



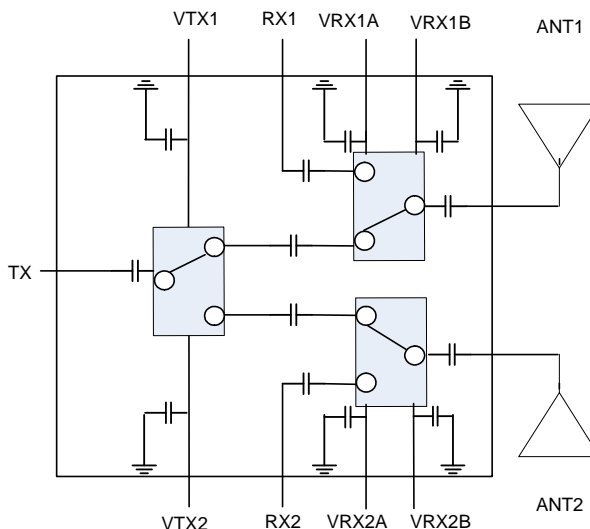
## Features

- Single Voltage: 2.5 to 5.0V
- 40dBm P1dB at 3.0V
- Low Insertion Loss and High Isolation
- Antenna Diversity

## Applications

- WiMAX, WiFi, and Cellular
- Commercial and Consumer Systems

**Switch Module Block Diagram**



**Functional Block Diagram**

## Product Description

This module is a 1x2 switch module intended to address WiMAX, WiFi, and Cellular 700MHz to 2.7GHz, 3.3GHz to 3.8GHz applications. This switch is specified to be capable of supporting linear power levels over 1 watt. The small form factor and integrated DC blocking minimizes the layout size and reduces the number of external components. The device is provided in a 4mm x 4mm x 0.9mm LGA package. This module meets or exceeds the RF Front End needs of IEEE802.11b/g/n and IEEE802.16 systems.

## Ordering Information

RF5620	2.5V to 5.0V, 700MHz to 3.8GHz Integrated Switch Module
RF5620PCBA-410	Fully Assembled Evaluation Board

## Optimum Technology Matching® Applied

- |                                      |                                      |  |                                    |
|--------------------------------------|--------------------------------------|--|------------------------------------|
| <input type="checkbox"/> GaAs HBT    | <input type="checkbox"/> SiGe BiCMOS | <input checked="" type="checkbox"/> GaAs pHEMT | <input type="checkbox"/> GaN HEMT  |
| <input type="checkbox"/> GaAs MESFET | <input type="checkbox"/> Si BiCMOS   | <input type="checkbox"/> Si CMOS               | <input type="checkbox"/> BiFET HBT |
| <input type="checkbox"/> InGaP HBT   | <input type="checkbox"/> SiGe HBT    | <input type="checkbox"/> Si BJT                | <input type="checkbox"/> LDMOS     |

## Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage	-0.5 to +5.25	V
Power Control Voltage ( $V_{REG}$ )	-0.5 to +6.0	V
DC Supply Current	TBD	mA
Input RF Power with 50 $\Omega$ Output Load	TBD	dBm
Input RF Power with Non-50 $\Omega$ Output Load	TBD	dBm
Operating Ambient Temperature	-30 to +85	°C
Storage Temperature	-40 to +150	°C

**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.

The information in this publication is believed to be accurate and reliable. However, no responsibility is assumed by RF Micro Devices, Inc. ("RFMD") for its use, nor for any infringement of patents, or other rights of third parties, resulting from its use. No license is granted by implication or otherwise under any patent or patent rights of RFMD. RFMD reserves the right to change component circuitry, recommended application circuitry and specifications at any time without prior notice.



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.

