical Performance Curve

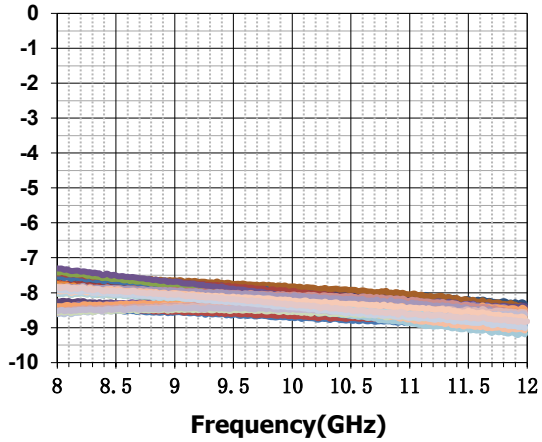
RF1 Return Loss



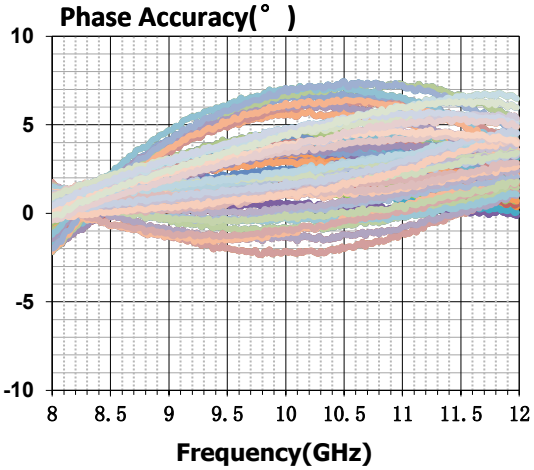
RF2 Return Loss

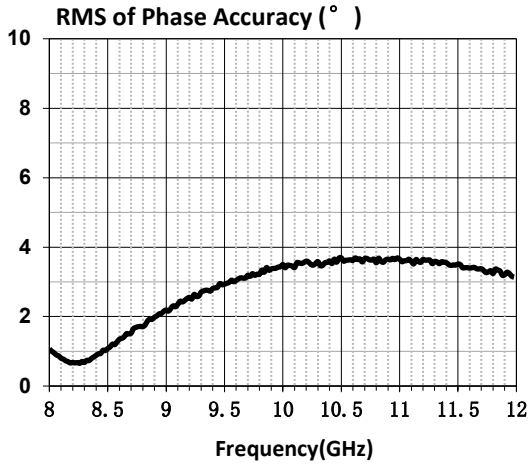


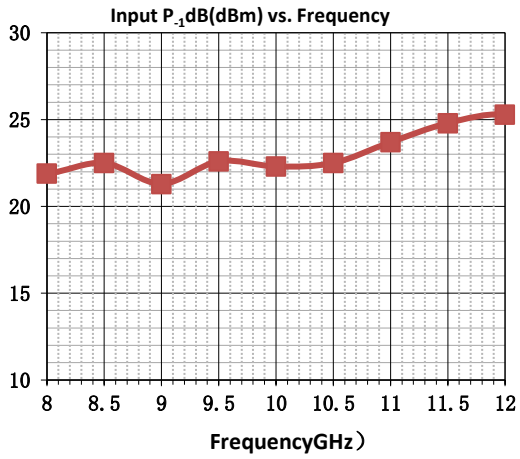
Insertion Loss（dB）



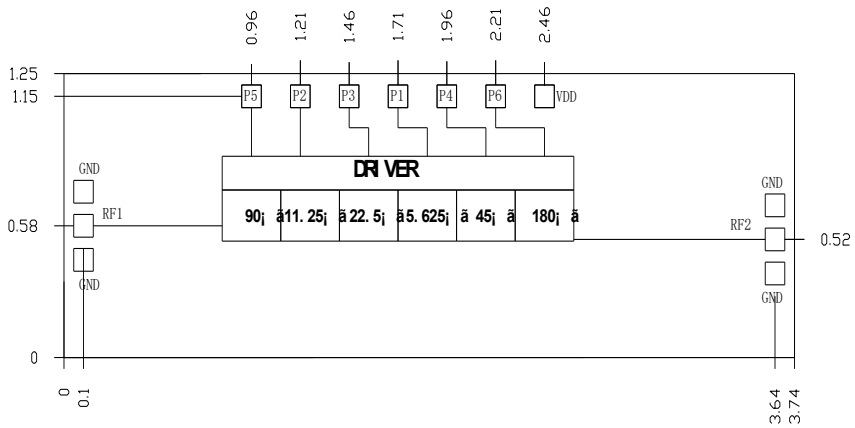
Phase Accuracy(°)



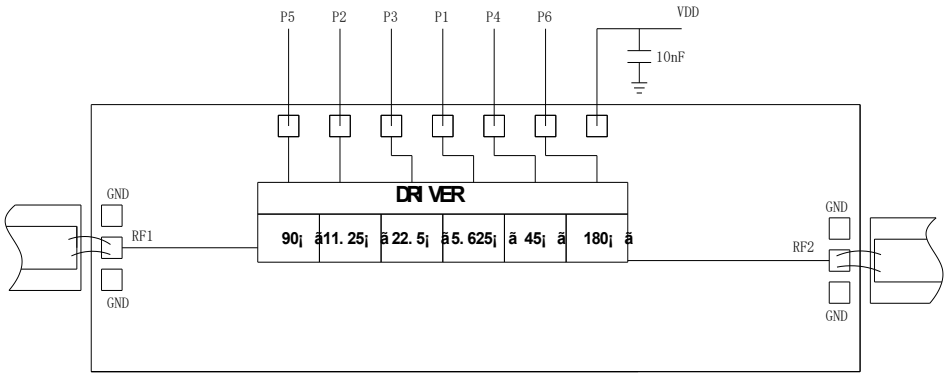




Outline Drawing
(All dimensions in mm)



Assembly Diagram



Attention:

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