

SAC3230

GaAs MMIC PIN Switch
5GHz~30GHz SP3T

Rev 1.0

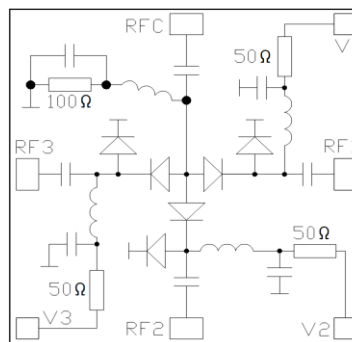
Features

- Frequency: 5~30GHz
- Insertion Loss: 0.9dB@20GHz
- Isolation: 35dB@20GHz
- Reflective switch

Description

SAC3230 is a wideband reflective SP3T switch, The device is fully passivated and has a layer of PBO for scratch protection. Each RF port contains DC blocking capacitors and a DC bias circuit consisting of high impedance lines and decoupling capacitor.

Functional Diagram



Electrical Performance

$T_{BASE}=25^{\circ}C$, $Z_0=50\Omega$, +15mA/-5V, CW

Parameter	Min.	Typ.	Max.	Units
Frequency	5	—	30	GHz
Insertion Loss	—	1	1.8	dB
RFC Return Loss	—	13	—	dB
RF _x Return Loss	—	12	—	dB
Isolation	30	40	—	dB
Forward Bias Current	10	15	40	mA
Switching Speed	—	25	—	nS
Forward Bias Voltage	—	1	—	V

Absolute Maximum Ratings

Input Power	+30dBm (-V: -15V)	Operating Temperature (T_{BASE})	-55°C~+85°C
Junction Temperature	150°C	Storage Temperature	-55°C~+150°C
Forward Bias Current	50mA	Reverse Bias Voltage (-V)	-30V

