

## Features

- Frequency Range: DC~12GHz
- Isolation: >45dB@12GHz
- Insertion Loss: 1.1dB@12GHz
- Control Voltage: 0/+5V
- Nanosecond switch
- Package Size: 3mm×3mm×1.2mm

## Typical Applications

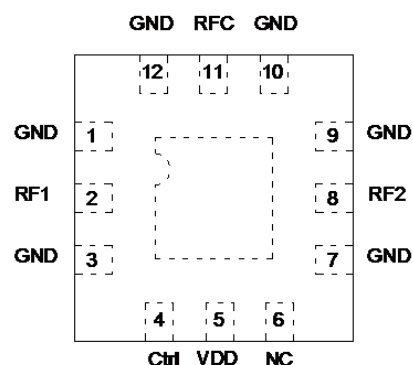
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Test and Measurement
- Fiber Optics

## General Description

SAC3203Q3 is a general purpose broadband high isolation reflective GaAs pHEMT SPDT switch in leadless 3x3mm surface mount package. The switch offers over 45dB isolation and less than 1.2dB 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 ( $T_A=+25^\circ\text{C}$ , $V_{DD}=-5\text{V}$ , Control Voltage=0/+5V, $Z_0=50\Omega$ )

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC~12GHz	—	-1.0	-1.3	dB
Isolation	DC~12GHz	-42	-48	—	dB
Return Loss(RFC)	DC~12GHz	-15	-20	—	dB
Return Loss(RF1,RF2)	DC~12GHz	-15	-20	—	dB
Input Power for 1dB Compression	DC~12GHz	—	25	—	dBm
Input $IP_3$	DC~12GHz	—	42	—	dBm
Switching Speed	DC~12GHz	—	18	—	ns

## Absolute Maximum Ratings

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

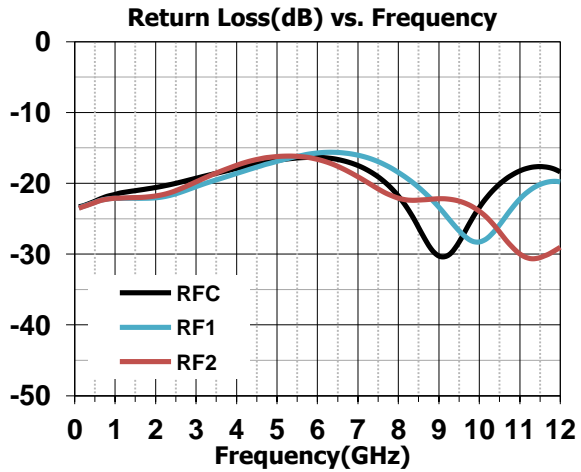
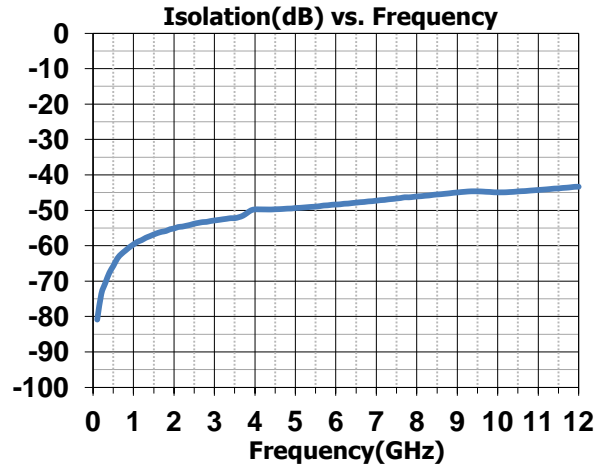
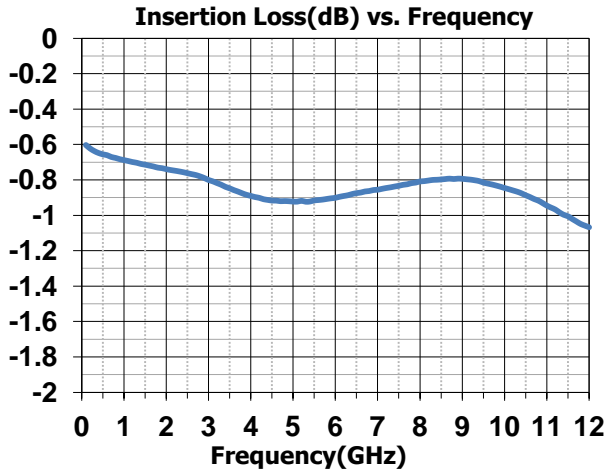
# SAC3203Q3



GaAs MMIC SPDT Switch  
DC~12GHz

Rev 1.1

## Typical Performance Curve



### SuperApex Corporation

Address: 111 Barclay Boulevard, Ste. 211, Lincolnshire, IL 60069, USA  
Tel: 1-847-573-9866, 1-847-505-8319  
E-mail: sales@superapexco.com  
Website: www.superapexco.com

### Control Voltages

State	Bias Condition
Low	0~0.5V
High	4.5~5.5V

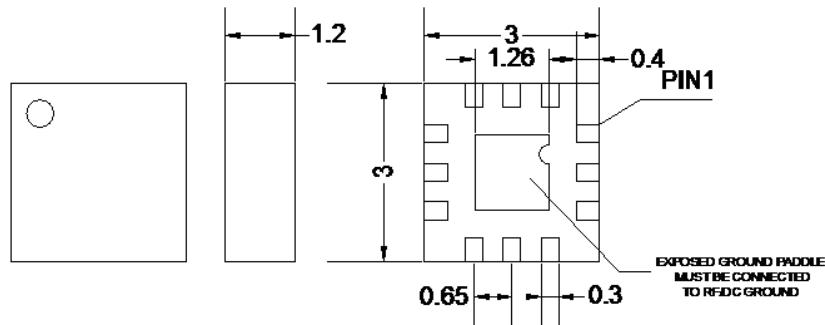
### Truth Table

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

### Bias Voltage & Current

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

### Outline Drawing (all dimensions in mm)



### 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+/-5 degree environment before soldering.