

# SAC3229Q3

GaAs MMIC SP3T Switch  
DC~12GHz

Rev 1.4

## Features

- Frequency Range: DC~12GHz
- Isolation: >40dB@12GHz
- Insertion Loss: 2.3dB@12GHz
- Non-reflective
- Die Size: 3mm×3mm×1.3mm

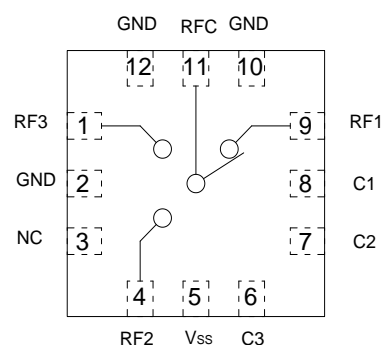
## General Description

SAC3229Q3 is a general purpose broadband high isolation GaAs pHEMT SP3T switch in bare die. The switch offers over 40dB isolation and less than 2.3dB 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 , 50Ω )

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC~12GHz	-	1.5	2.3	dB
Isolation	DC~12GHz	40	50	-	dB
Return Loss RFC,RF1,RF2,RF3(ON)	DC~12GHz	-	-18	-	dB
Return Loss RF1,RF2,RF3(OFF)	DC~12GHz	-	-20	-	dB
Input $P_{1dB}$	DC~12GHz	-	20	-	dBm
Switching Speed	DC~12GHz	-	30	-	ns

## Absolute Maximum Ratings

Maximum Input Power(0.5~12GHz)	+30dBm	Operating Temperature	-55°C~+85°C
Control Voltage Range	+0~5.5V	Storage Temperature	-65°C~+150°C
ESD Sensitivity ( HBM )	Class1A	Channel Temperature	150°C

## SuperApex Corporation

Address: 1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA  
Tel: 1-847-573-9866, 1-847-505-8319  
E-mail: sales@superapexco.com  
Website: www.superapexco.com

# SAC3229Q3

GaAs MMIC SP3T Switch  
DC~12GHz

Rev 1.4

## Control Voltage

State	Bias Condition
Low	0~0.2V
High	3.3~5V

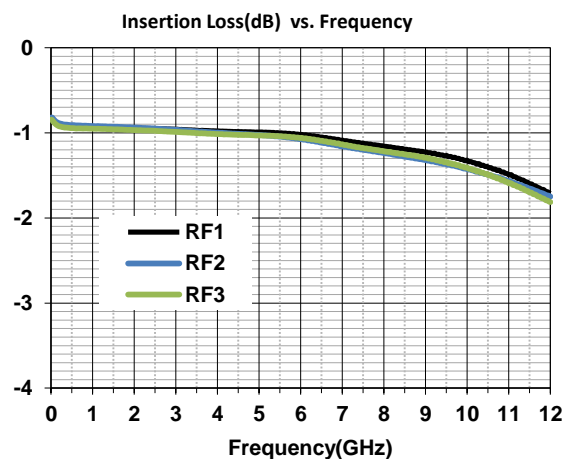
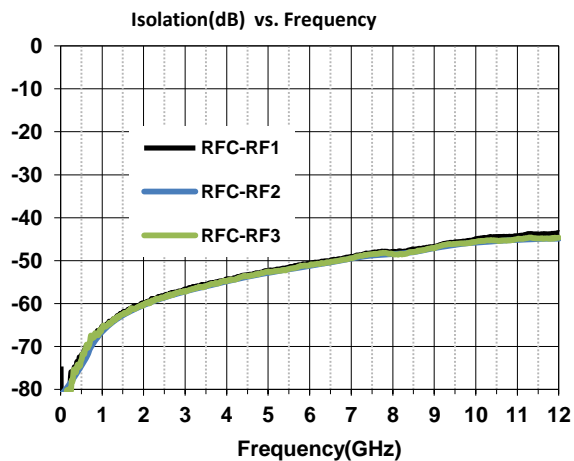
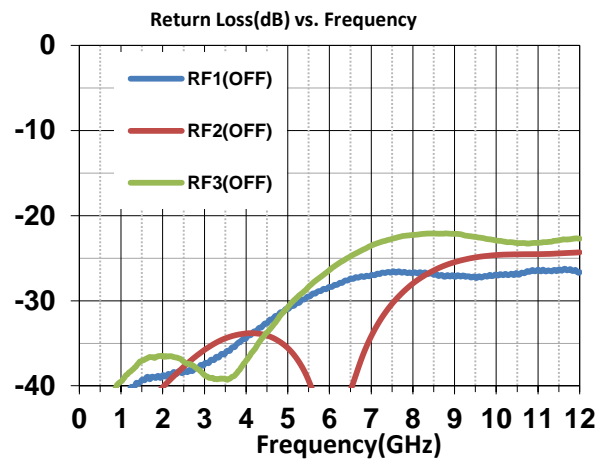
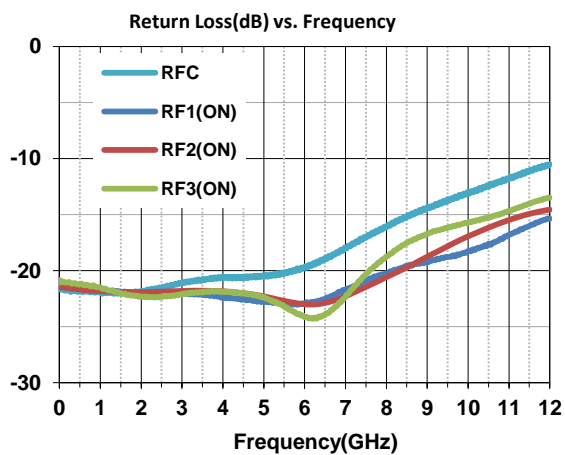
## Bias Voltage & Current

