SAC3216

GaAs MMIC SPDT Switch
DC～12GHz

Rev 2.2

Features

- Frequency Range：DC～12GHz
- Isolation：＞50dB@12GHz
- Insertion Loss：1.4dB@12GHz
- Non-reflective Switch
- Nanosecond switch
- Die Size：1.4mm×1.25mm×0.1mm

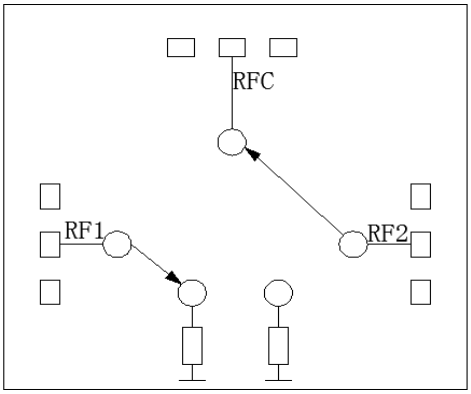
Typical Applications

- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3216 is a broadband non-reflective GaAs pHEMT SPDT MMIC chip. Covering DC to 12GHz,the switch offers high isolation and low insertion loss. The switch features over 40dB isolation at lower frequencies and over 55dB at higher frequencies due to the implementation of on-chip via hole structures.The switch operates using two negative control voltage logic lines of -5/0V, requires no bias and has no current consumption.

Functional Diagram



Electrical Performance

(T_A=+25℃ , Control Voltage =0/-5V,Z_o=50Ω)

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC～12	—	-1.2	—	dB
Isolation	DC～12	—	-45	—	dB
Return Loss RFC(ON)	DC～12	—	-15	—	dB
Return Loss RF1,RF2(OFF)	DC～12	—	-15	—	dB
Input P_{-1}dB	DC～12	—	30	—	dBm
Input IP_3	DC～12	—	48	—	dBm
Switching Speed	DC～12	—	15	—	ns

Absolute Maximum Ratings

RF Input power	30dBm	Control Voltage Range	-3~0.2V
Channel Temperature	150℃	Storage Temperature	-65℃~ +150℃
Operating Temperature	-55℃~+85℃	ESD Sensitivity (HBM)	Class 1A

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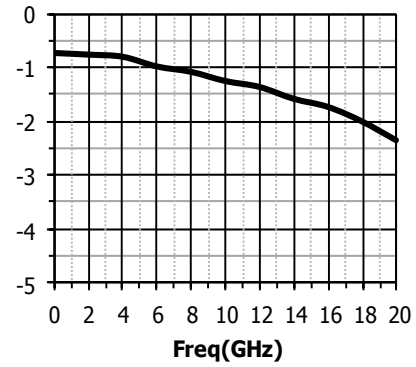
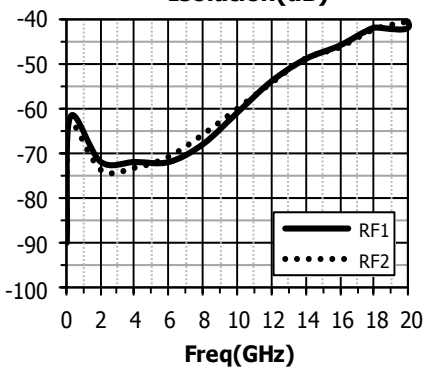
Typical Performance Curve

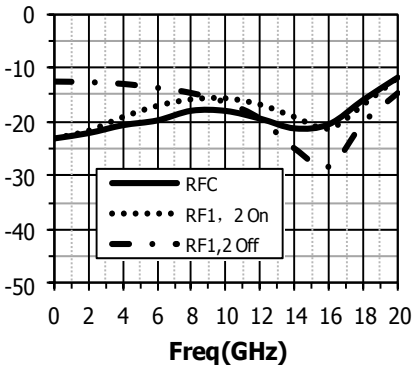
Insertion loss(dB)



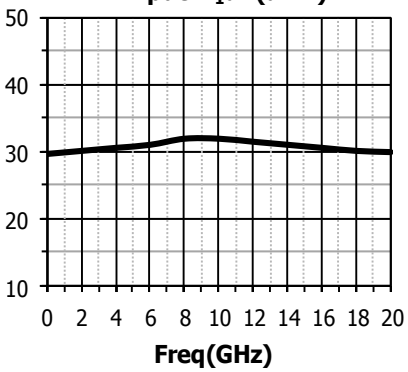
Isolation(dB)



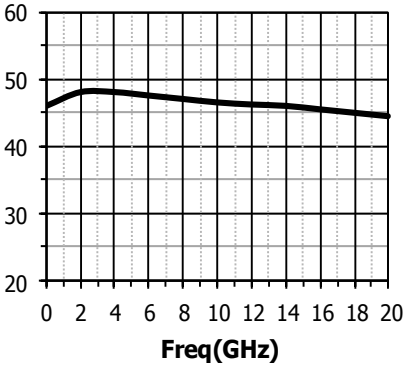
Reutrn Loss(dB)



Input P_{-1}dB(dBm)



Input IP_3 (dBm)



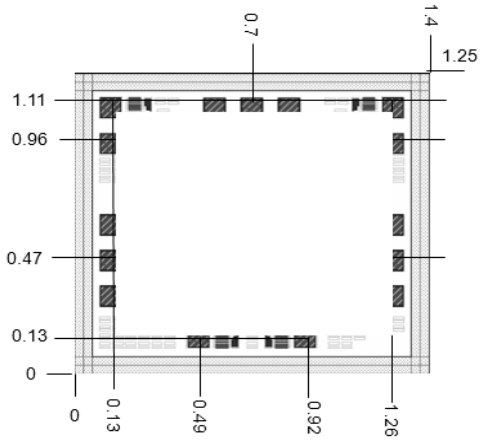
Control Voltages

State	Bias Condition
Low	0~0.2V
High	-3~-7V

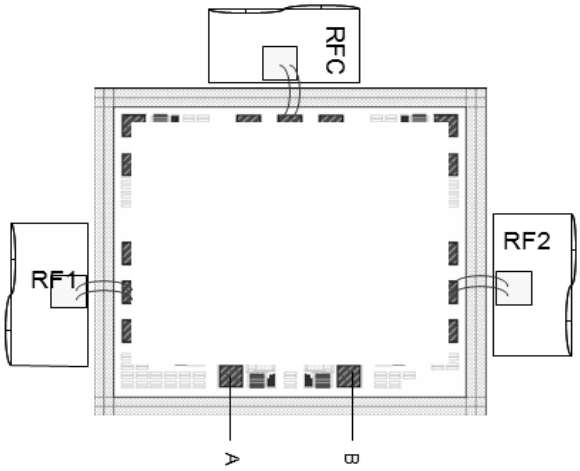
Truth Table

Control Input		Switch State	
A	B	RFC-RF1	RFC-RF2
High	Low	ON	OFF
Low	High	OFF	ON

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.