

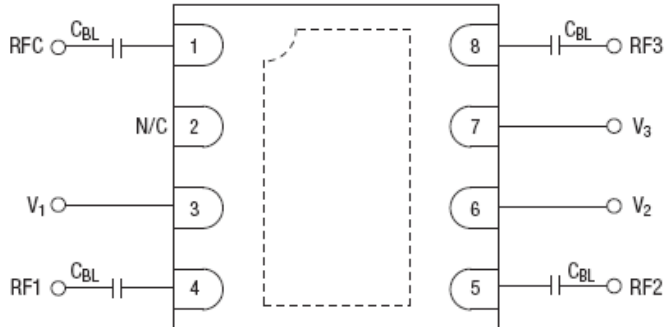
## RFIC 2017.05 Update Rev2.1

### DESCRIPTION

The SW417 is a SP3T 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 SW417 is housed in a miniature 1.5 x 1.5 (mm), 8-pin, DFN leadless package (Pb free), and features low insertion loss, high isolation and high linearity, particularly suitable for handheld devices where WLAN and BT function coexist.

### Block Diagram



DC blocking capacitors are necessary for all RF ports (typical is 22 pF). All unused ports are terminated in 50 Ω.

### KEY FEATURES

- **Low Insertion:**  
**0.65dB @ 2.5GHz**
- **High Isolation:**  
**27dB @ 2.5GHz**
- **High Linearity**  
**P1dB ~ 29dBm**
- **Low Control Current ~ 5uA**
- **Low switching time**

### Pin Details

Pin Number	Name	Description
1	RFC	RF Common Port
2	NC	No Connect
3	VC1	RF1 On/Off logic control
4	RF1	RF Port1
5	RF2	RF Port2
6	VC2	RF2 On/Off logic control
7	VC3	RF3 On/Off logic control
8	RF3	RF Port3
Central Paddle	GND	GND

### Logic Control Table

VC1	VC2	VC3	RFC -RF1	RFC -RF2	RFC -RF3
High	Low	Low	On	Off	Off
Low	High	Low	Off	On	Off
Low	Low	High	Off	Off	On

High = +1.9V to +5V

Low = +0V to +0.2V

### Absolute Maximum Ratings

Parameter	Rating	Unit
Gate-Source Voltage ( $V_{GS}$ )	+8	V
RF Input Power (under acceptable bias state, > 500MHz)	+30	dBm
Operating Ambient Temperature	-40 to +125	°C
Storage Temperature	-65 to +150	°C
Moisture Level	MSL-1	
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

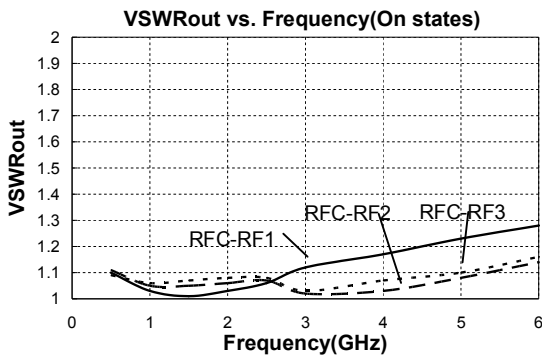
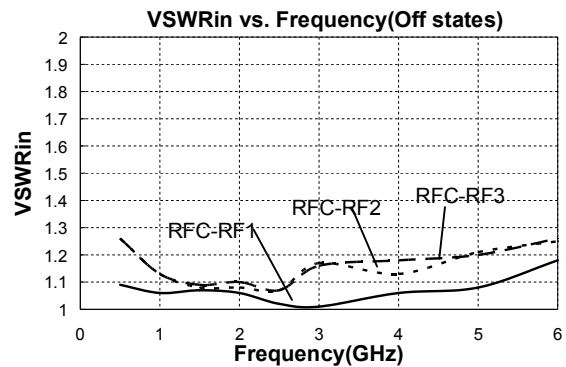
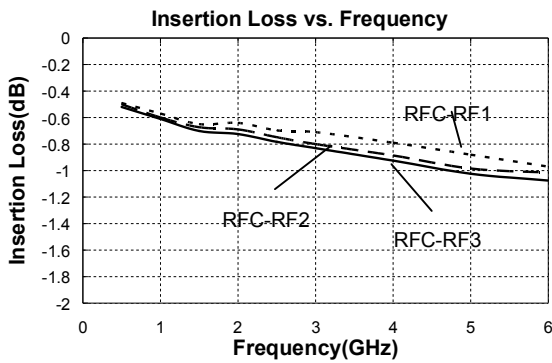
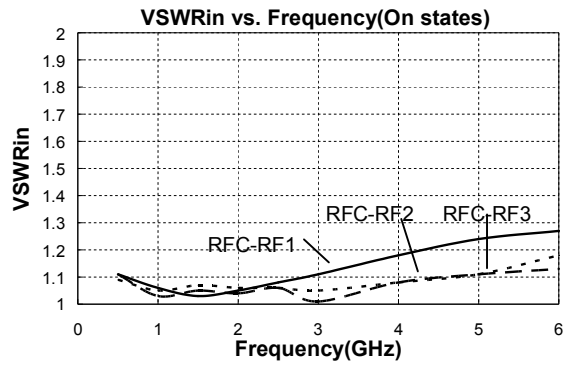
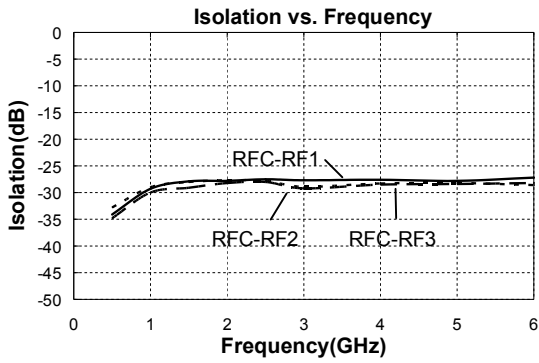
Logic High = 3V; Logic Low = 0V;  $T_A = 25^\circ\text{C}$ ; unless otherwise noted.

