

## Features

- Frequency Range: DC~20GHz
- Isolation: 50dB (Typ.)
- Insertion loss: 1.8dB (Typ.)
- Non-reflective Switch
- Size: 3mm×3mm×1.2mm
- RoHS Compliant

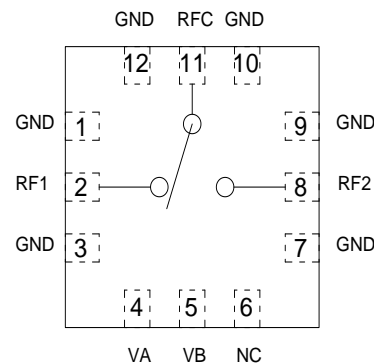
## General Description

SAC3201AQ3 is a general-purpose broadband high isolation non-reflective GaAs pHEMT SPDT switch in leadless 3×3mm surface mount package. The switch offers 50dB (Typ.) isolation and 1.8dB (Typ.) insertion loss over operation frequency. Fast switching and compact size make this absorptive SPDT ideal for a lot of critical applications. The switch operates using complementary negative control voltage logic lines of 0/-5V and requires no bias supply.

## Typical Applications

- Radar and ECM
- RF/ Microwave Radio
- Test and Measurement
- Fiber Optics

## Functional Diagram



## Electrical Performance

$T_A = +25^\circ\text{C}$ , Control Voltage=0/-5V,  $Z_0 = 50\Omega$

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion loss	DC~20GHz	—	1.8	—	dB
Isolation	DC~20GHz	—	50	—	dB
Return Loss RFC, RF1, RF2	DC~20GHz	—	-15	—	dB
Return Loss RF1, RF2(OFF)	DC~20GHz	—	-18	—	dB
Input Power for P <sub>-1dB</sub> Compression	DC~20GHz	—	23	—	dBm
Switching Speed	DC~20GHz	—	20	—	ns

## Absolute Maximum Ratings

RF Input Power (0.5 GHz~20GHz)	30dBm	Storage Temperature	-65°C~+150°C
Channel Temperature	150°C	ESD Sensitivity (HBM)	Class 1A
Operating Temperature	-55°C~+85°C		

## Control Voltages

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

## Truth Table

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

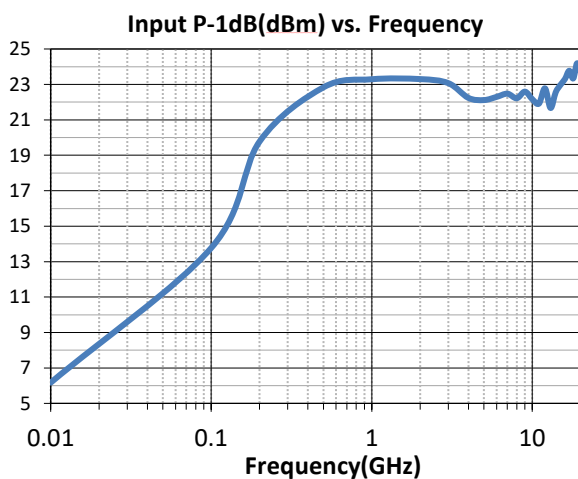
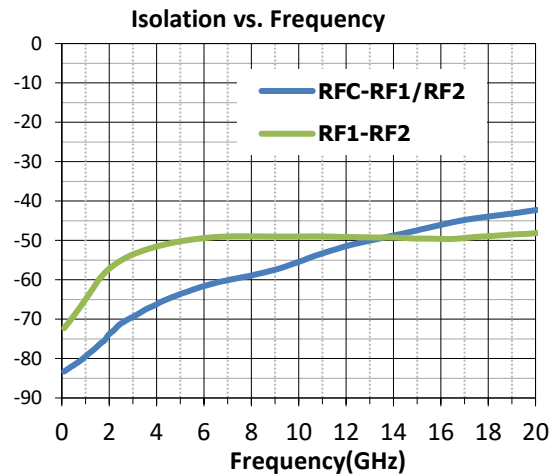
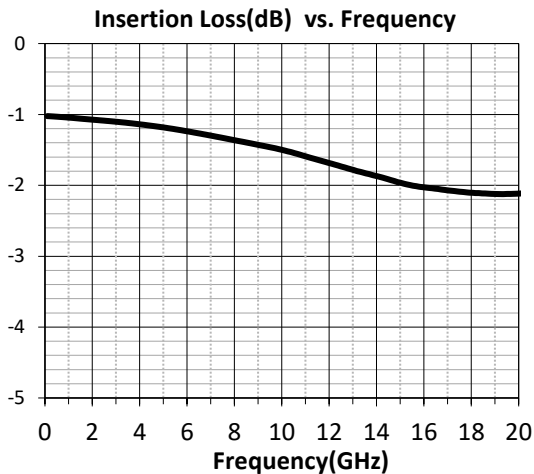
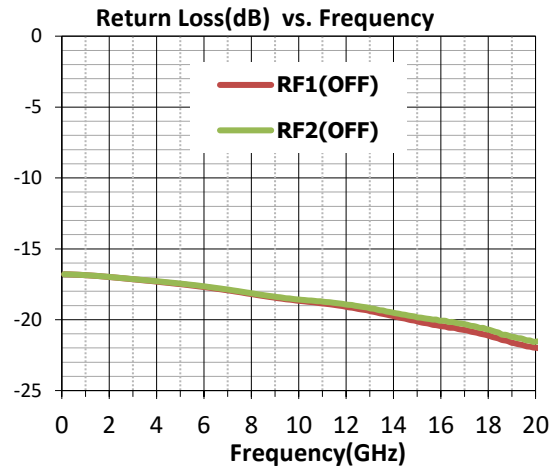
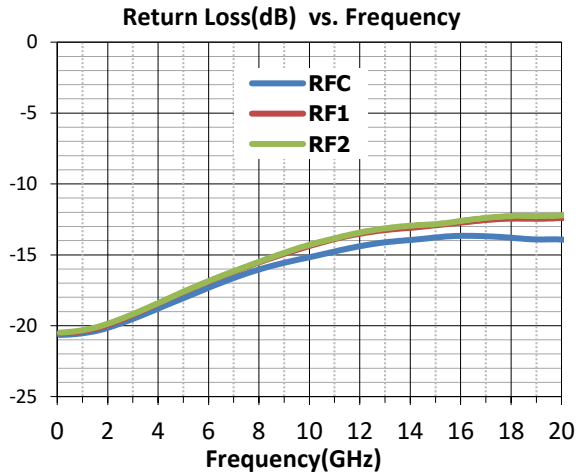
# SAC3201AQ3



