

## Features

- Frequency Range: DC~20GHz
- Isolation: >35dB@18GHz
- Insertion Loss: 2.8dB@18GHz
- Nanosecond Switch
- Die Size: 1.32mm×1.32mm×0.1mm

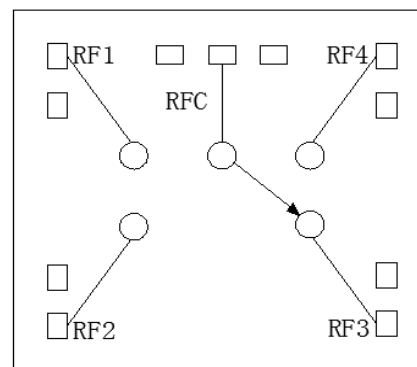
## Typical Applications

- Microwave radio including point to point communication
- Telecommunication
- Weather radar
- Optical communication
- Test instrumentation
- SatCom
- VSAT
- Military and Aerospace

## General Description

SAC3220 is a general purpose broadband high isolation GaAs pHEMT SP4T switch in bare die. The switch offers over 40dB isolation and less than 2.8dB insertion loss over operation frequency. It's fast switching and compact size make this SP4T ideal for many critical applications. The switch operates using complementary positive control voltage logic lines of 0/5V.

## Functional Diagram



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

Parameter	Min.	Typ.	Max.	Units
Insertion Loss	—	-2.5	-3.5	dB
Isolation	35	-50	—	dB
VSWR RFC	—	1.5	2	:1
VSWR RF1,2,3,4(ON)	—	1.4	1.5	:1

## Absolute Maximum Ratings

Input Power	+28dBm	Operating Temperature	-55~+85°C
Control Voltage Range	0~5V	Storage Temperature	-65~+150°C
Channel Temperature	150°C	ESD Sensitivity (HBM)	Class 1A

### Control Voltage

State	Bias Condition
Low	0~1V
High	4~5V

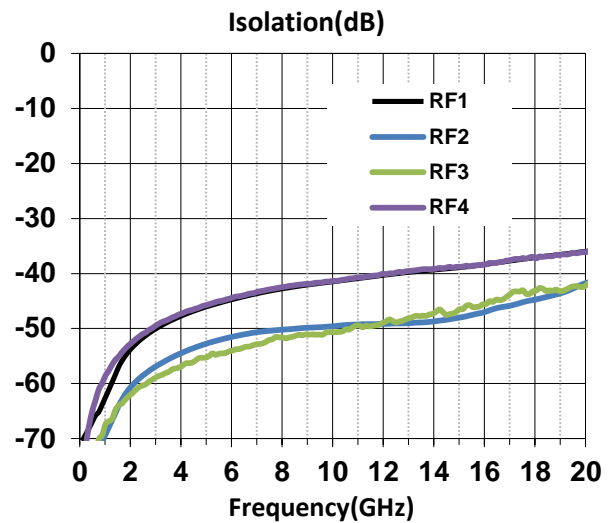
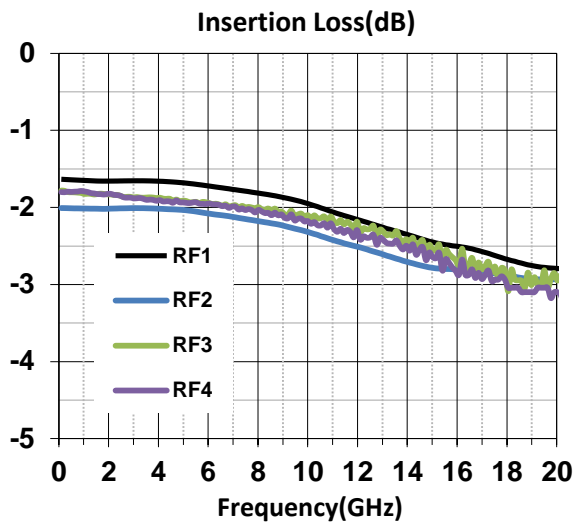
### Bias Voltage & Current

$V_D$	$I_D$
-4.5~-4.75V	4mA

### Truth Table

Control Input		Signal Path State			
Ctrl1	Ctrl2	RFC-RF1	RFC-RF2	RFC-RF3	RFC-RF4
1	1	ON	OFF	OFF	OFF
0	1	OFF	ON	OFF	OFF
1	0	OFF	OFF	ON	OFF
0	0	OFF	OFF	OFF	ON

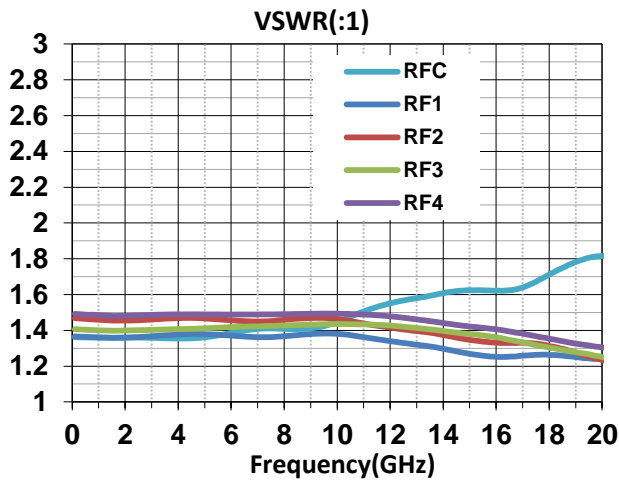
### Typical Performance Curve



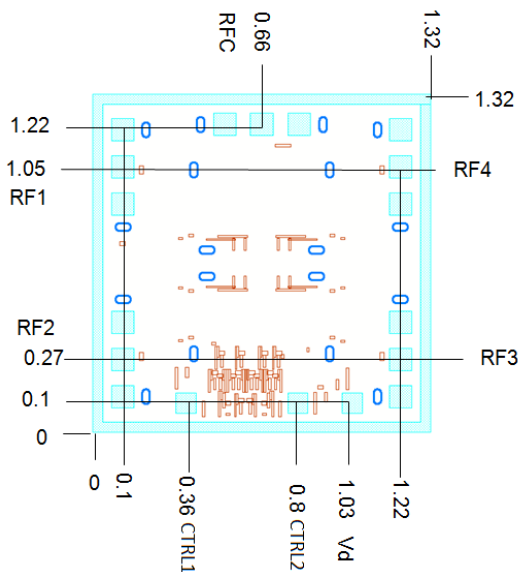
# SAC3220

GaAs MMIC SP4T Switch  
DC~20GHz

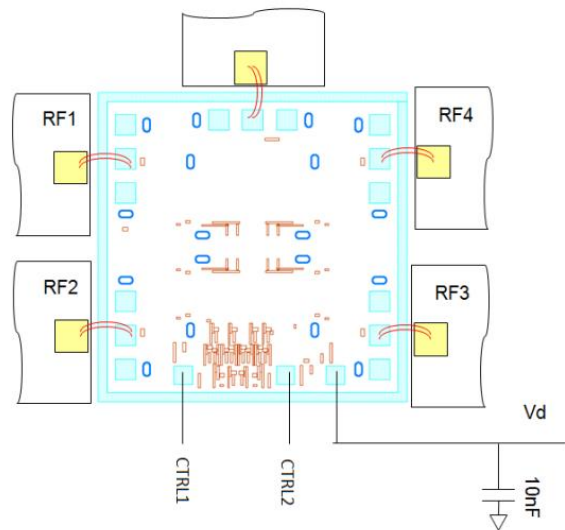
Rev 1.4



**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.