Parameter	Specification			Units	Notes
	Min	Typ.	Max		
Insertion Loss (IL)		0.50 0.6 0.65 0.85	0.60 0.70 0.85	dB	DC – 1.0GHz 1.0 – 2.0GHz 2.0 – 3.0GHz 3.0 – 6.0GHz
Isolation (ISO)	26 25 25	28 27 27 26		dB	DC – 1.0GHz 1.0 – 2.0GHz 2.0 – 3.0GHz 3.0 – 6.0GHz
Return Loss ( S11 )	15 14	22 17		dB	DC – 3.0GHz 3.0 – 6.0GHz
IP1dB		29		dBm	DC – 3.0GHz, $V_{High}=3.3V$
IIP3		50		dBm	0.5 – 3.0GHz, $V_{High}=3.3V$ , $P_{in}=17dBm$
Switching Speed $T_{RISE}/T_{FALL}$ $T_{ON}/T_{OFF}$		50 100		ns ns	10% to 90% RF and 90% to 10% RF 50% control to 90% RF and 50% control to 10% RF
Control Current		5	10	uA	

Note: All measurements made in a 50 ohm system.

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## Electrical Characteristics Charts ( $V_{Low} = 0 V$ , $V_{High} = 3 V$ )



For more information, please contact us at:

Sales Dept.

Tel: +886-2-2698-1022

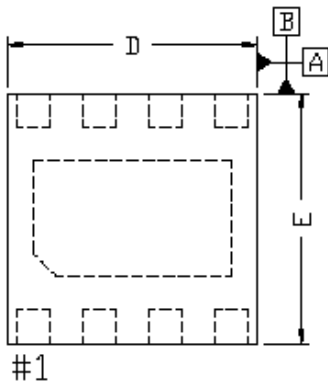
e-mail: sales@rfintc.com

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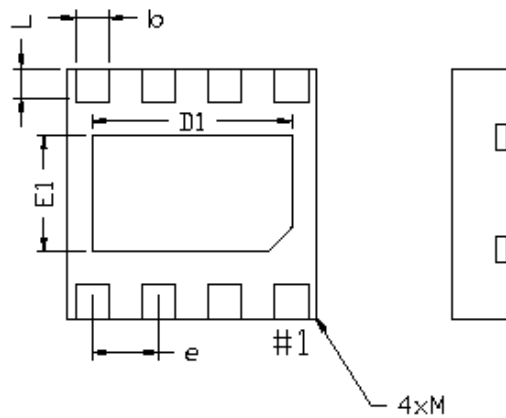
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## Package Outline

