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RF5570

11b/g/n WiFi SP3T SWITCH

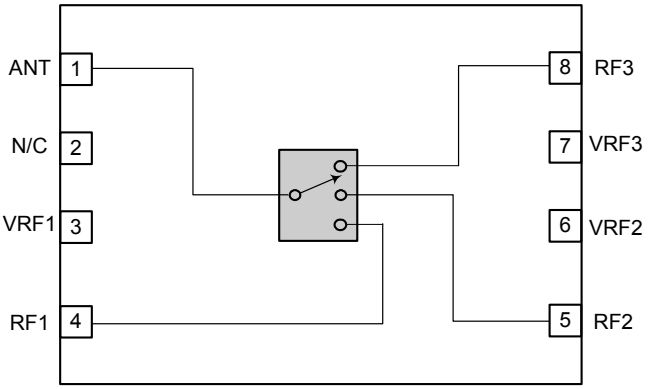
Package: DFN, 8-Pin, 2.0mmx2.0mmx0.6mm

Features

- SP3T Switch
- Switch Control Voltage 2.5V to 5V
- Low Insertion Loss 0.6dB

Applications

- EEE802.11b/g/n WiFi Applications
- WiFi/Bluetooth® Combination Devices



Functional Block Diagram

Product Description

The RF5570 is a SP3T switch designed for WiFi and WiFi/Bluetooth® applications in the 2.4GHz to 2.5GHz ISM band. The RF5570 is capable of switching between WiFi RX, WiFi TX, and Bluetooth® RX/TX operations. This switch can also be placed in WiFi and Bluetooth® receive modes simutaneously with a slight increase in insertion loss. The RF5570 is provided in a DFN 8-pin 2mmx2mmx0.6mm Pb-Free package. This device meets or exceeds the RF switch needs of IEEE802.11b/g/n RF systems.

Ordering Information

RF5570SQ	Standard 25-piece Bag
RF5570SR	Standard 100-piece Bag
RF5570TR7	Standard 2500-piece Reel
RF5570PCBK-410	Fully Assembled Evaluation Board with 5-piece Sample

Optimum Technology Matching® Applied

☐ GaAs HBT	☐ SiGe BiCMOS	☑ GaAs pHEMT	☐ GaN HEMT
☐ GaAs MESFET	☐ Si BiCMOS	☐ Si CMOS	☐ RF MEMS
☐ InGaP HBT	☐ SiGe HBT	☐ Si BJT	☐ LDMOS

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Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage	5	V
Ruggedness Output VSWR	10:1	
Stability Output VSWR	5:1	
ESD Human Body Model	250	V
ESD Device Model	750	V
Operating CaseTemperature	-40 to +85	°C
Storage Temperature	-40 to +150	°C
Moisture Sensitivity Level	MSL2	

Caution! ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

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RFMD Green: RoHS compliant per EU Directive 2002/95/EC, halogen free per IEC 61249-2-21, < 1000ppm each of antimony trioxide in polymeric materials and red phosphorus as a flame retardant, and <2% antimony in solder.

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
2.4GHz to 2.5GHz Switch Transmit and Receive Parameters					Operating conditions, unless noted otherwise: Control voltage 2.5V to 5.0V; Temp = -40 °C to +85 °C
Frequency	2.4		2.5	GHz	
Insertion Loss		0.6	1.0	dB	All ports
Noise Figure		0.6	1.0	dB	All ports
Passband Ripple	-0.2		+0.2	dB	
Input IP3	34	45		dBm	All RF Modes; Over Temp Range
P1dB		28		dBm	3.1 or higher control voltage for 30dB min, 28dB typical at 2.8V
Input Return Loss	15	18		dB	All RF Ports
Output Return Loss	15	18		dB	All RF Ports
Current Consumption		1	10	µA	Switch operating current, per control line
Port Impedance					All ports
Input		50		Ω	Receive
Output		50		Ω	Transmit
Isolation					All ports
RF1 Mode					Control Voltage 2.8 - 5.0V; over Temp and Freq
ANT-RF2	22	25	30	dB	
ANT-RF3	22	25		dB	
RF1-RF2	22	25		dB	
RF1-RF3	22	25		dB	
RF2 Mode					Control Voltage 2.8 - 5.0V; over Temp and Freq
ANT-RF1	21	23		dB	
ANT-RF3	22	25		dB	
RF2-RF1	22	23		dB	
RF2-RF3	21	25		dB	
RF3 Mode					Control Voltage 2.8 - 5.0V; over Temp and Freq
ANT-RF1	22	25		dB	
ANT-RF2	22	25		dB	
RF3-RF1	22	25		dB	
RF3-RF2	22	25		dB	
Switch Control Voltage					SW1, SW2, & SW3 pins
Low		0	.25	V	
High	2.5	2.8	5.0	V	
Switch Control Speed		150	500	nsec	10/90% or 90/10% Rise/Fall time