SuperApex, LLC

1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

SAC3230



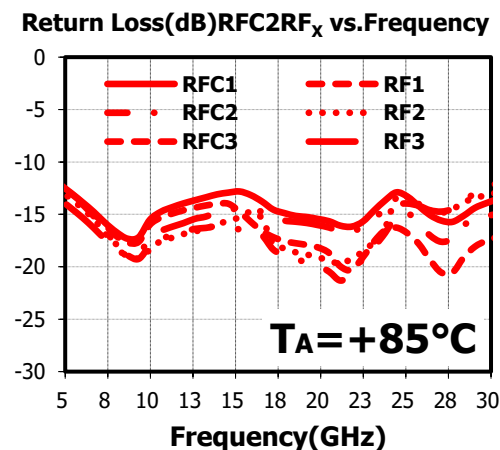
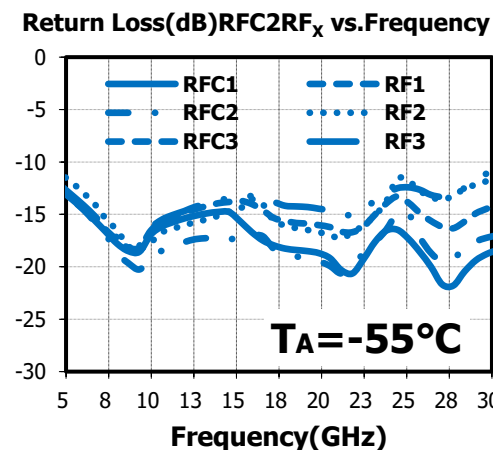
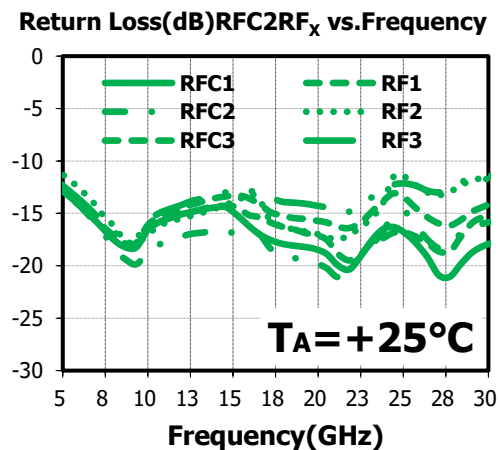
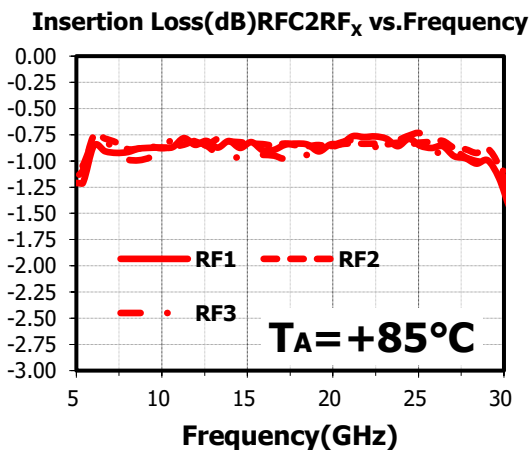
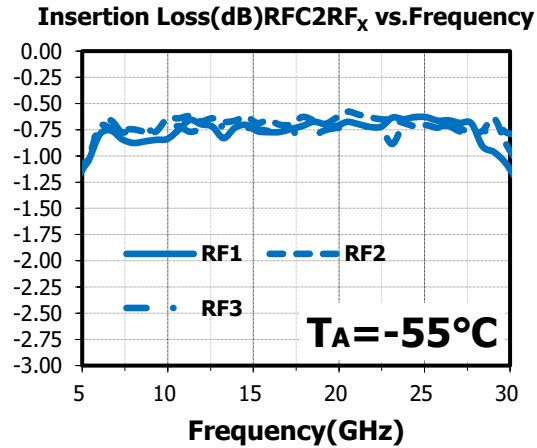
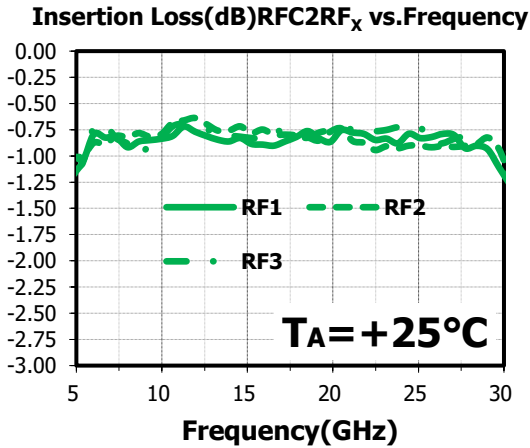
GaAs MMIC PIN Switch
5GHz~30GHz SP3T

Rev 1.0

Typical Performance Curve

The following curves are taken from SAC3230 evaluation board. De-embedding operation has been Implemented.

