

Features

- Frequency Range: DC~12GHz
- Isolation: >35dB@12GHz
- Insertion Loss: 2.1dB@12GHz
- Nanosecond Switch
- Die Size: 1.4mm×1.25mm×0.1mm

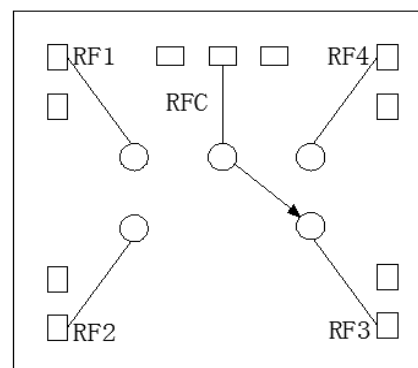
General Description

SAC3223 is a general purpose broadband high isolation GaAs pHEMT SP4T switch in bare die. The switch offers over 35dB isolation and less than 2.1dB insertion loss over operation frequency. It's fast switching and compact size make this SP4T 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, $Z_0=50\Omega$)

Parameter	Freq.	Min.	Typ.	Max.	Units
Insertion Loss	DC~12GHz	—	-2.1	—	dB
Isolation	DC~12GHz	—	-35	—	dB
Return Loss RFC	DC~12GHz	—	-15	—	dB
Return Loss RF1,RF2,RF3,RF4(ON)	DC~12GHz	—	-15	—	dB
Input $P_{-1\text{dB}}$	DC~12GHz	—	20	—	dBm
Input IP_3	DC~12GHz	—	38	—	dBm
Switching Speed	DC~12GHz	—	43	—	ns

Absolute Maximum Ratings

Input power	+28dBm	Operating Temperature	-55~+85 $^{\circ}\text{C}$
Control Voltage Range	0~6V	Storage Temperature	-65~+150 $^{\circ}\text{C}$
Channel Temperature	150 $^{\circ}\text{C}$	ESD Sensitivity (HBM)	Class 1A

SAC3223

GaAs MMIC SP4T Switch
DC~12GHz

Rev 2.1

Control Voltage

State	Bias Condition
Low	0~0.2V
High	4~6V

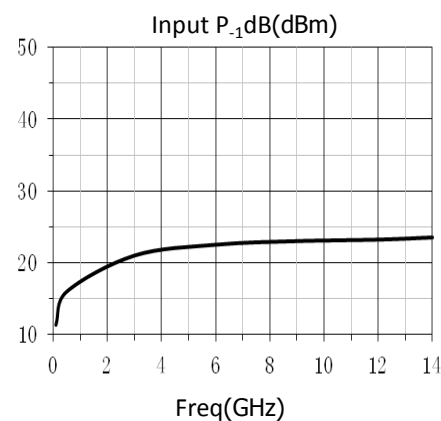
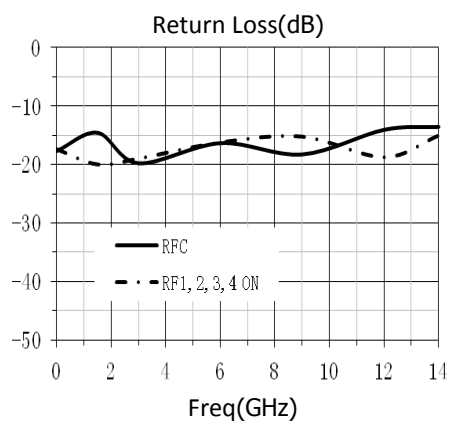
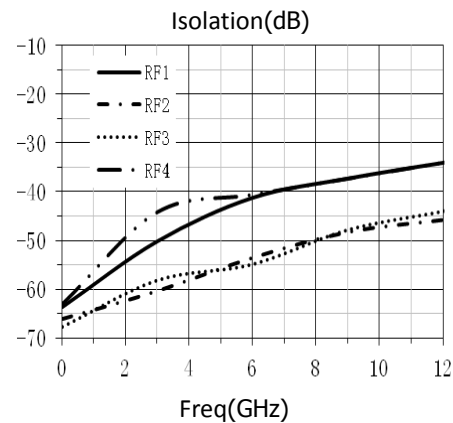
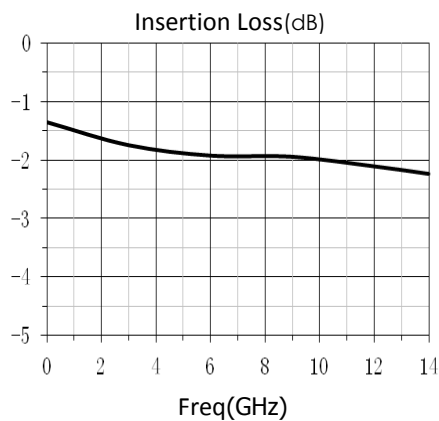
Bias Voltage&Current

