

SAC3316

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
6~18GHz

Rev 1.3

Features

- Frequency : 6~18GHz
- RMS of Phase Accuracy: 2°
- Low Insertion Loss: -14dB
- Positive Voltage Control
- Die Size: 2.5mmx2.42mmx0.1mm

Typical Applications

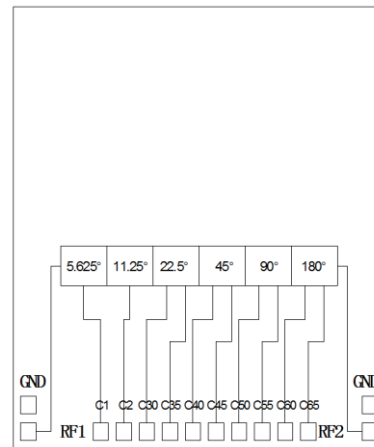
- EW
- Radar and Weather Radar
- SATCOM
- Beamforming Modules
- Phase Cancellation

General Description

SAC3316 is a 6-bit digital phase shifter which works from 6 to 18 GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

SAC3316 features extremely low insertion loss variation of ± 1 dB across all phase states.

Functional Diagram



Electrical Performance ($T_A=+25^\circ\text{C}$, Control Voltage=0/-5V, $Z_0=50\Omega$)

Parameter	Min.	Typ.	Max.	Units
Frequency	6~18			GHz
RF1 VSWR	—	1.5	—	:1
RF2 VSWR	—	1.5	—	:1
Insertion Loss	—	-14	—	dB
IL Variation	—	2	—	dB

Truth Table (0 : 0V , 1 : -5V)

Phase	C1	C2	C3	C4	C5	C6	C7	C8	C9
REF	0	0	0	1	0	1	0	1	0
-5.625°	1	0	0	1	0	1	0	1	0
-11.25°	0	1	0	1	0	1	0	1	0
-22.5°	0	0	1	0	0	1	0	1	0
-45°	0	0	0	1	1	0	0	1	0
-90°	0	0	0	1	0	1	1	0	0
-180°	0	0	0	1	0	1	0	1	1
-354.375°	1	1	1	0	1	0	1	0	1

SuperApex Corporation

Address: 1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
 Tel: 1-847-573-9866, 1-847-505-8319
 E-mail: sales@superapexco.com
 Website: www.superapexco.com

