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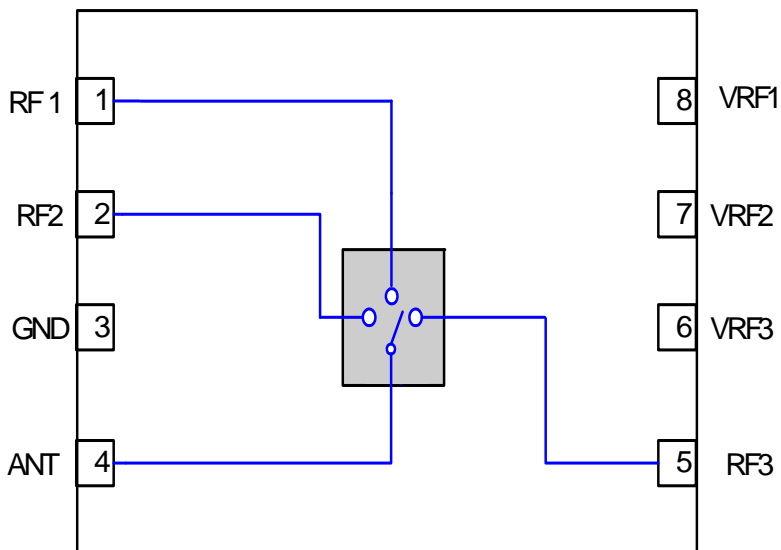Package: DFN, 8-Pin, 2.0 mm x 2.0 mm x 0.6 mm

Features

- SP3T Switch
- Switch Control Voltage 2.1 to 5V (Typical 3.0V)
- Low Insertion Loss 0.8 dB

Applications

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

Functional Block Diagram

Product Description

The RF5500 is a SP3T switch designed for WLAN and WiFi/Bluetooth® applications in the 2.4 GHz to 2.5 GHz ISM band. The RF5500 is capable of switching between WLAN RX, WLAN TX, and Bluetooth® RX/TX operations. This switch can also be placed in WLAN and Bluetooth® receive modes simutaneously with a slight increase in insertion loss. The RF5500 is provided in a DFN 8-pin 2 mm x 2 mm x 0.6 mm Pb-Free package. This device meets or exceeds the RF switch needs of IEEE802.11b/g/n RF systems.

Ordering Information

RF5500	11b/g/n WLAN SP3T Switch
RF5500PCBK-410	Fully Assembled Evaluation Board and 5 loose pcs.

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

RF5500

Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage	5	V
Ruggedness Output VSWR	10:1	
Stability Output VSWR	5:1	
ESD Human Body Model	TBD	V
ESD Device Model	TBD	V
Operating Temperature Range	-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.

RoHS status based on EU Directive 2002/95/EC (at time of this document revision).

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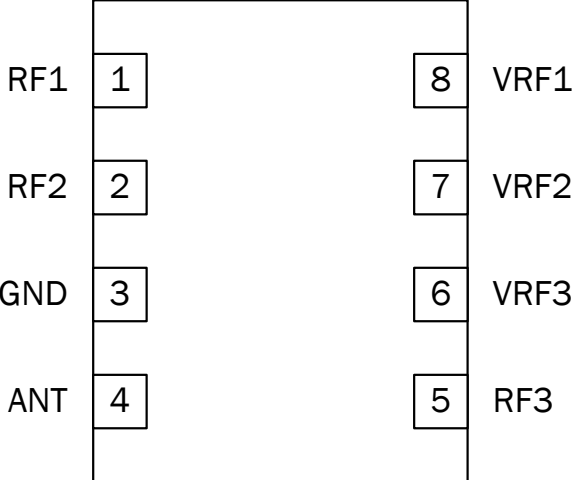
Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
2.4 GHz to 2.5 GHz Switch Transmit and Receive Parameters					Unless otherwise noted the following conditions apply: Control voltage=2.8V, Temp=-40°C to +85°C, over frequency range, and over V_{CC} range
Frequency	2.4		2.5	GHz	
Insertion Loss		0.8	1.0	dB	All ports
Noise Figure		0.8	1.0	dB	All ports
Insertion Loss		3.8	4.0	dB	RF1/RF2, RF1/RF3, and RF2/RF3 Modes
Noise Figure		3.8	4.0	dB	RF1/RF2, RF1/RF3, and RF2/RF3 Modes, Note 4
Passband Ripple	-0.2		+0.2	dB	
P1dB		28		dBm	3.1 or higher control voltage for 30 dB min, 28 typ. at 2.8V
Input Return Loss	15	18		dB	
Output Return Loss	15	18		dB	
Current Consumption		1	5	µA	Switch operating current
Port Impedance					All ports, Note 2
Input		50		Ω	Receive
Output		50		Ω	Transmit
Isolation	13	18		dB	RF1, RF2, & RF3 Mode
Switch Control Voltage					SW1, SW2, & SW3 pins
Low		0	0.2	V	
High	2.1	2.8	5.0	V	
Switch Control Speed		50		nsec	

