SAC3204M

GaAs MMIC SPDT Switch
DC~4GHz

Rev 1.0

Features

- Frequency Range：DC~4GHz
- Isolation：60dB@4GHz
- Insertion Loss：0.8dB
- Non-reflective Switch
- Nanosecond switch
- Die Size：1.32mm×1.21mm×0.1mm

Typical Applications

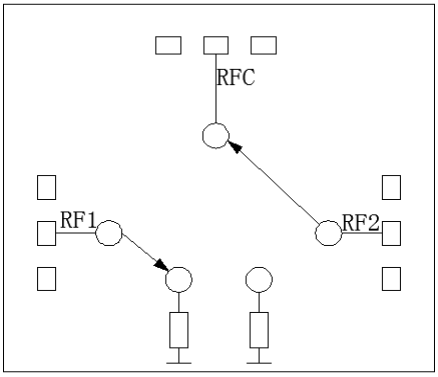
- Radar and ECM
- RF/ Microwave radio
- Test and Instrumentation
- Fiber Optics

General Description

SAC3204M is a general purpose broadband high isolation non-reflective GaAs pHEMT SPDT switch in bare die. The switch offers 70dB isolation and 0.8dB insertion loss. 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/+3.3~+5V.

The chip offers full passivation for increased reliability and moisture protection. This amplifier is the perfect alternative to higher cost hybrid amplifiers.

Functional Diagram



Electrical Performance

(T_A=+25℃, V_D=+5V, Control Voltage=0/+3.3～+5V,Z_O=50Ω)

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC～4GHz	—	-0.8	—	dB
Isolation	DC～4GHz	—	-70	—	dB
Return Loss RFC(ON)	DC～4GHz	—	-20	—	dB
Return Loss RF1,RF2(OFF)	DC～4GHz	—	-20	—	dB
Input P_{-1}dB	DC～4GHz	—	29	—	dBm
Switching Speed	DC～4GHz	—	70	—	ns

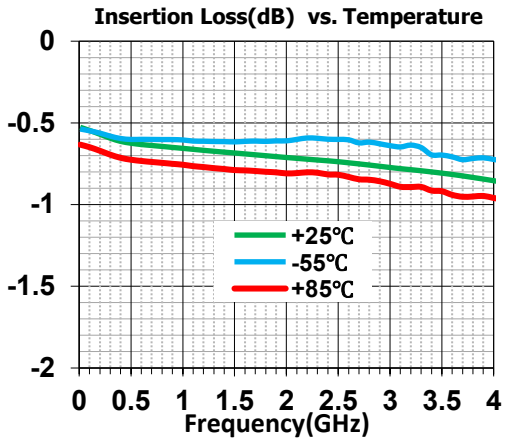
Absolute Maximum Ratings

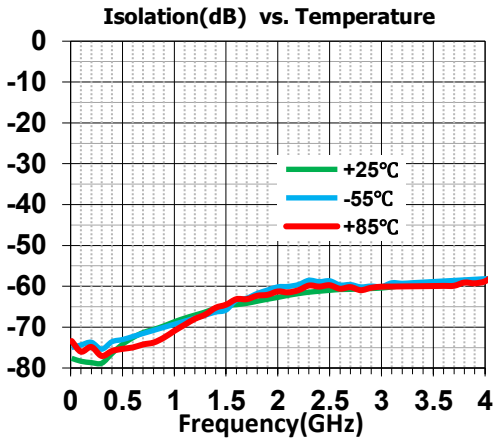
Input power	30dBm	Control Voltage Range	+0~5.5V
Channel Temperature	150℃	Storage Temperature	-65℃~+150℃
Operating Temperature	-55℃~+85℃	ESD Sensitivity (HBM)	Class 1A
VD	5V±0.25V		

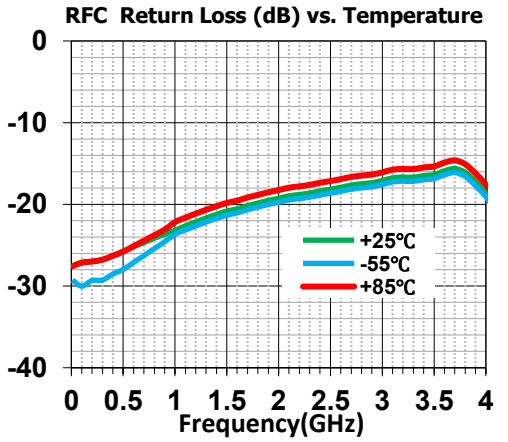
RoHS

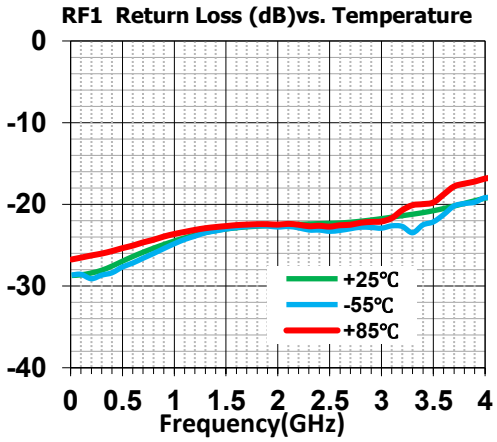
SuperApex, LLC
2801 Lakeside Drive, Suite 208, Bannockburn, IL 60015, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

