

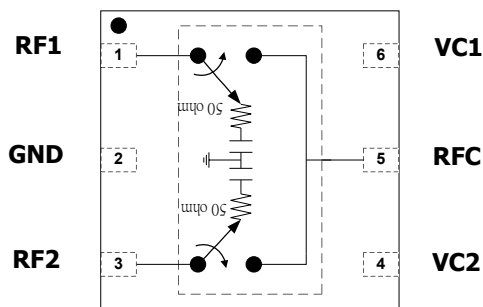
RFIC Preliminary 2017.05 Rev3.1

DESCRIPTION

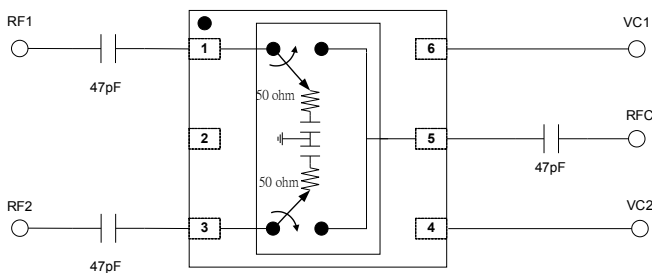
The SW409 is a SPDT GaAs switch, and designed for 0.1 to 6GHz frequency band application. The switch can be used for Tx/Rx selection or antenna diversity function in a variety of wireless communication systems.

The SW409 is housed in a miniature 1.5 x 1.5 (mm), 6-pin, DFN leadless package (Pb free), and features low insertion loss, high isolation and high linearity, particularly suitable for WiMAX, WLAN AP, and S-band wireless applications where high power switching is required.

Pin & Block Diagram



Evaluation Board Schematic



DC blocking capacitors are necessary for all RF ports (typical is 47 pF for >1GHz application). All unused ports are terminated in 50 Ω.

KEY FEATURES

- **Low Insertion:** 0.6dB (Typ.) @ 2.5GHz
0.9dB (Typ.) @ 5.8GHz
- **High Isolation:** 27dB (Typ.) @ 2.5GHz
25dB (Typ.) @ 5.8GHz
- **High Linearity:** P1dB ~ 36dBm
- **Support 1.8V, 3.3V and 5V control voltage**
- **Lead-Free and RoHS compliant**
- **Non-Reflective switch**

Pin Details

Pin No.	Name	Description
1	RF1	RF Port1
2	GND	GND
3	RF2	RF Port2
4	VC2	RF1 On/Off logic control
5	RFC	RF Common Port
6	VC1	RF2 On/Off logic control
Central Paddle	GND	GND

Logic Control Table

VC1	VC2	RFC-RF1	RFC-RF2
High	Low	On	Off
Low	High	Off	On

High = +1.8V to +5V

Low = +0V to +0.2V

For more information, please contact us at:

Sales Dept.

Tel: +886-2-2698-1022

e-mail: sales@rfintc.com

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Absolute Maximum Ratings

Parameter	Rating	Unit
Gate-Source Voltage (V_{GS})	-0.2 to +8	V
RF Input Power (under acceptable bias state, > 500MHz)	+40	dBm
Operating Ambient Temperature	-40 to +125	°C
Storage Temperature	-65 to +150	°C
Moisture Level	MSL1	
ESD Level	Class 1A HBM	

Important Note:

The information provided in this datasheet is deemed to be accurate and reliable only at present time. RFIC Technology Corp. reserves the right to make any changes to the specifications in this datasheet without prior notice.



Caution: ESD Sensitive
Appropriate precaution in handling, packaging and testing devices must be observed.

Electrical Characteristics for 25 °C Ambient Temperature

Logic High = 3V; Logic Low = 0V; $T_A = 25^\circ\text{C}$; unless otherwise noted.