V <sub>SS</sub>	I <sub>SS</sub>
-----------------	-----------------

## Truth Table

Control Input			Signal Path State		
C1	C2	C3	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

Address: 1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA  
Tel: 1-847-573-9866, 1-847-505-8319  
E-mail: sales@superapexco.com  
Website: www.superapexco.com

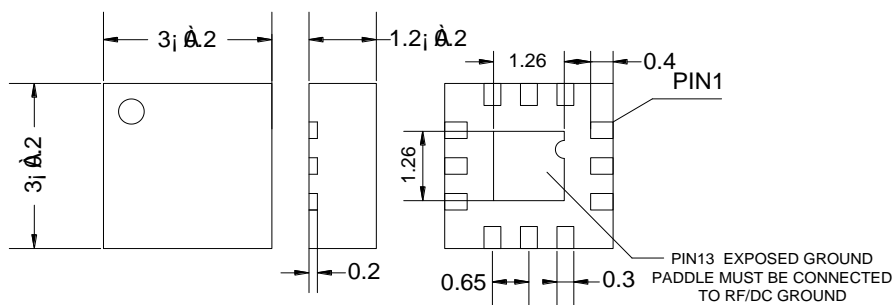
# SAC3229Q3

GaAs MMIC SP3T Switch  
DC~12GHz

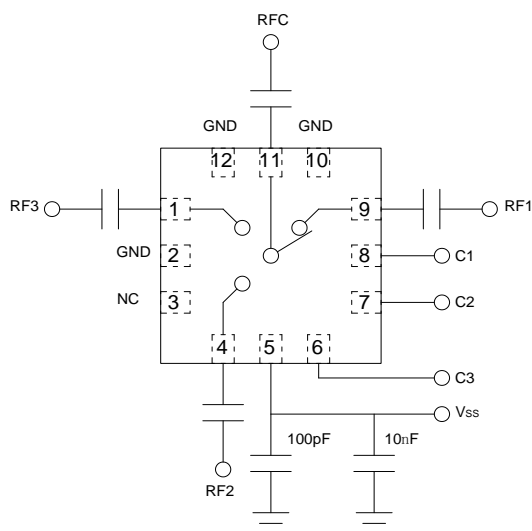
Rev 1.4

## Outline

(all dimensions in mm)



## Assembly Diagram



### Attention:

1. The moisture resistant grade of products is 2A, the storage environment  $\leq 30^{\circ}$  C/60% RH, The surrounding workshop Life is 4 weeks.
2. After un-packing, It is necessary to bake the parts for 6 hours in  $125 \pm 5$  degree environment before soldering.
3. The device is sensitive to static electricity. Pay attention to anti-static during storage and use.
4. RF port requires additional DC isolation capacitor.