FM8625H (文件编号： S&CIC2082) SPDT Switch for 5G Applications

PRODUCT DESCRIPTION

The FM8625H is a Single-Pole, Double-Throw (SPDT) GSM/LTE/WCDMA/WiFi transmitting and receiving switch. Switching is controlled by an integrated GPIO interface with a single control pin.

The FM8625H SPDT switch is provided in a compact 1.1mm x 0.7mm x 0.5mm 6-lead DFN package which allows for a small solution size with no need for external DC blocking capacitors unless DC is applied externally.

A functional block diagram is shown in Figure 1 and the pin configuration are shown in Figure 2. Signal pin assignments and functional pin descriptions are provided in Table 1.

FEATURES

- Broadband frequency range: 0.1 to 6.0 GHz
- Low insertion loss: 0.45 dB @ 2.7 GHz
- Low insertion loss: 0.65 dB @ 5.8 GHz
- High isolation: 30 dB up to 2.7 GHz
- P0.1dB: 38 dBm
- No external DC blocking capacitors required
- Single GPIO control line with voltage regulator:

  V_{CTL}= 0 to VDD V

  V_{DD}= 1.62 to 3.3 V
- Small, 1.1mm x 0.7mm x 0.5mm 6-lead DFN package

APPLICATIONS

- GSM/WCDMA/LTE transmitting and receiving
- WiFi 2.4G/5G transmitting and receiving
- HPUE applications

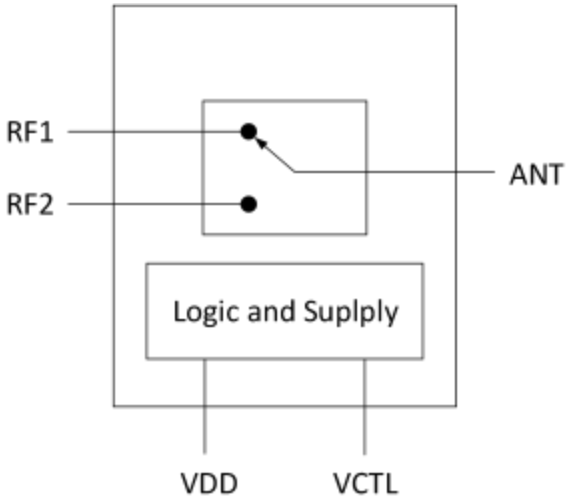

Figure 1. FM8625H Block Diagram

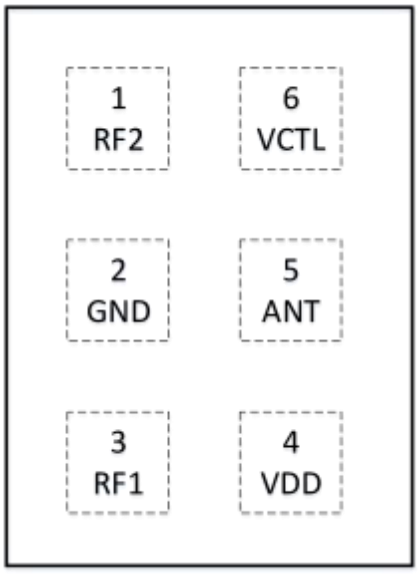

Figure 2. FM8625H Pinout (Top View)