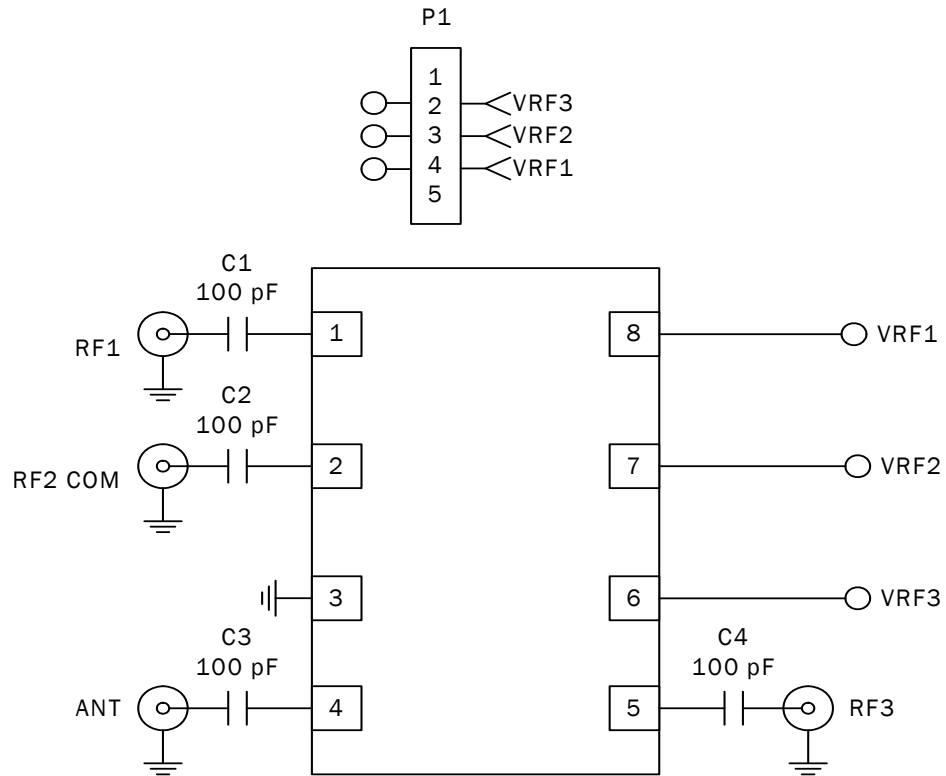| Pin	Function	Description
1	RF1	RF port.
2	RF2	RF port.
3	GND	Ground connection.
4	ANT	Antenna port.
5	RF3	RF port.
6	VRF3	Switch control to enable RF3 to ANT port.
7	VRF2	Switch control to enable RF2 to ANT port.
8	VRF1	Switch control to enable RF1 to ANT port.

