

## Features

- Frequency Range: DC~12GHz
- Isolation: 38dB@12GHz
- Insertion Loss: 1.8dB@12GHz
- Nanosecond switch
- Die Size: 1.4mm×1.25mm×0.1mm

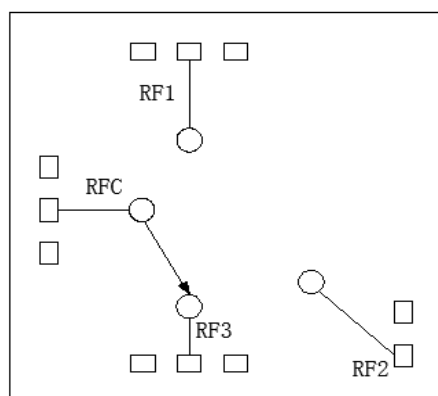
## General Description

SAC3222 is a general purpose broadband high isolation GaAs pHEMT SP3T switch in bare die. The switch offers over 38dB isolation and less than 1.8dB insertion loss over operation frequency. Its fast switching and compact size make this SP3T ideal for many critical applications. The switch operates using complementary positive control voltage logic lines of 0/+5V.

## Typical Applications

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

## Functional Diagram



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

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC~12GHz	—	-1.8	—	dB
Isolation	DC~12GHz	—	-38	—	dB
Return Loss RFC(ON)	DC~12GHz	—	-15	—	dB
Return Loss RF1,RF2,RF3(ON)	DC~12GHz	—	-17	—	dB
Input $P_{-1\text{dB}}$	DC~12GHz	—	20	—	dBm
Input $IP_3$	DC~12GHz	—	35	—	dBm
Switching Speed	DC~12GHz	—	30	—	ns

## Absolute Maximum Ratings

Input power	28dBm	Operating Temperature	-55~+85°C
Control Voltage Range	+0~6V	Storage Temperature	-65~+150°C
Channel Temperature	150°C	ESD Sensitivity (HBM)	Class 1A

# SAC3222

GaAs MMIC SP3T Switch  
DC~12GHz

Rev 2.1

## Control Voltage

State	Bias Condition
Low	0~0.2V
High	4~6V

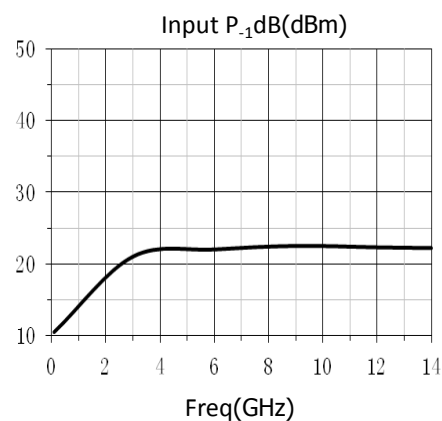
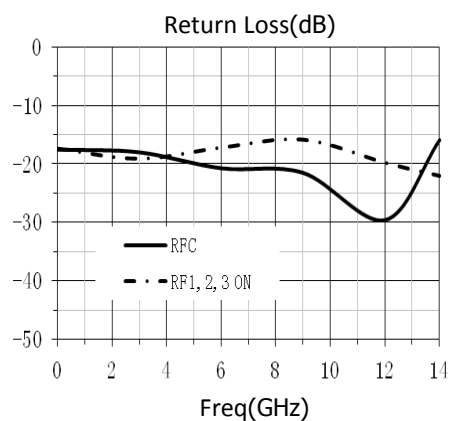
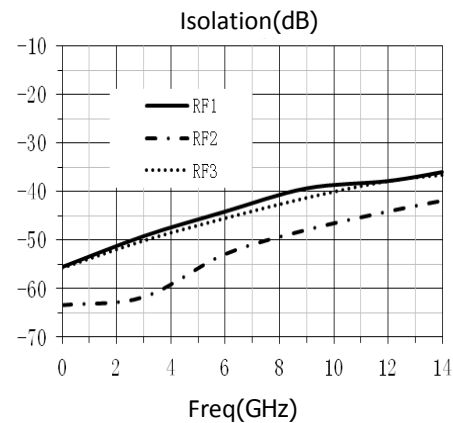
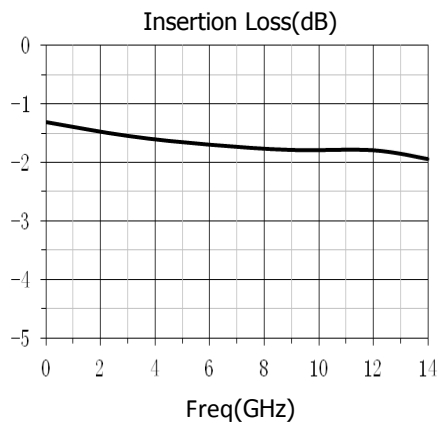
## Bias Voltage & Current