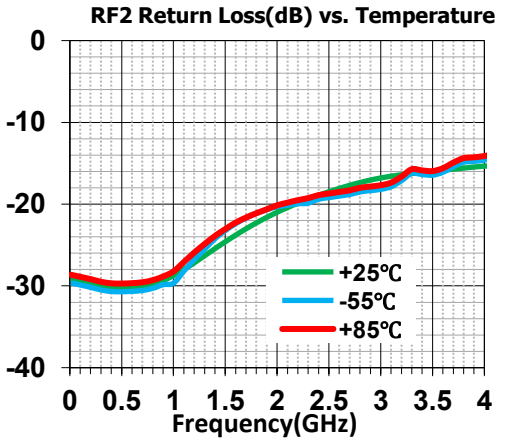
Typical Performance Curve

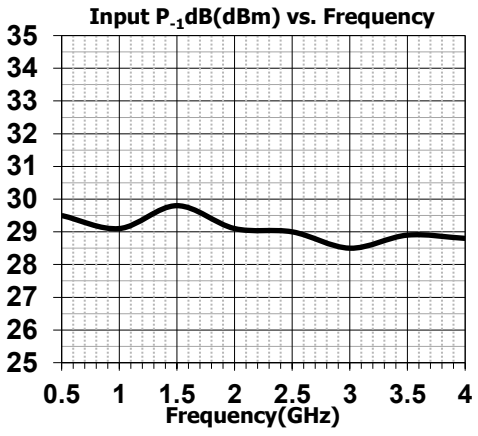


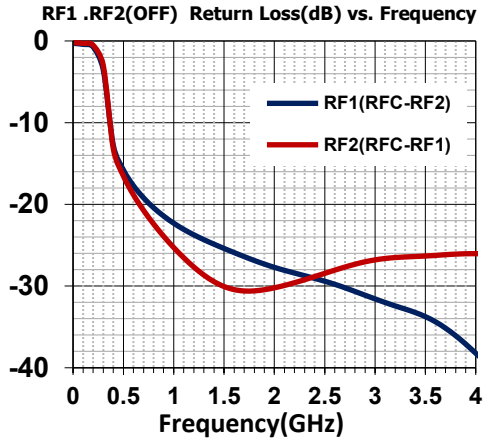












Control Voltage

State	Bias Condition
Low	0~0.8V
High	3.3~5V

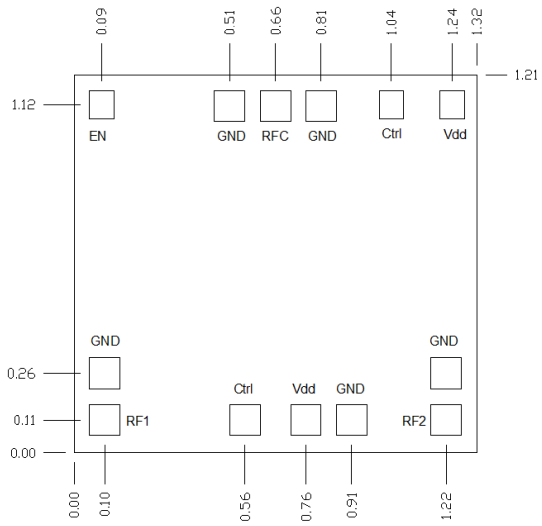
Bias Voltage&Current

V_D	I_D
5V	5mA

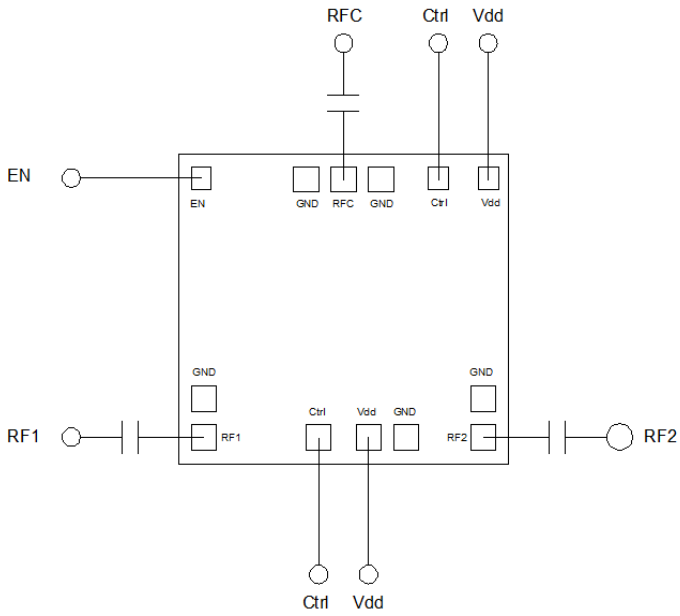
Truth Table

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

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.