V _D	I _D
-5V	6mA

Truth Table

Control Input		Signal Path State			
Ctrl1	Ctrl2	RFC-RF1	RFC-RF2	RFC-RF3	RFC-RF4
Low	Low	ON	OFF	OFF	OFF
High	Low	OFF	ON	OFF	OFF
Low	High	OFF	OFF	ON	OFF
High	High	OFF	OFF	OFF	ON

Typical Performance Curve



SuperApex Corporation

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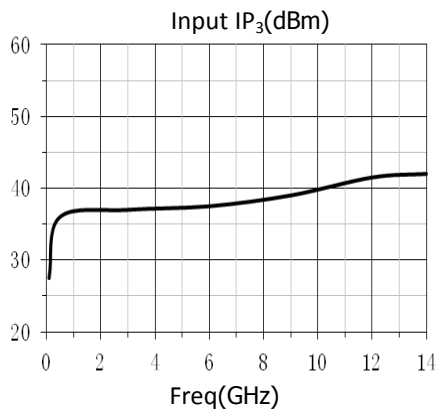
E-mail: sales@superapexco.com

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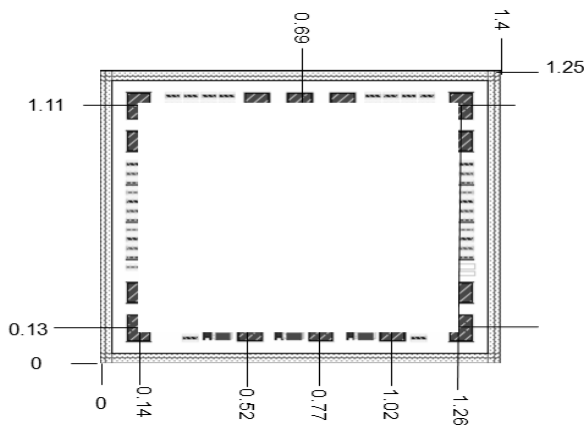
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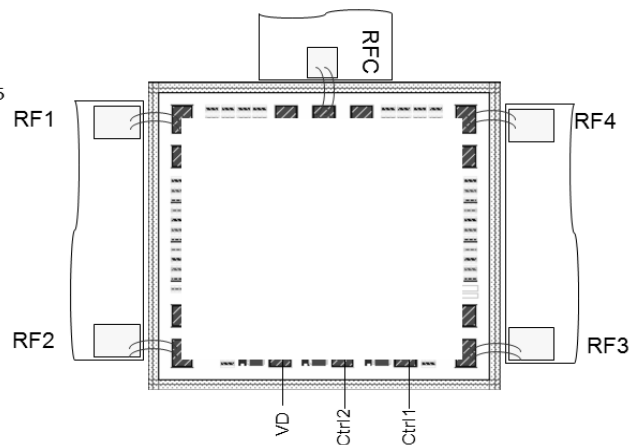
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Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.