

SAC3205QP3

GaAs MMIC SPDT Switch
DC~20GHz

Rev 1.1

Features

- Frequency Range: DC~20GHz
- Isolation: > 40dB@20GHz
- Insertion Loss: 1.7dB@20GHz
- Control Voltage: 0/+5V
- Reflective
- Size: 3mm×3mm×0.7mm

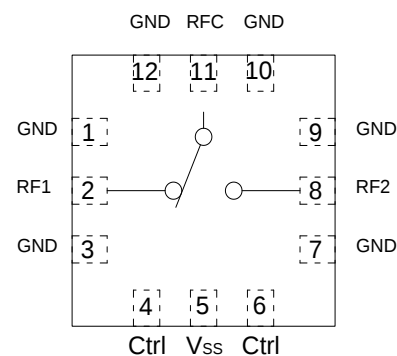
Typical Applications

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

General Description

SAC3205QP3 is a general purpose broadband high isolation reflective GaAs pHEMT SPDT switch in leadless 3x3mm surface mount package. The switch offers over 40dB isolation and less than 1.7dB insertion loss over operation frequency. Its fast switching and compact size make this absorptive SPDT ideal for many critical applications. The switch operates using complementary positive control voltage logic lines of 0/+5V.

Functional Diagram



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

Parameter	Fre.	Min.	Typ.	Max.	Units
Insertion Loss	DC~20GHz	—	-1.5	—	dB
Isolation	DC~20GHz	40	50	—	dB
VSWR RFC	DC~20GHz	—	1.3	1.6	:1
VSWR RF1,RF2(ON)	DC~20GHz	—	1.3	1.6	:1
Input $P_{1\text{dB}}$	DC~20GHz	—	20	—	dBm
Input IP_3	DC~20GHz	—	35	—	dBm
Switching Speed	DC~20GHz	—	30	—	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

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Control Voltages

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

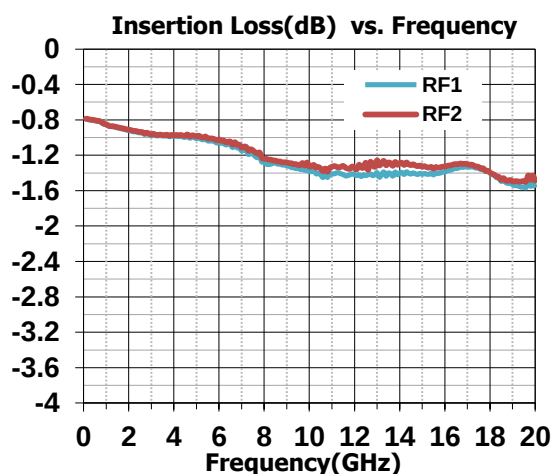
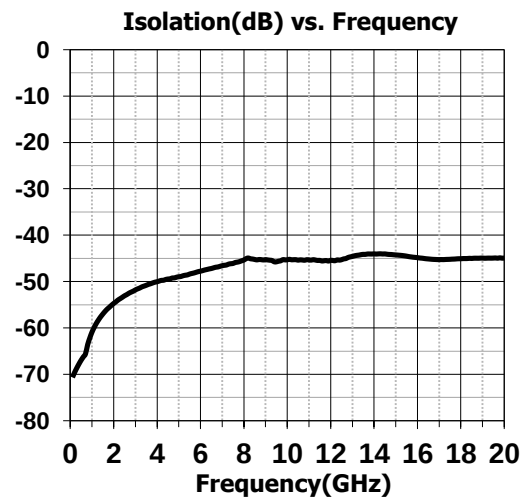
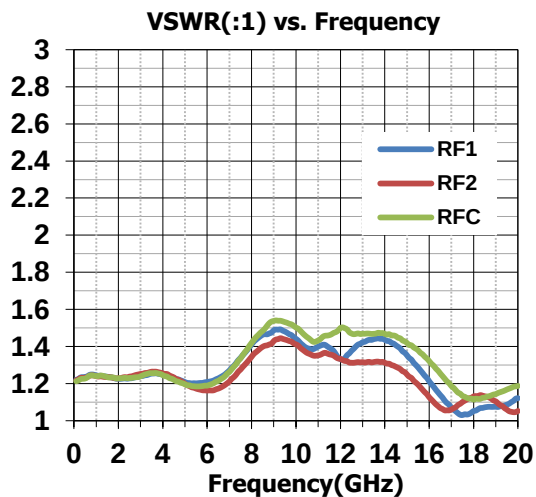
Truth Table

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

Bias Voltage & Current

V _{SS}	I _{SS}
-5V	1.5mA

Typical Performance Curve



SuperApex, LLC

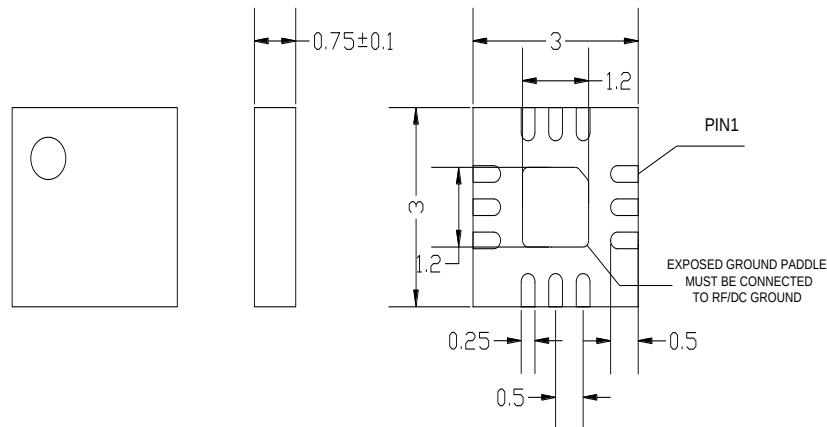
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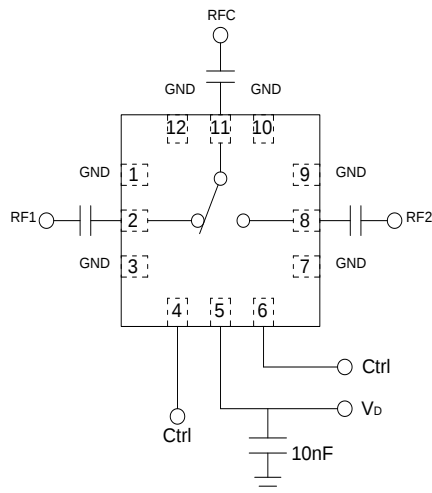
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Outline Drawing (All dimensions in mm)



Assembly Diagram



The Ctrl is connected internally.

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 ± 5 degree environment before soldering.