SAC3203A

GaAs MMIC SPDT Switch
DC~12GHz

Rev 2.1

Features

- Frequency Range：DC~12GHz
- Isolation：48dB typ.
- Insertion loss：0.8dB typ.
- Control Voltage：0/+5V
- Die Size：1.4mm×1.25mm×0.1mm

Typical Applications

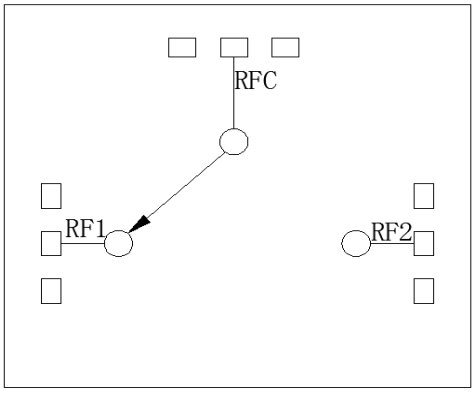
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

General Description

SAC3203A is a general purpose broadband high isolation reflective GaAs pHEMT SPDT switch in bare die. The switch offers over 48dB isolation and less than 0.8dB insertion loss over operation frequency. Its fast switching and compact size make this absorptive SPDT ideal for many applications.

The switch operates using complementary positive control voltage logic lines of 0/+5V.

Functional Diagram



Electrical Performance

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

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC~12GHz	—	-0.8	—	dB
Isolation	DC~12GHz	—	-48	—	dB
VSWR RFC	DC～12GHz	—	1.2	—	:1
VSWR RF1，RF2(ON)	DC～12GHz	—	1.2	—	:1
Input P_{-1}dB	DC~12GHz	—	25	—	dBm
Input IP_3	DC~12GHz	—	42	—	dBm
Switching Speed	DC~12GHz	—	30	—	ns

Absolute Maximum Ratings

RF Input power	+30dBm	Control Voltage Range	0~5.5V
Channel Temperature	150℃	Storage Temperature	-65℃～+150℃
Operating Temperature	-55℃～+85℃	ESD Sensitivity (HBM)	Class 1A

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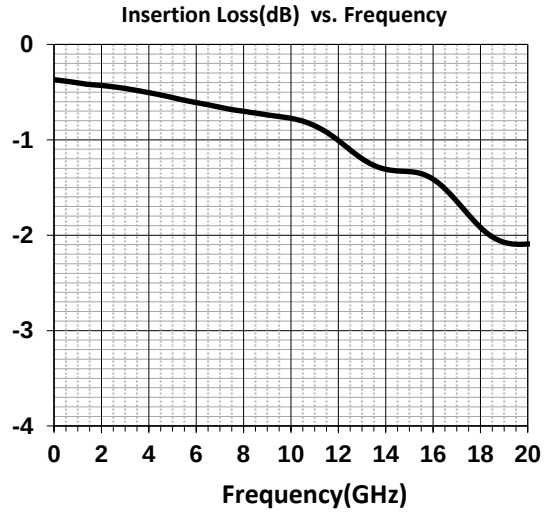
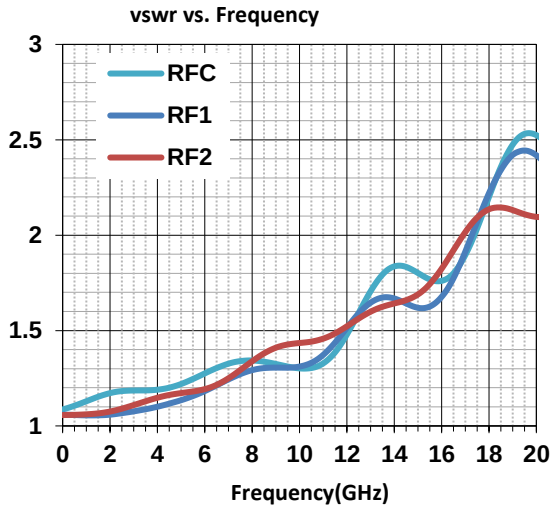
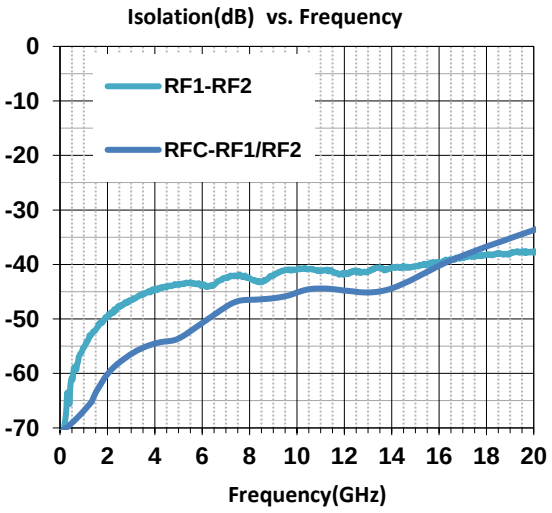
Typical Performance Curve







Control Voltages

State	Bias Condition
Low	0~0.5V
High	3~5.5V

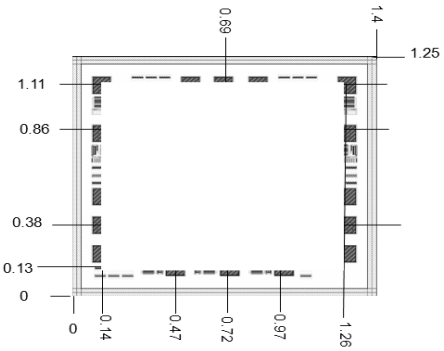
Truth Table

Control Input	Signal Path State	
Ctrl	RFC-RF1	RFC-RF2
Low	OFF	ON
High	ON	OFF

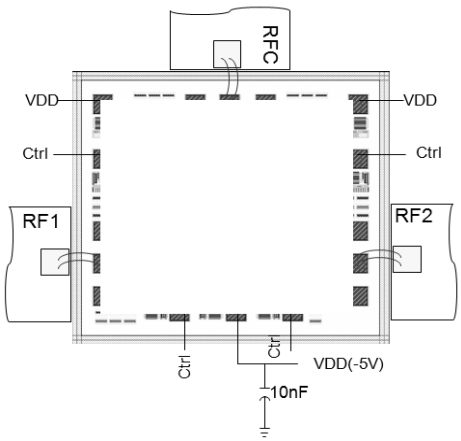
Bias Voltage & Current

V_D	I_D
-5V	2mA

Die Outline
(All dimensions in mm)



Assembly Diagram



Notes:

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