+15mA/-5V, CW, T_{BASE}=+25°C



SuperApex, LLC

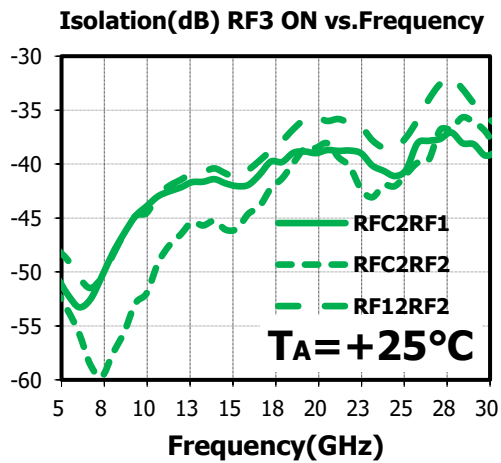
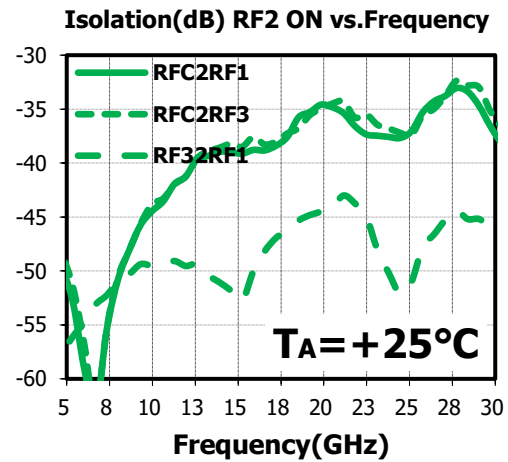
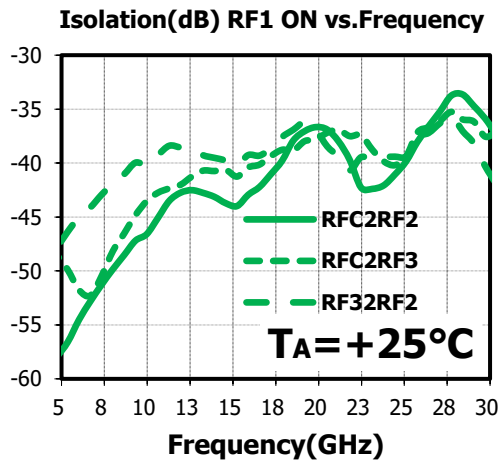
1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

SAC3230



GaAs MMIC PIN Switch
5GHz~30GHz SP3T

Rev 1.0

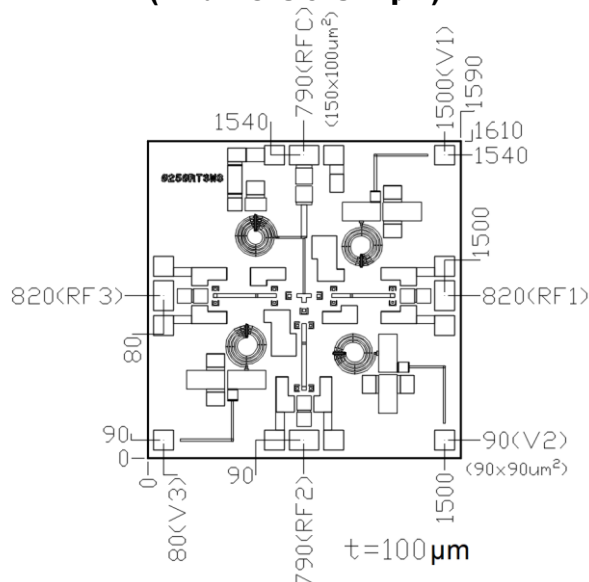


SuperApex, LLC

1580 S. Milwaukee Ave. Suite 405, Libertyville, IL 60048, USA
Tel: 1-847-505-8319, 1-847-573-9866
E-mail: sales@superapexco.com
Website: www.superapexco.com

Die Outline Drawing

(All dimensions in μm)



Truth Table

Inputs			RF Path		
V1	V2	V3	RFC-RF1	RFC-RF2	RFC-RF3
-V	+V	+V	ON	OFF	OFF
+V	-V	+V	OFF	ON	OFF
+V	+V	-V	OFF	OFF	ON

1. -V is reverse bias voltage, A -5V voltage can be used to reverse bias the PIN diode of the chip, for high power applications, a higher negative voltage can be used,

2. +V is forward bias voltage, A voltage of 3-5 V can be used to forward bias the PIN diode, forward bias current is set using external bias resistors placed at pads V1 and V2.

Attention:

1. The back of bare chip is RF and DC ground.
2. The RFC and RFx ports are AC coupled, the withstand voltage is 30V.

Revision History

Revision	Date	Comment
1.0	2024-05-31	First Release