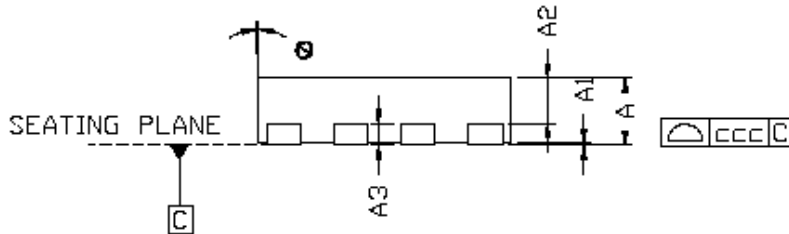
Top View



Bottom View

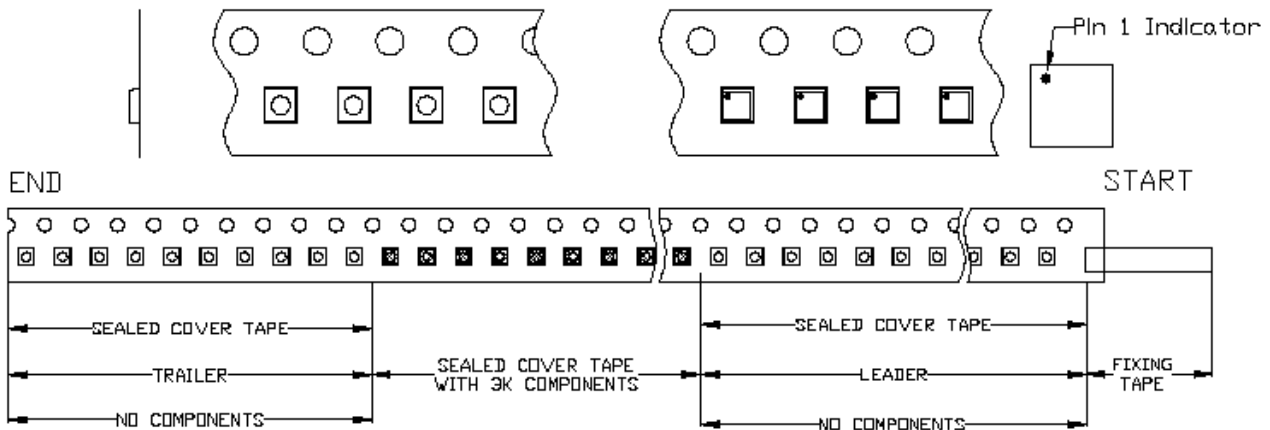


Side View



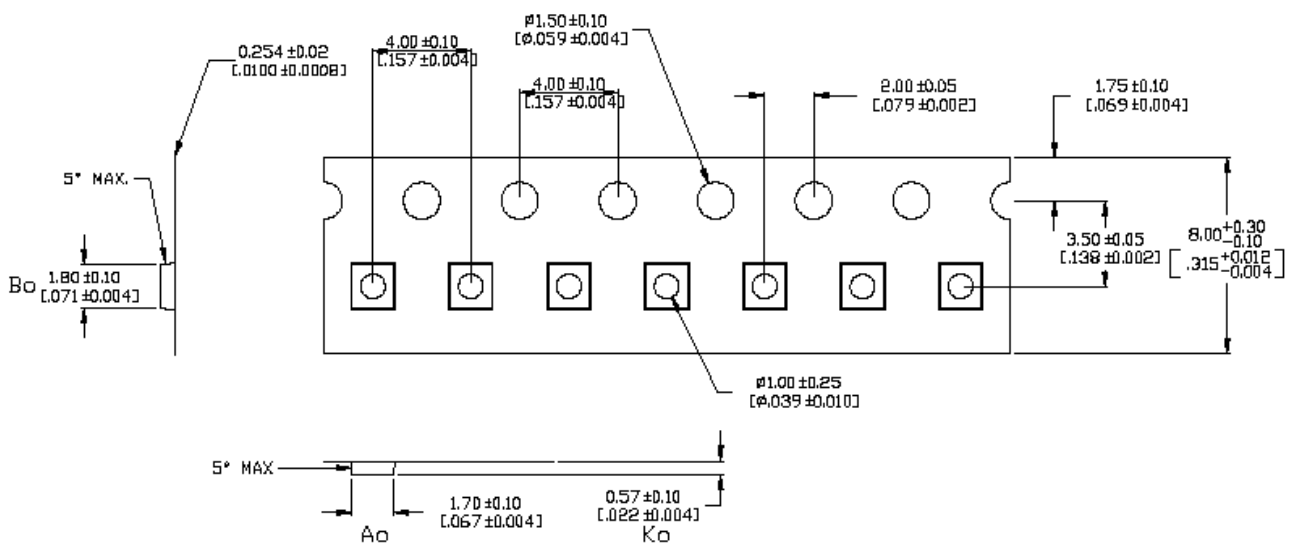
Symbol	Dimensions in Millimeters		
	MIN	NOM	MAX
A	0.35	---	0.40
A1	0.00	---	0.05
A2	0.223	---	0.273
A3	---	0.127REF	---
b	0.15	0.20	0.25
D	1.45	1.50	1.55
D1	---	1.2BSC	---
E	1.45	1.50	1.55
E1	---	0.70BSC	---
e	---	0.40BSC	---
L	0.15	0.20	0.25
$\theta$	-12	---	0
ccc	---	0.08	---
M	---	---	0.05
Burr	0.00	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
5K(X)30N 15x15x0.55-8L	8	7"	3000



SW417



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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.