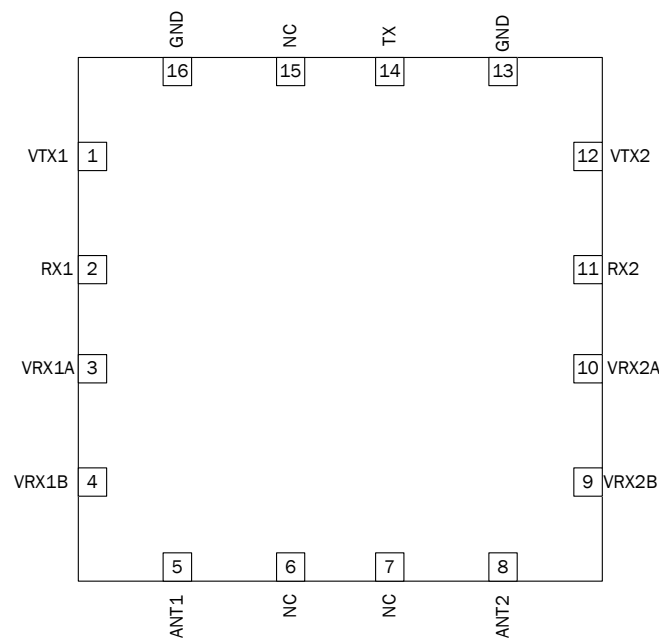
Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Frequency	700		2700	MHz	Compliance with 802.16e standard
Tx Insertion Loss - Tx to ANT1,2		1.2	1.5	dB	
Rx Insertion Loss - Rx to ANT1,2		0.7	1	dB	
Frequency	3300		3800	MHz	
Tx Insertion Loss - Tx to ANT1,2		1.5	1.8	dB	
Rx Insertion Loss - Rx to ANT1,2		0.9	1.2	dB	
Tx - ANT Isolation	25	28		dB	Tx - ANT 1 & 2
Rx - ANT Isolation	25	28		dB	Rx1,2 to ANT 1,2
Return Loss (ON State)	15	20		dB	Tx - ANT 1, 2
Return Loss (OFF State)	15	20		dB	Rx1,2 to ANT 1, 2
Input P1dB	38	40	28.5	dBm	AT Vcontrol=3.0V
IIP3		TBD		dBm	
Switching Speed		300	500	nsec	50% CTL to 90%/10% RF
Switching Speed		150	300	nsec	90%/10% RF to 10%/90% RF
Control Voltage High	2.5	3	5	V	
Control Voltage Low	0		0.2	V	
Control Current		5		$\mu$ A	

**Truth Table**

Mode	VTX1	VTX2	VRX1A	VRX1B	VRX2A	VRX2B
RX Diversity	0	0	0	1	0	1
TX-ANT1	1	0	1	0	1	0
TX-ANT2	0	1	1	0	1	0
TX-ANT1, RX2-ANT2	1	0	1	0	0	1
TX-ANT2, RX1-ANT2	0	1	0	1	1	0