Switch Control Logic

Mode	VRF1	VRF2	VRF3	Condition
RF3	0	0	1	RF 3 port to ANT port
RF2	0	1	0	RF 2 port to ANT port
RF1	1	0	0	RF 1 port to ANT port

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Pin Out

RF1	1	8	VRF1
RF2	2	7	VRF2
GND	3	6	VRF3
ANT	4	5	RF3

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Application Schematic

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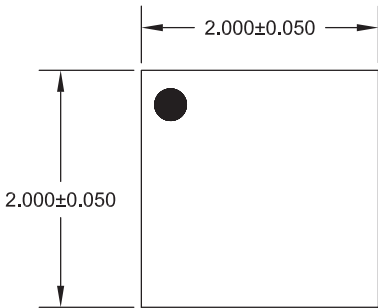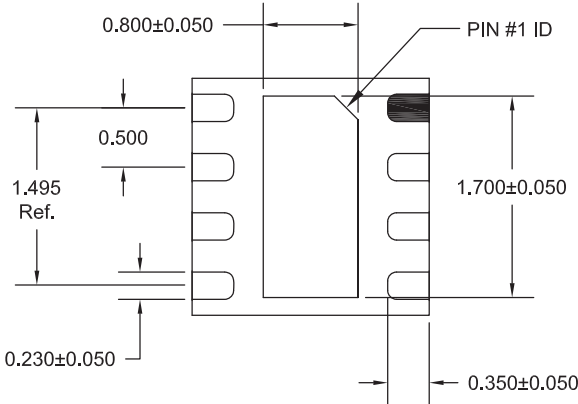support, contact RFMD at (+1) 336-678-5570 or sales-support@rfmd.com.

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Package Drawing
DFN, 8-Pin, 2 mm x 2 mm x 0.55 mm

Notes:
1) PIN 1 INDICATOR SHADED AREA

TOP VIEW

2.000±0.050

2.000±0.050

BOTTOM VIEW

0.800±0.050

PIN #1 ID

0.500

1.495 Ref.

1.700±0.050

0.230±0.050

0.350±0.050

SIDE VIEW

0.550 ± 0.050

.152 Ref.
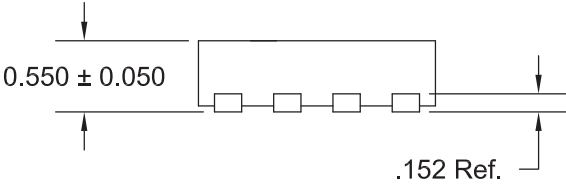
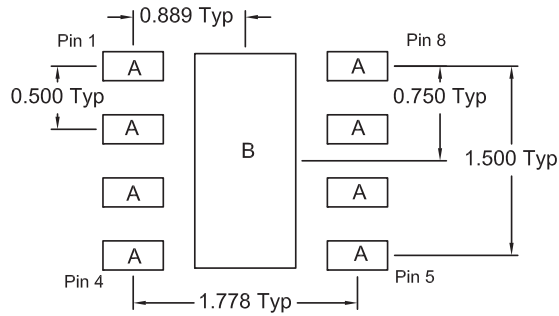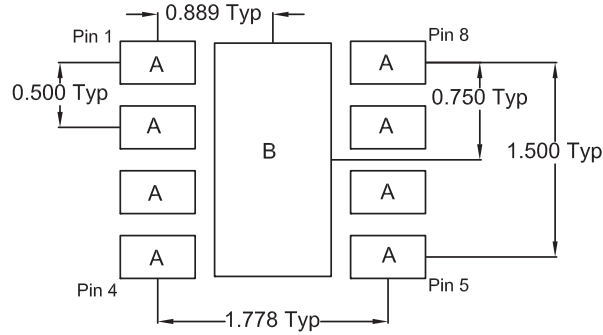**PCB Metal Land Pattern**

A = 0.478 x 0.230 (mm) Typ
B = 0.800 x 1.700 (mm)

PCB Solder Mask Pattern

A = 0.578 x 0.330 (mm) Typ
B = 0.900 x 1.800 (mm)

PCB Stencil Pattern

A = 0.430 x 0.207 (mm) Typ
B = 0.720 x 1.530 (mm)

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