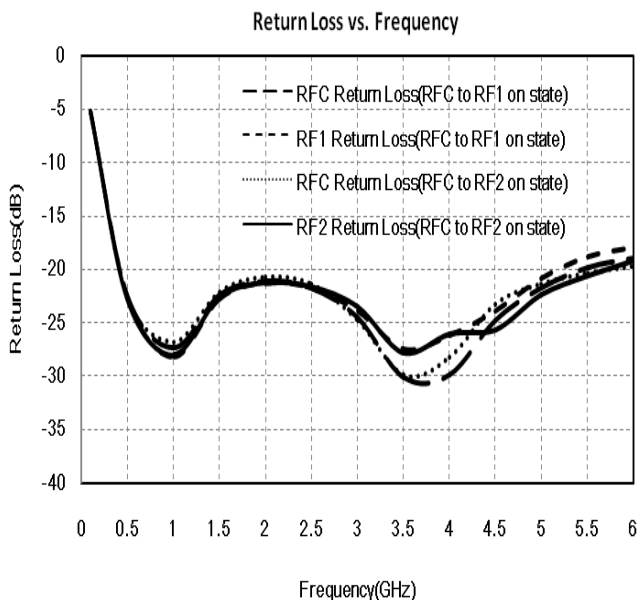
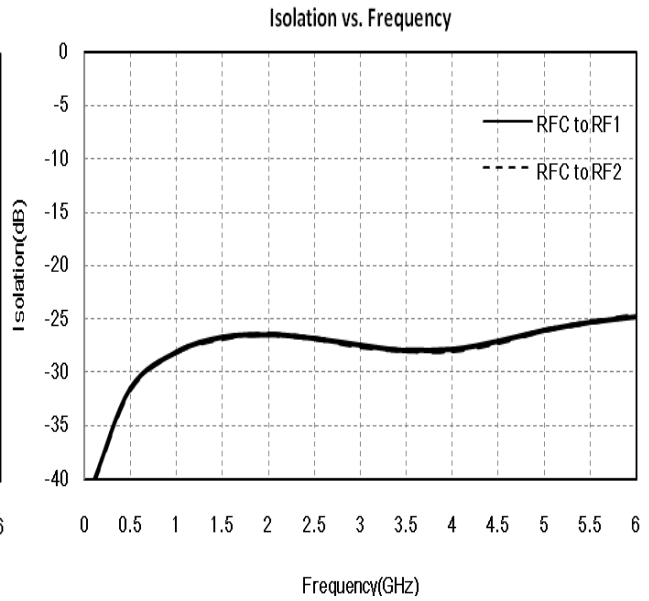
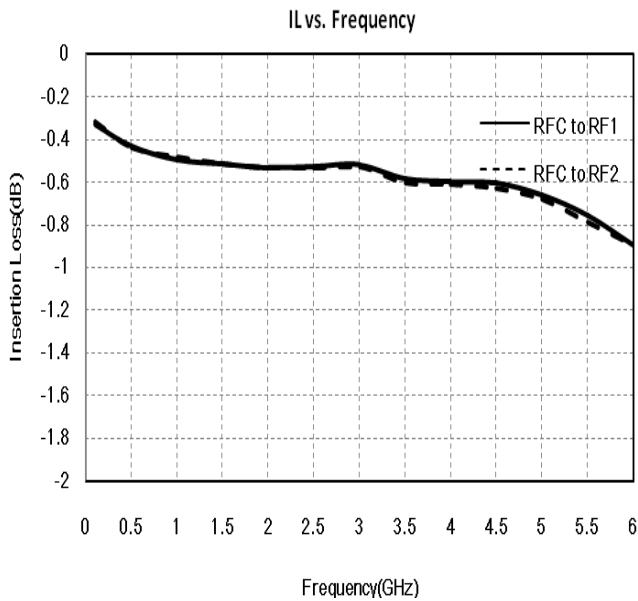
Parameter	Specification			Units	Notes
	Min	Typ.	Max		
Insertion Loss (IL)		0.5 0.55 0.7 0.8	0.6 0.7 0.9 1.0	dB	DC – 1.0GHz 1.0 – 3.0GHz 3.0 – 5.0GHz 5.0 – 6.0GHz
Isolation (ISO)	26 25 25 24	28 27 26 25		dB	DC – 1.0GHz 1.0 – 3.0GHz 3.0 – 5.0GHz 5.0 – 6.0GHz
VSWR		1.2:1	1.5:1	dB	1.0 – 6.0GHz
IP1dB	34 24	36 26	38 28	dBm	1.0 – 6.0GHz, $V_{High}=3V, V_{Low}=0V$ 1.0 – 6.0GHz, $V_{High}=1.8V, V_{Low}=0V$
IIP3		55		dBm	1.0 – 6.0GHz, $V_{High}=3V, V_{Low}=0V$ $\Delta F = 1 \text{ MHz}, P_{in}=+15\text{dBm}/\text{tone}$
Second Harmonic		-65		dBc	2fo @ Pout = 20dBm
Third Harmonic		-65		dBc	3fo @ Pout = 20dBm
Switching Speed T_{ON}/T_{OFF}		300		ns	50% control to 90% RF and 50% control to 10% RF

Note: All measurements made in a 50 ohm system.