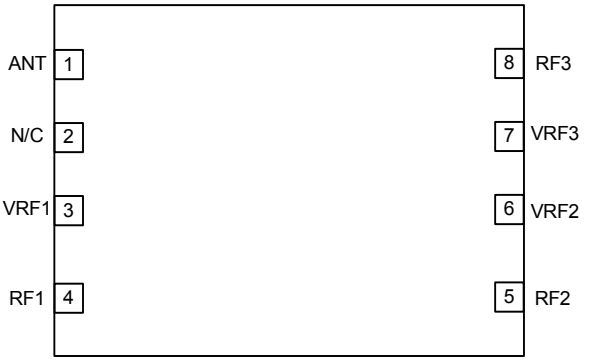
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Pin	Function	Description
1	ANT	Antenna Port. External DC block required.
2	N/C	No Connect
3	VRF1	Switch control to enable RF1 to ANT
4	RF1	RF port. External DC block required.
5	RF2	RF port. External DC block required.
6	VRF2	Switch control to enable RF2 to ANT
7	VRF3	Switch control to enable RF3 to ANT
8	RF3	RF port. External DC block required.

Switch Control Logic

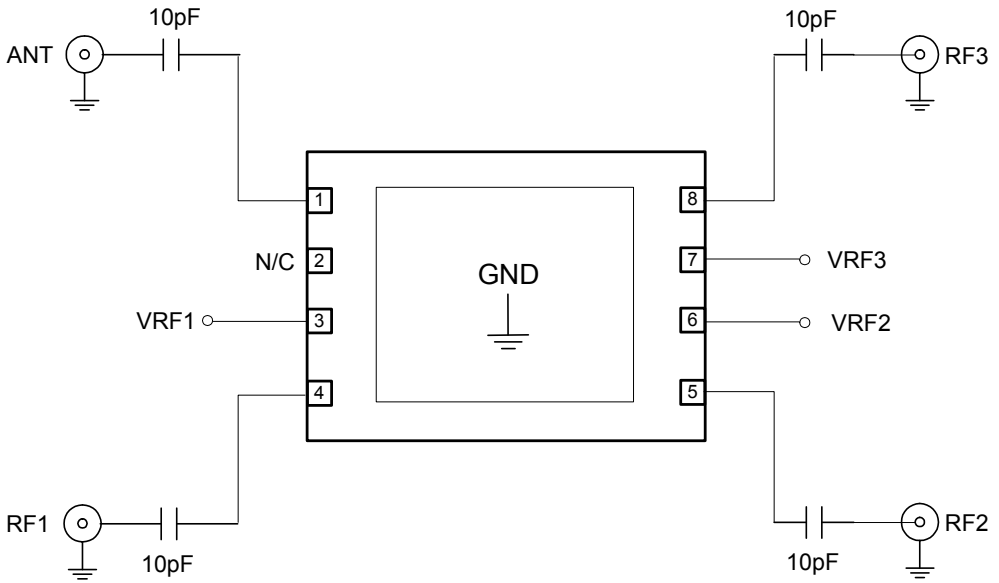
Mode	VRF1	VRF2	VRF3	Condition
RF3	0	0	1	RF3 to ANT
RF2	0	1	0	RF2 to ANT
RF1	1	0	0	RF1 to ANT
RF1/RF2	1	1	0	Simultaneous RF1 and RF2 to ANT
RF1/RF3	1	0	1	Simultaneous RF1 and RF3 to ANT
RF2/RF3	0	1	1	Simultaneous RF2 and RF3 to ANT

Pin Out



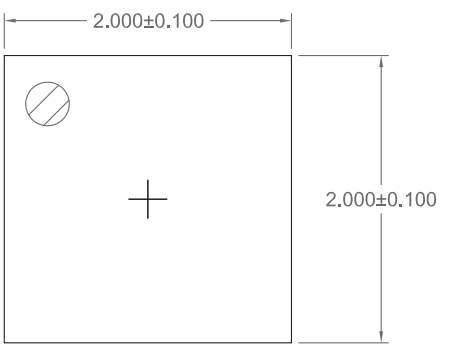
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Application Schematic