**Note:** Any other control voltage combination will place into an undefined state, but will not damage the device

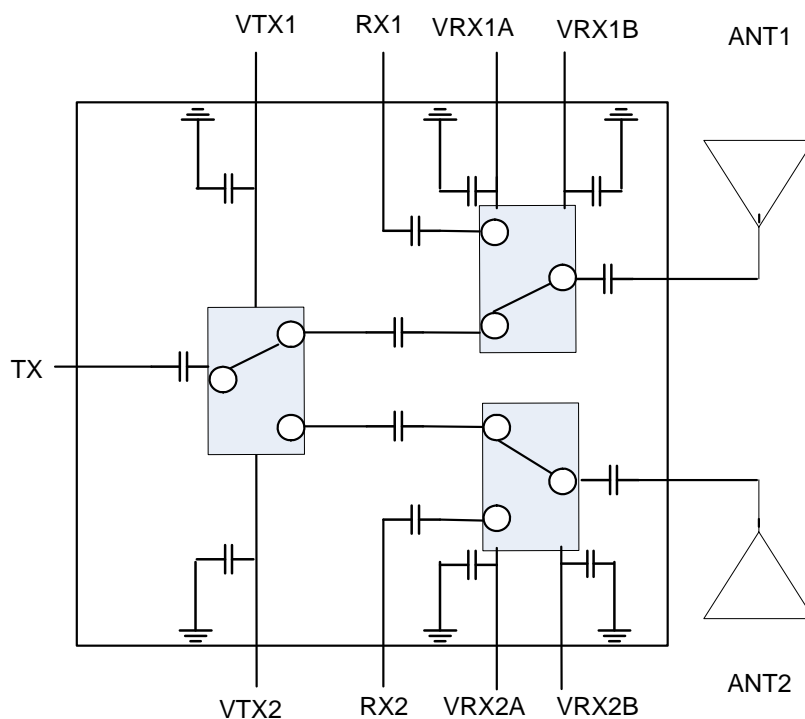
Pin Out



Pin	Function	Description
1	VTX1	Logic controller for TX
2	RX1	RF RX port 1 - internally matched to 50Ω and DC blocked
3	VRX1A	Logic control for RX
4	VRX1B	Logic control for RX
5	ANT1	RF output port 1 - internally matched to 50Ω and DC blocked
6	NC	No internal connection (connect to GND recommended)
7	NC	No internal connection (connect to GND recommended)
8	ANT2	RF output port 2 - internally matched to 50Ω and DC blocked
9	VRX2B	Logic control for RX
10	VRX2A	Logic control for RX
11	RX2	RF RX port 2 - internally matched to 50Ω and DC blocked
12	VTX2	Logic control for TX
13	GND	Ground connection
14	TX	RF TX port - internally matched to 50Ω and DC blocked
15	NC	No internal connection (connect to GND recommended)
16	GND	Ground connection
Pkg Base	GND	Ground connection - the backside of the package should be connected to the ground plane through as short a connection as possible (PCB vias under the device are recommended)

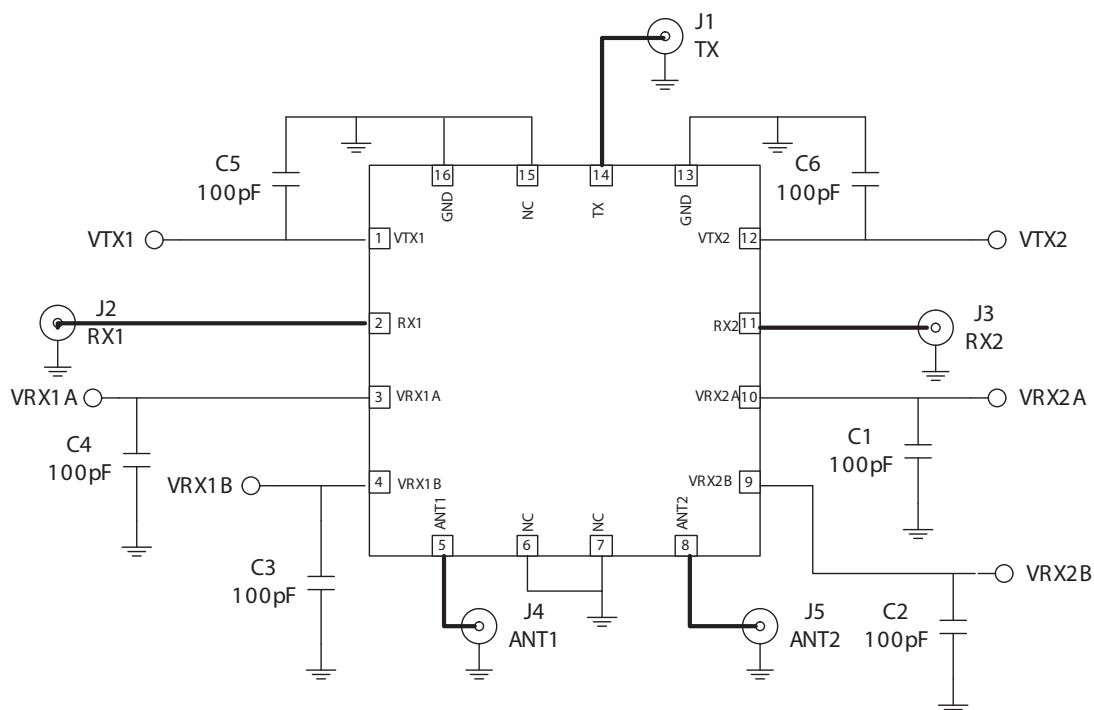
## Detailed Functional Block Diagram

### Switch Module Block Diagram





## Application Schematic



Evaluation Board Layout