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Typical Characteristic Chart

(RFC to RF1, RF2 (0, 2.7 V), TOP = +25°C)



SW409

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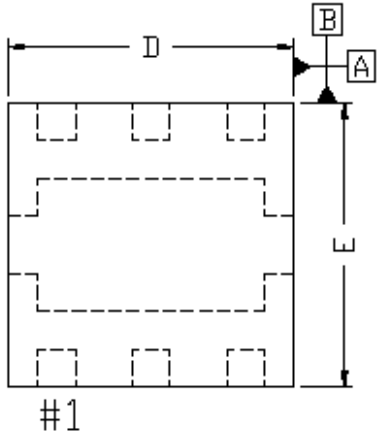
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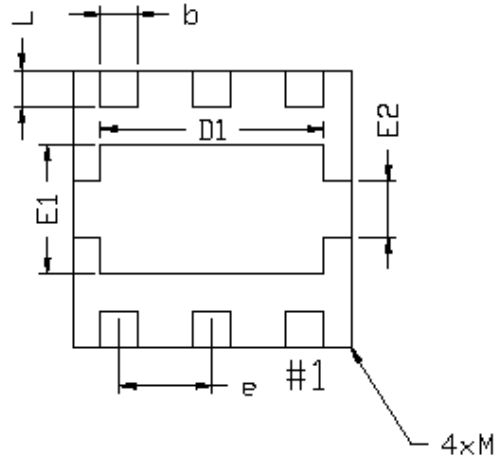
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Package Outline