$V_D$	$I_D$
-5V	4mA

## Truth Table

Control Input			Signal Path State		
Ctrl1	Ctrl2	Ctrl3	RFC-RF1	RFC-RF2	RFC-RF3
High	High	High	OFF	OFF	OFF
Low	High	High	ON	OFF	OFF
High	Low	High	OFF	ON	OFF
High	High	Low	OFF	OFF	ON

## Typical Performance Curve



### SuperApex Corporation

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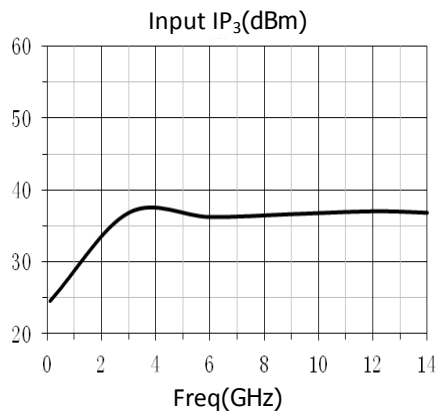
E-mail: sales@superapexco.com

Website: www.superapexco.com

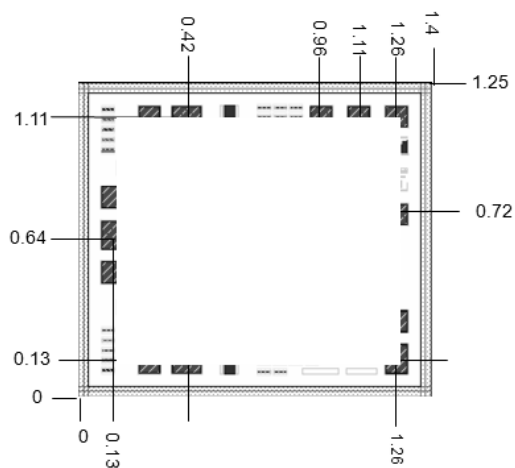
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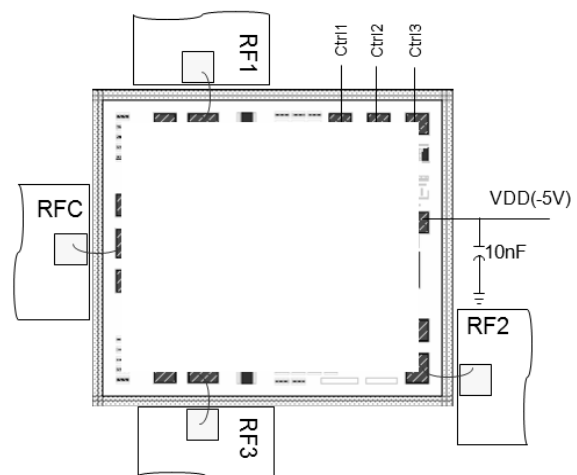
Rev 2.1



**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.