SAC3314QP4

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
2.7~3.5GHz

Rev 1.0

Features

- Frequency：2.7~3.5GHz
- RMS of Phase Accuracy：1.5°
- Low Insertion Loss：5dB
- Positive Voltage Control
- Size：4mm×4mm×0.75mm

Typical Applications

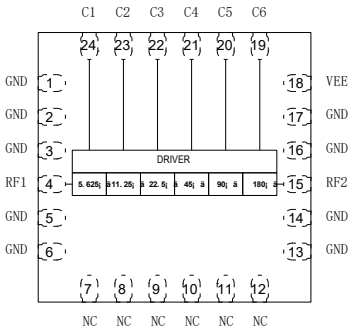
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming Modules
- Phase Cancellation

General Description

SAC3314QP4 is a 6-bit digital phase shifter which works from 2.7 to 3.5GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

SAC3314QP4 features very low RMS phase error of 1.5 degrees TYP and extremely low insertion loss variation of ±0.3 dB TYP 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℃,VEE=-5V,Control Voltage=0/+5V,Z_o=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency		2.7~3.5		GHz
RF1 VSWR	—	1.4	—	:1
RF2 VSWR	—	1.4	—	:1
Insertion Loss	—	-5.0	—	dB
IL Variation	—	±0.3	—	dB
Phase Accuracy	—	±2	—	°
RMS of Phase Accuracy	—	1.5	—	°

Truth Table (0：0V，1：+5V)

Phase	C1	C2	C3	C4	C5	C6
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	+20dBm	Operating Temperature	-55℃~+85℃
Maximum Input Voltage	-5.5V	Storage Temperature	-65℃~+150℃

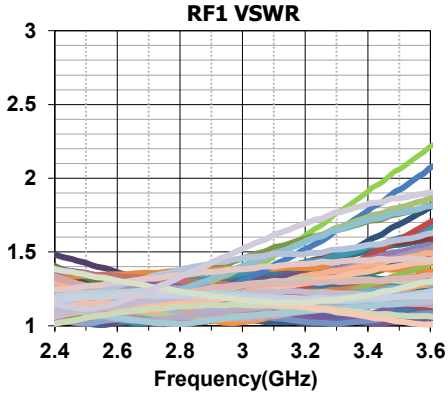
Control Voltage(C1~C6)