SAC3316



GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
6~18GHz

Rev 1.3

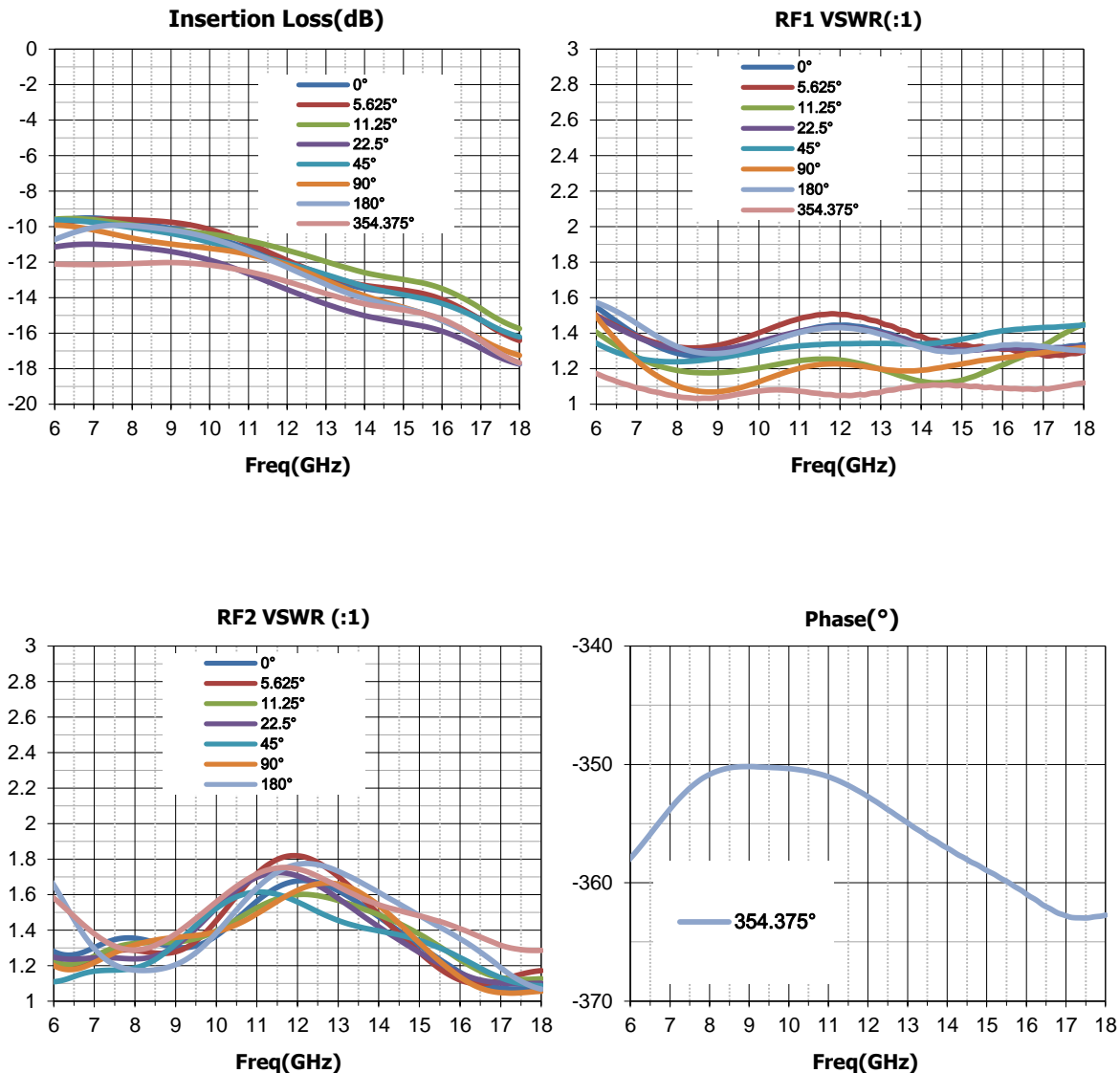
Absolute Maximum Ratings

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

Control Voltage

State	Bias
0	-0.8V~0V
1	-5V~-4.5V

Typical Performance Curve



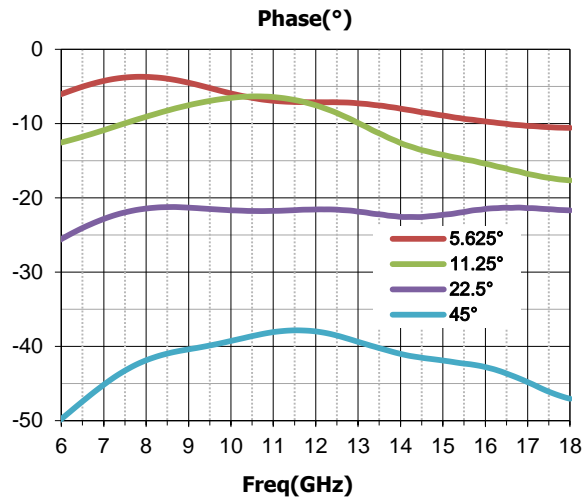
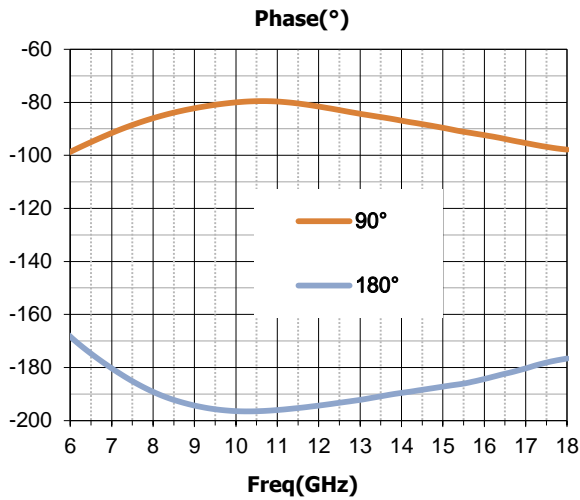
SuperApex Corporation

Address: 1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-573-9866, 1-847-505-8319
E-mail: sales@superapexco.com
Website: www.superapexco.com

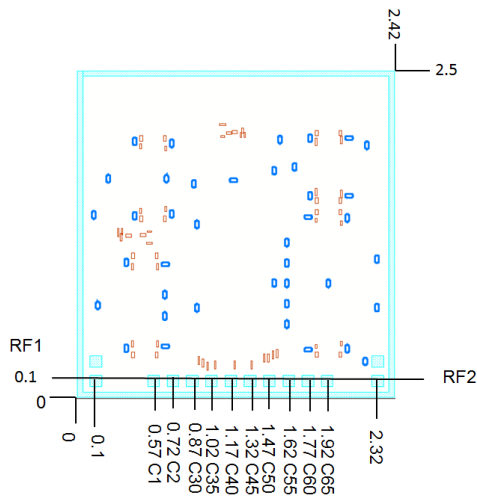
SAC3316

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
6~18GHz

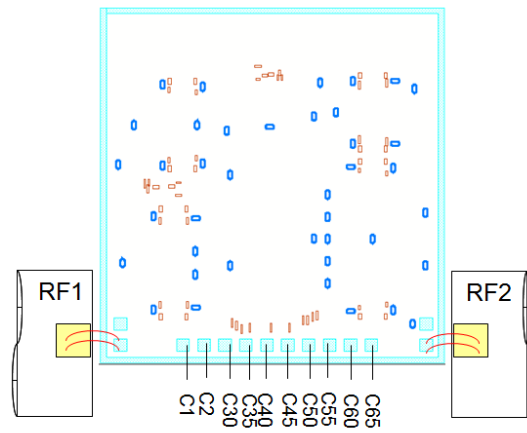
Rev 1.3



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.