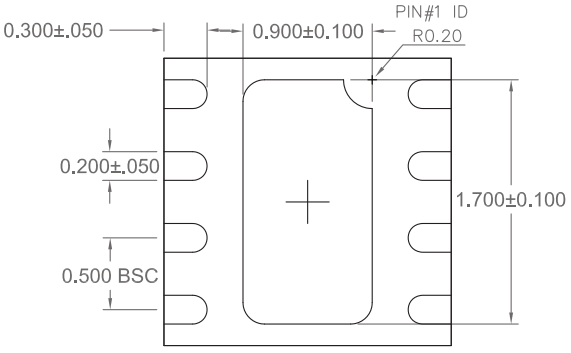


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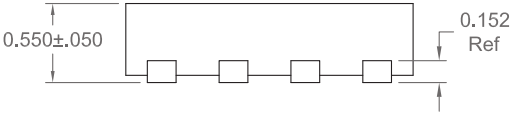
Package Drawing
DFN, 8-Pin, 2mmx2mmx0.55mm



TOP VIEW



BOTTOM VIEW



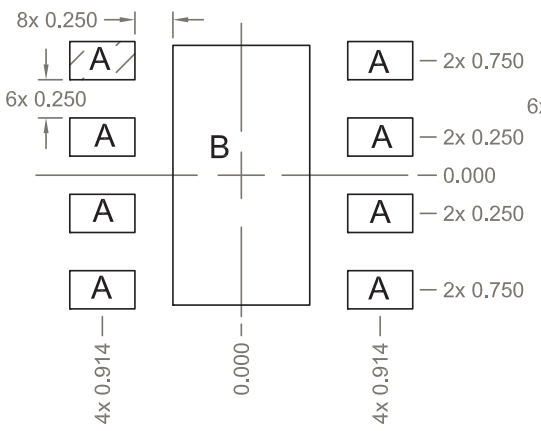
SIDE VIEW

Notes:
1. Shaded are represents Pin 1 location.

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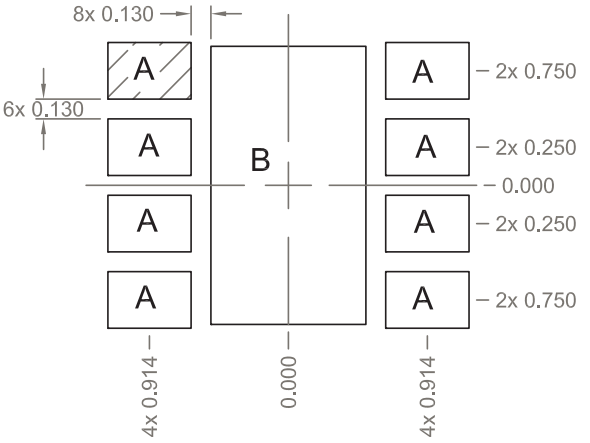
Recommended PCB Patterns

A = 0.428 x 0.250 (mm)
B = 0.900 x 1.700 (mm)



PCB METAL LAND PATTERN

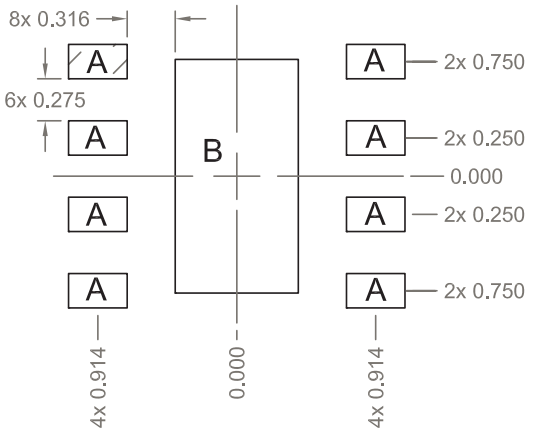
A = 0.548 x 0.370 (mm)
B = 1.020 x 1.820 (mm)



PCB SOLDER MASK PATTERN

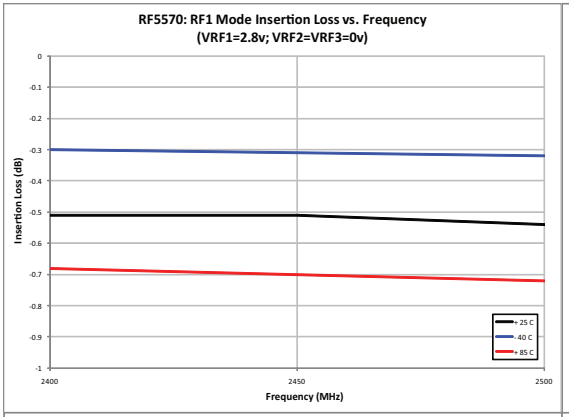
Shaded area represents Pin 1.

