

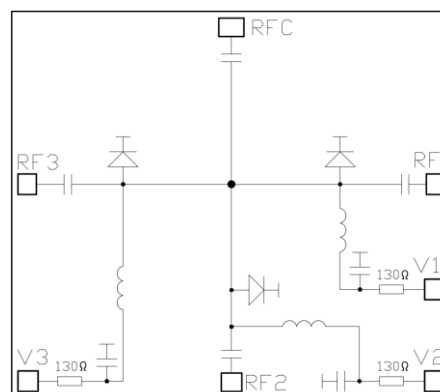
Features

- Frequency: 26~40GHz
- Insertion Loss: 1.5dB@33GHz
- Isolation: 30dB@33GHz
- Reflective switch

Description

SAC3233 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

$T_{BASE}=25^{\circ}C, Z_0=50\Omega, +10mA/-5V, CW$

Parameter	Min.	Typ.	Max.	Units
Frequency	26	—	40	GHz
Insertion Loss	—	1.5	2.3	dB
RFC Return Loss	—	13	—	dB
RF _x Return Loss	—	12	—	dB
Isolation	26	30	—	dB
Forward Bias Current	8	10	20	mA
Switching Speed	—	25	—	nS
Forward Bias Voltage	—	1	—	V

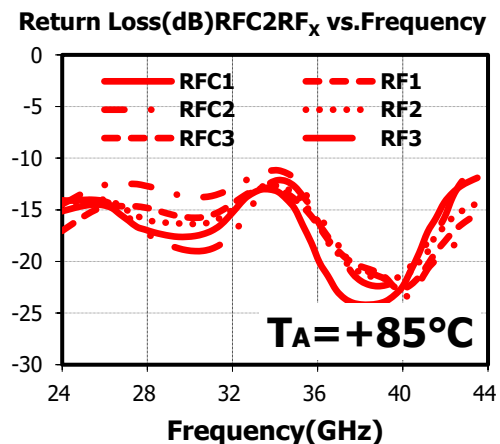
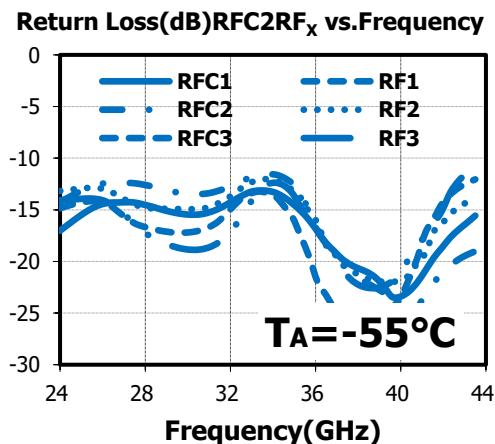
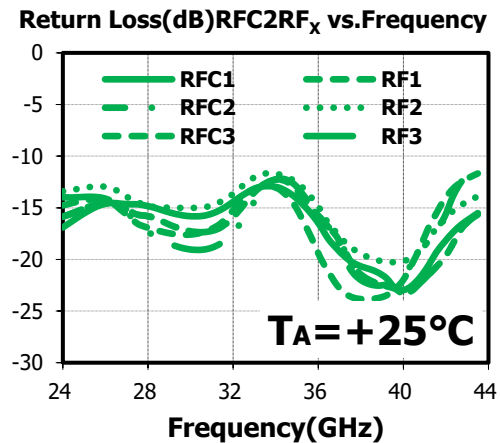
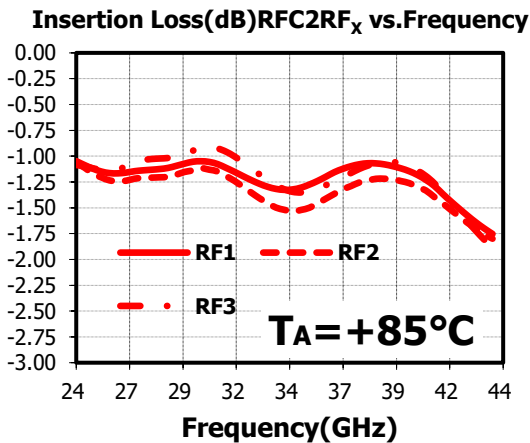
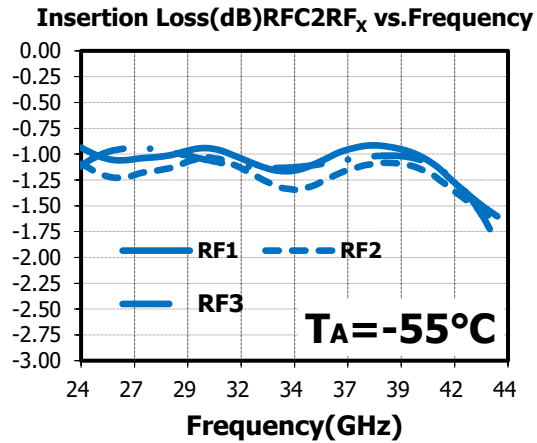
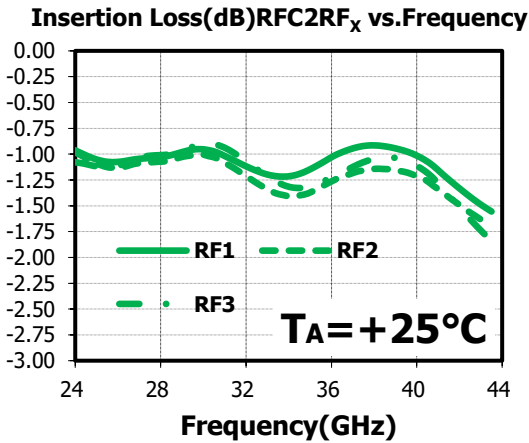
Absolute Maximum Ratings