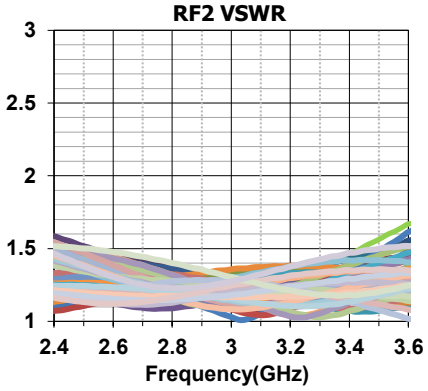
State	Bias
Low	0~ 0.2V
High	4.5~ 5.5V

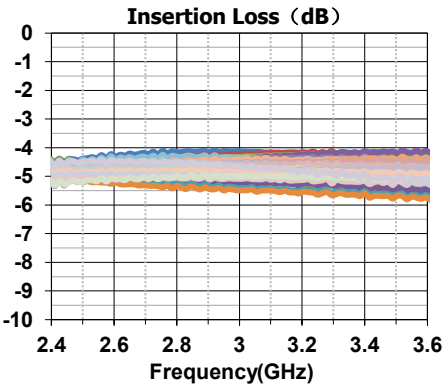
Power Supply

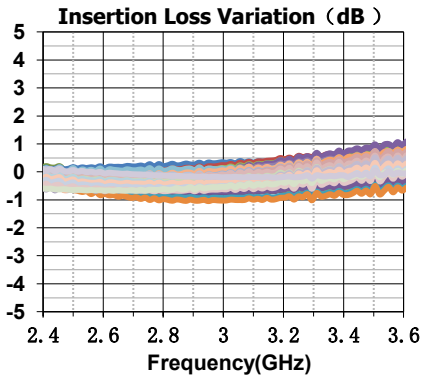
VEE	IEE
-5V	8mA

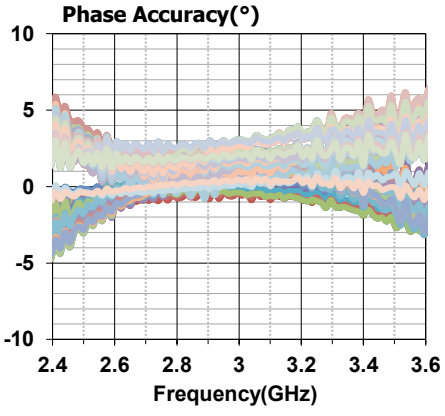
Typical Performance Curve

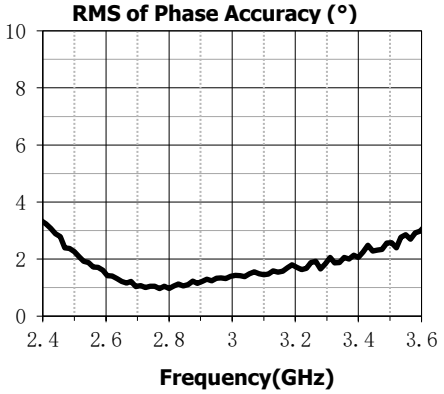




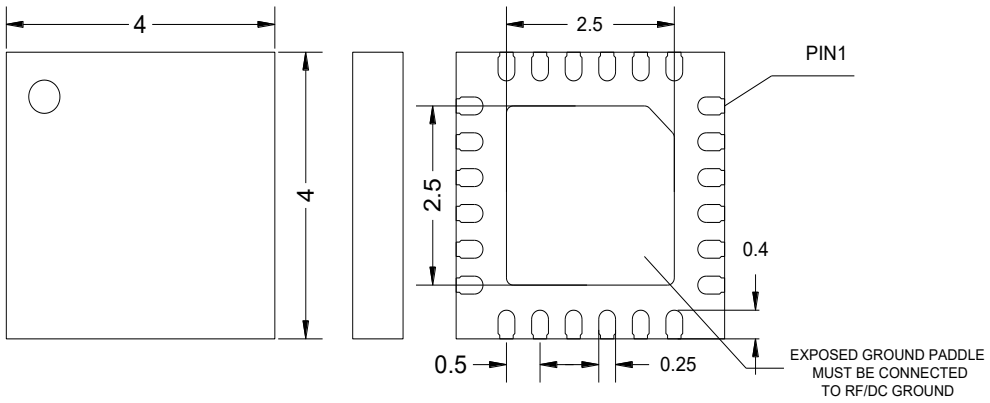




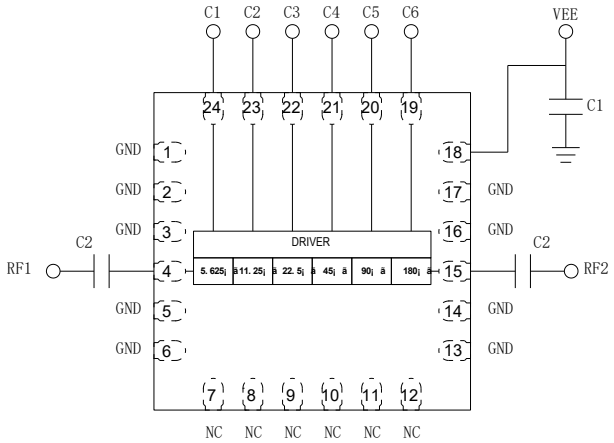




Outline Drawing
(All dimensions in mm)



Assembly Diagram



Components List

Reference Des.	Value	Part Number	Manuf.	Size
C1	1000pF	GRM1555C1H102JA1D	Murata	0402
C2	51pF	GRM1555C1H510JA01D	Murata	0402

Attention:

1. The moisture resistant grade of products is 2A, the storage environment ≤30° 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.