

# SAC3206

GaAs MMIC SPDT Switch  
DC~20GHz

Rev 2.1

## Features

- Frequency Range: DC~20GHz
- Isolation: > 40dB@20GHz
- Insertion Loss: 2.6dB@20GHz
- Non-reflective Switch
- Nanosecond switch
- Die Size: 1.4mm×1.24mm×0.1mm

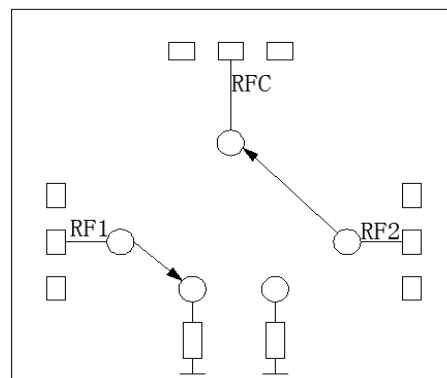
## Typical Applications

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

## General Description

SAC3206 is a general purpose broadband high isolation non-reflective GaAs pHEMT SPDT switch in bare die. The switch offers over 40 dB isolation and less than 2.6dB insertion loss over operation frequency. Its fast switching and compact size make this absorptive SPDT ideal for many critical applications. The switch operates using complementary positive control voltage logic lines of 0/+5V.

## Functional Diagram



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

Parameter	Fre.	Min.	Typ.	Max.	Units
Insertion Loss	DC~20GHz	—	-2.3	—	dB
Isolation	DC~20GHz	—	-45	—	dB
Return Loss RFC(ON)	DC~20GHz	—	-15	—	dB
Return Loss RF1,RF2(OFF)	DC~20GHz	—	-15	—	dB
Input $P_{-1}$ dB	DC~20GHz	—	30	—	dBm
Input $IP_3$	DC~20GHz	—	48	—	dBm
Switching Speed	DC~20GHz	—	15	—	ns

## Absolute Maximum Ratings

RF Input power	30dBm	Control Voltage Range	0~7V
Channel Temperature	150°C	Storage Temperature	-65°C~+150°C
Operating Temperature	-55°C~+85°C	ESD Sensitivity (HBM)	Class 1A

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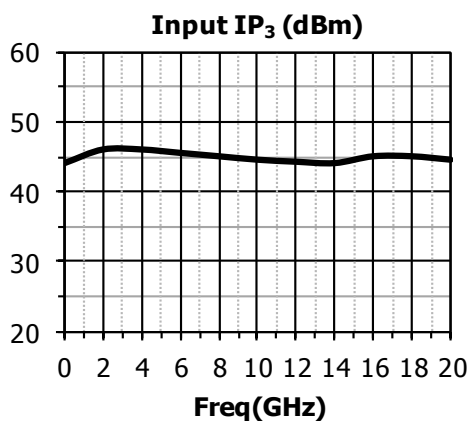
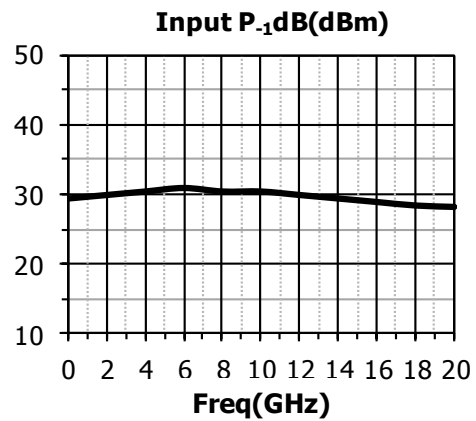
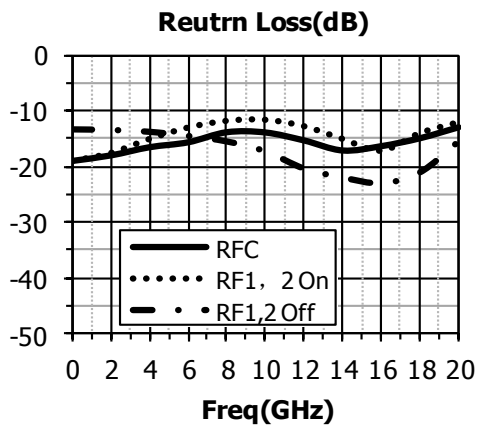
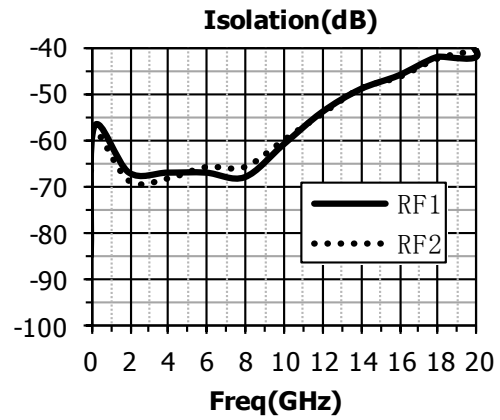
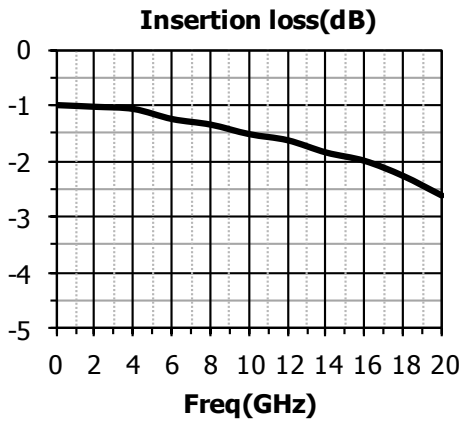
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## Typical Performance Curve



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## Control Voltages

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

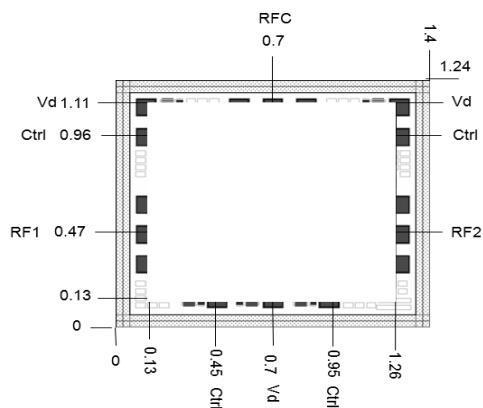
## Truth Table

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

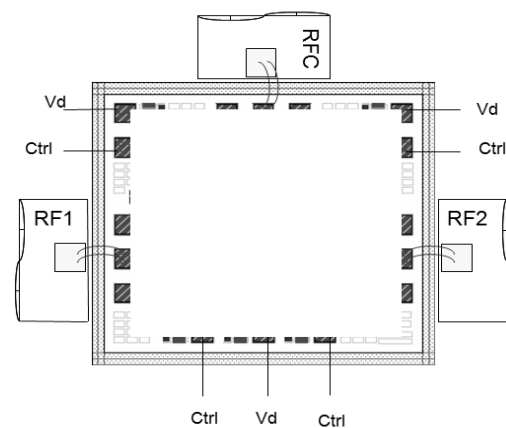
## Bias Voltage & Current

V <sub>D</sub>	I <sub>D</sub>
-5V	1mA

## 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.