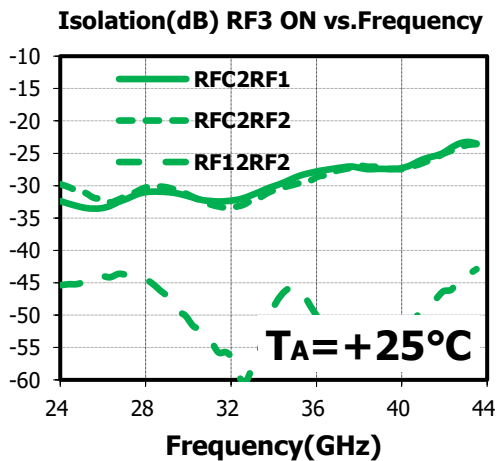
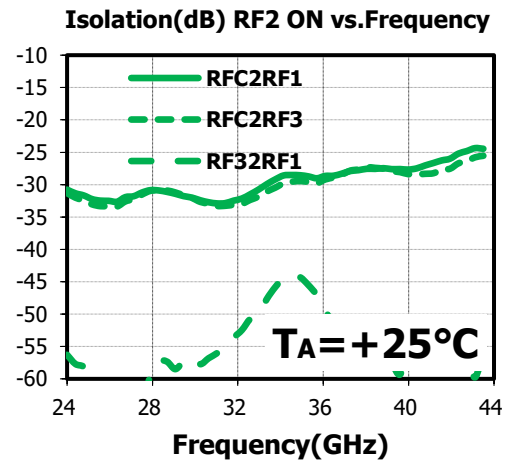
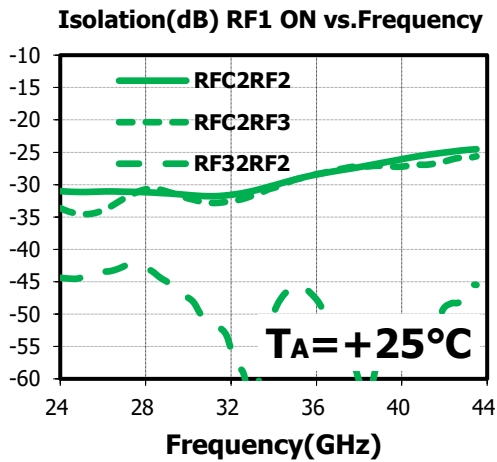
Input Power	+33dBm (-V: -15V)	Operating Temperature (T_{BASE})	-55°C~+85°C
Junction Temperature	150°C	Storage Temperature	-55°C~+150°C
Forward Bias Current	25mA	Reverse Bias Voltage (-V)	-30V

Typical Performance Curve

The following curves are taken from SAC3233 evaluation board. De-embedding operation has been Implemented.

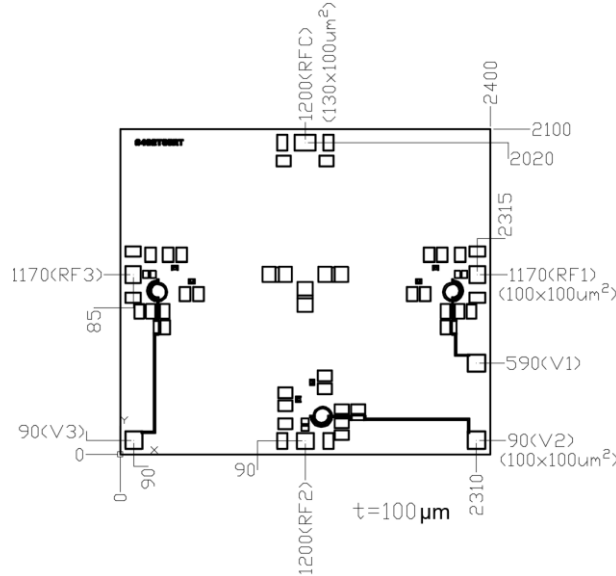
+10mA/-5V, CW, T_{BASE}=+25°C





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

- 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,
- +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:

- The back of bare chip is RF and DC ground.
- 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