GaAs MMIC SPDT Switch  
DC~20GHz

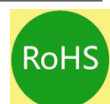
Rev 1.0

## Typical Performance Curve



### SuperApex, LLC

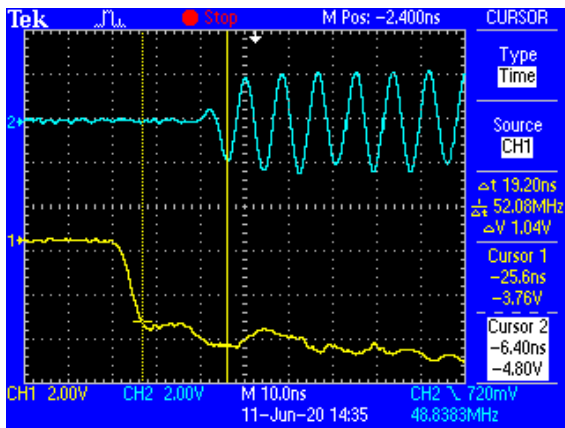
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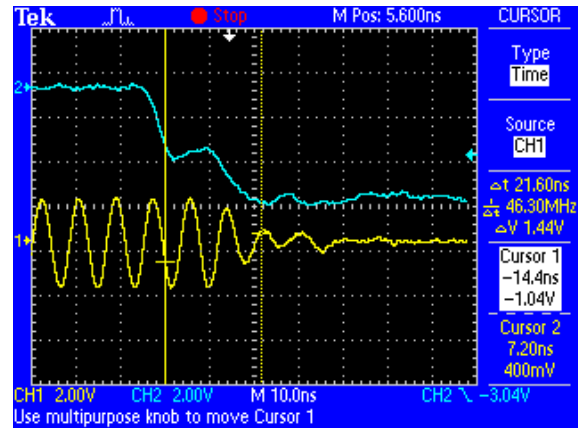
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GaAs MMIC SPDT Switch  
DC~20GHz

Rev 1.0



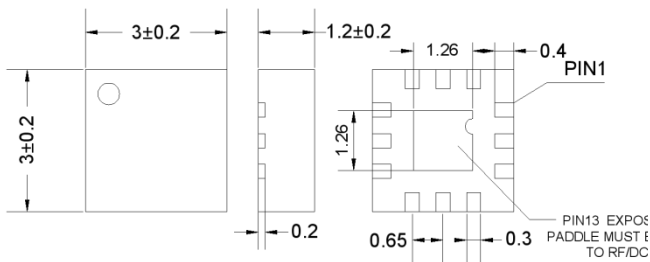
Switch Time (ON)



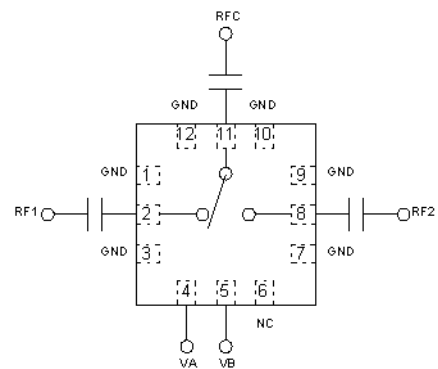
Switch Time (OFF)

## Outline Drawing

(All dimensions in mm)



## Assembly Diagram



## Attention:

1. The moisture resistant grade of products is 2A, the storage environment  $\leq 30^{\circ}\text{C}/60\% \text{RH}$ , the surrounding workshop Life is 4 weeks.
2. After un-packing, it is necessary to bake the parts for 6 hours in  $125\pm 5^{\circ}\text{C}$  environment before soldering.