FUNCTION CHARACTERISTICS

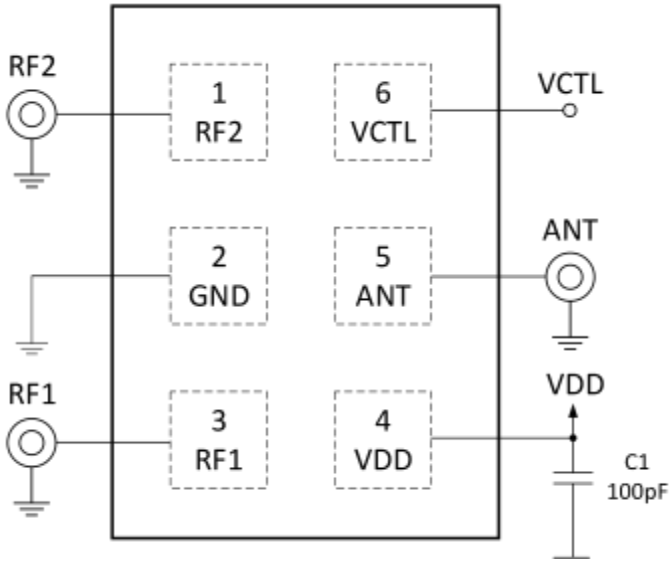

Figure 3. FM8625H Application Circuit

Table 1. Pin Descriptions

No.	Name	Description	No.	Name	Description
1	RF2	RF Port2	6	VCTL	Logic Control Voltage
2	GND	Ground	5	ANT	Antenna Port
3	RF1	RF Port1	4	VDD	DC Power Supply Voltage

Table 2. VCTL Truth Table for RF Channel Operating Mode

VCTL	RF Channel Operating Mode
Low	ANT to RF1 active
High	ANT to RF2 active

FUNCTION CHARACTERISTICS

Table 3. Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
DC Supply Voltage	V_{DD}	0	+3.6	V
Digital Control Voltage	V_{CTL}	0	+3.0	
RF Input Peak Power				
CW	P_{IN}		37	dBm
20% DC	P_{IN}		38	
Device operating temperature	T_{OP}	-40	+90	℃
Device storage temperature	T_{STG}	-55	+150	
Electrostatic Discharge				
Human body model (HBM), Class 1C	$V_{ESD(HBM)}$		1000	V
Machine Model (MM), Class A	$V_{ESD(MM)}$		100	
Charged device model (CDM), Class III	$V_{ESD(CDM)}$		500	

Note: Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.

Table 4. Recommended Operating Conditions

Parameter	Symbol	MIN	TYP	MAX	Unit
Operating Frequency	F_0	0.1		5.8	GHz
DC Supply Voltage	V_{DD}	1.62	2.8	3.3	V
Logic Control Voltage High	V_{CTL_H}	1.62	1.8	VDD	
Logic Control Voltage Low	V_{CTL_L}	0	0	0.3	

Table 5. Nominal Operating Parameters

Parameter	Symbol	Specification			Unit	Condition
		MIN	TYP	MAX		
DC Performances						
DC Supply Current	I_{DD}		100	130	μA	V_{DD} = 2.8V
Current on VCTL	I_{CTL}			5		V_{CTL}= 1.8V
DC Supply Turn-on/Turn-off Time	$T_{ON/OFF}$			10	μs	From 50% of final VDD voltage to 90%/10% of final RF power
RF Path Switching Time	T_{SW}		2	3	μs	From 50% of final VCTL voltage to 10%/90% of final RF power
RF Performances						
Insertion Loss (RF1 or RF2 to ANT pin)	IL		0.30 0.35 0.45 0.50 0.65	0.35 0.45 0.50 0.60 0.75	dB	F_0=0.1 to 1.0 GHz F_0=1.0 to 2.0 GHz F_0=2.0 to 3.0 GHz F_0=3.0 to 3.8 GHz F_0=4.8 to 6.0 GHz
Isolation (ANT to RF1 or RF2)	ISO	35 32 28 22 18	40 35 30 25 20			F_0=0.1 to 1.0 GHz F_0=1.0 to 2.0 GHz F_0=2.0 to 3.0 GHz F_0=3.0 to 3.8 GHz F_0=4.8 to 6.0 GHz
Voltage Standing Wave Ratio	VSWR		1.5 2.0			F_0=0.1 to 2.7 GHz F_0=2.7 to 6.0 GHz
Input 0.1dB Compression Point （From ANT to RF1 and RF2）	$P_{0.1dB}$	37	38		dBm	F_0=0.95 to 6.0GHz
2nd Harmonic	$2F_0$		-75 -85	-65 -75	dBc	F_0=900MHz @ 35dBm F_0=900MHz @ 26dBm
3rd Harmonic	$3F_0$		-75 -85	-65 -75		F_0=900MHz @ 35dBm F_0=900MHz @ 26dBm