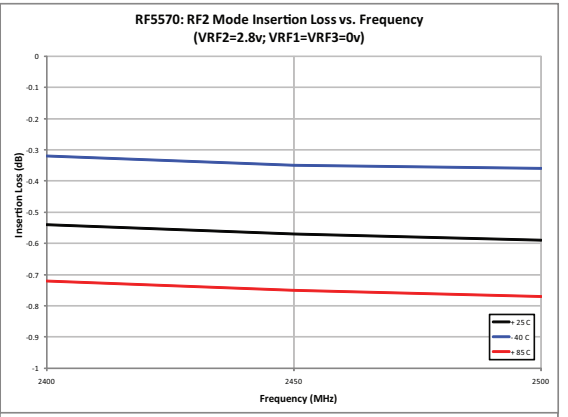
A = 0.385 x 0.225 (mm)
B = 0.810 x 1.530 (mm)

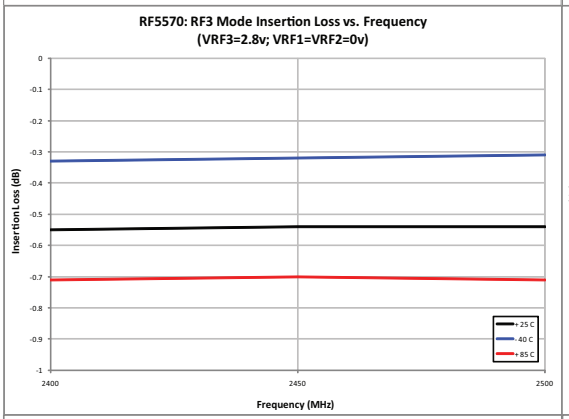


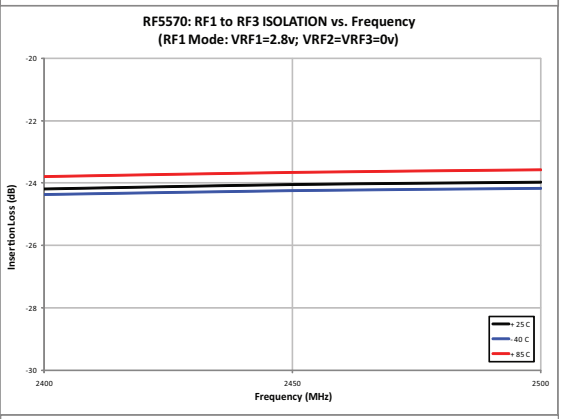
PCB STENCIL PATTERN

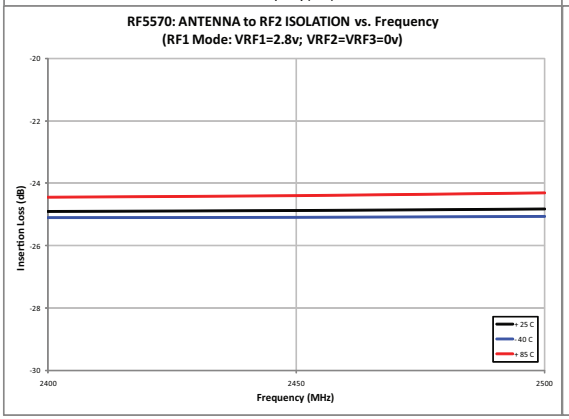
RF5570 Performance Plots

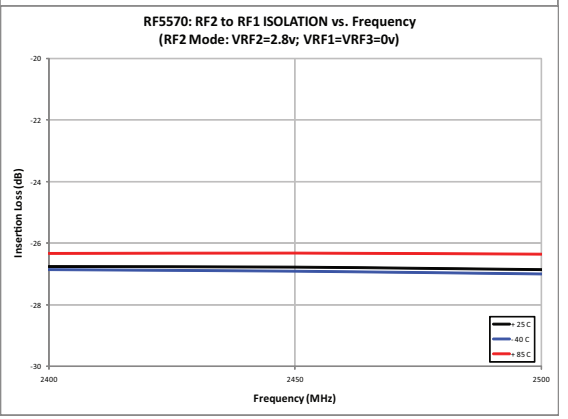












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