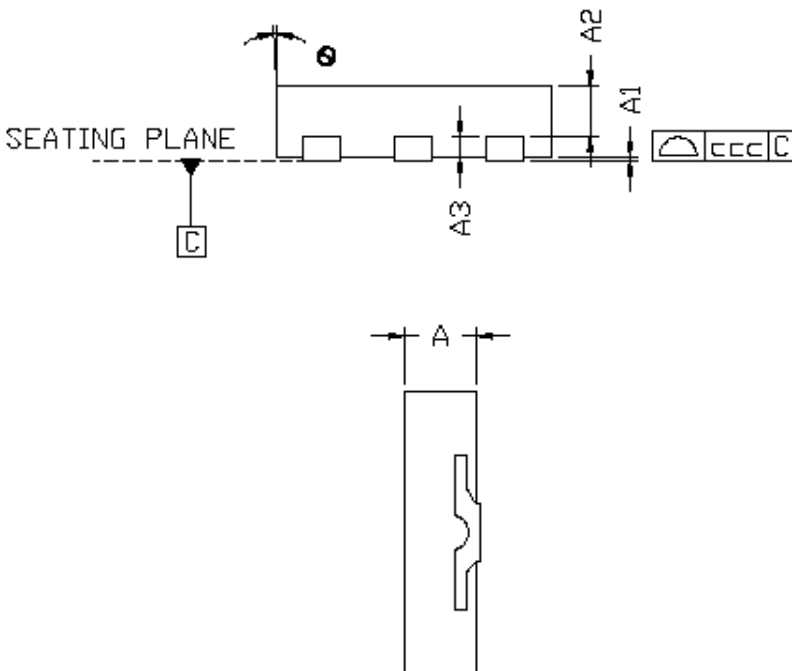
Top View



Bottom View

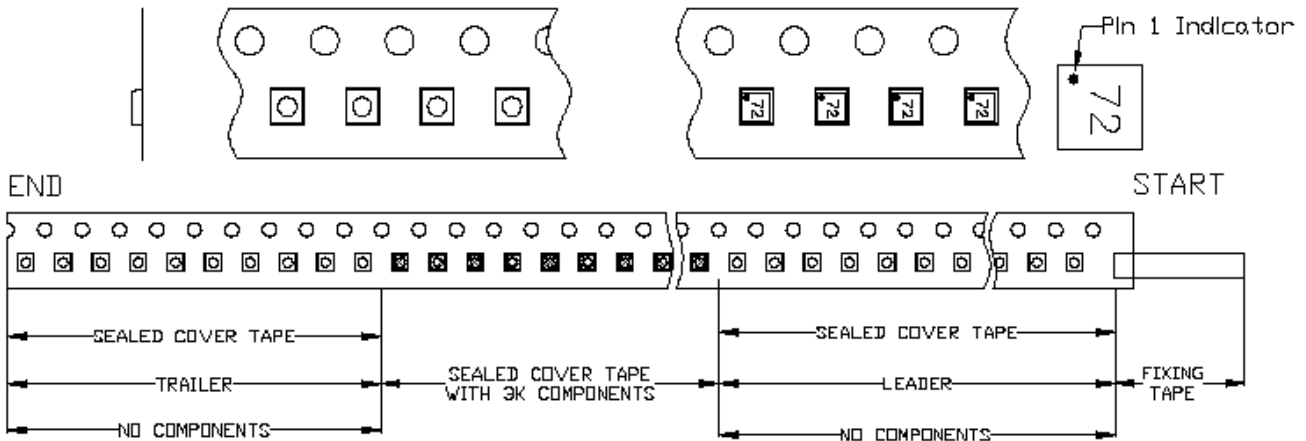


Side View



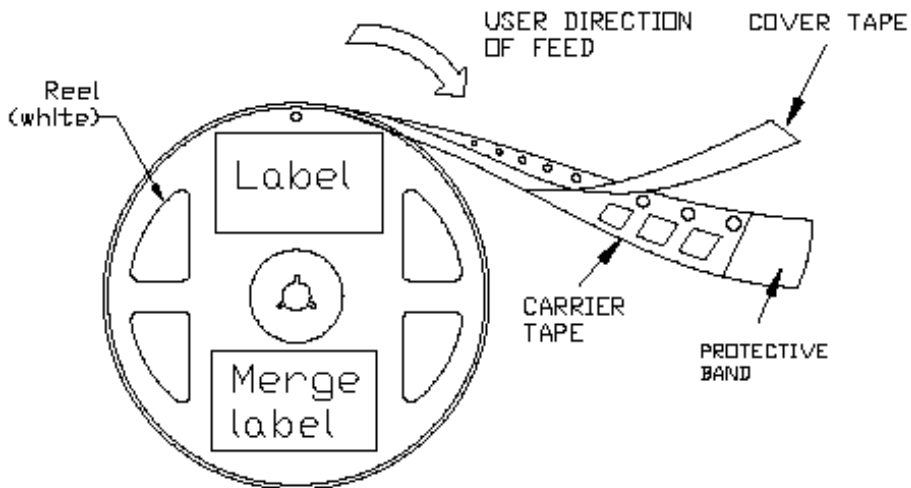
Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	0.35	---	0.40
A1	0.00	---	0.05
A2	0.223	---	0.273
A3	---	0.127REF	---
b	0.15	0.20	0.25
D	1.45	1.50	1.55
D1	---	1.2BSC	---
E	1.45	1.50	1.55
E1	---	0.70BSC	---
E2	---	0.30BSC	---
e	---	0.50BSC	---
L	0.15	0.20	0.25
θ	-12	---	0
ccc	---	0.08	---
M	---	---	0.05
Burr	0.00	0.03	0.06

Packing



ITEM		SPECIFICATION (mm)(minimum)
LEADER	COVER TAPE WITH EMPTY CAVITIES	840(210格)
TRAILER	COVER TAPE WITH EMPTY CAVITIES	400(100格)
FIXING TAPE		100
PROTECTIVE BAND (t=1.0mm)		1200

PKG TYPE	Tape Width (mm)	Reel Size	Devices Per Reel
SONIXSON L5x15x0.55-8L	8	7"	3000





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The product is designed and manufactured for consumer application only and is not intended for any application listed below which requires especially high reliability for the prevention of such defect which could lead to personal injury, death, physical or environmental damage.

- Aircraft equipment.
- Aerospace equipment.
- Undersea equipment.
- Medical equipment.
- Life-saving or life-sustaining applications
- Transportation equipment (vehicles, trains, ships, etc.).
- Traffic signal equipment.
- Disaster prevention / crime prevention equipment.
- Application of similar complexity and/ or reliability requirements to the applications listed in the above.