

## 2.4~2.5 GHz RF Front-End Module

### Introduction

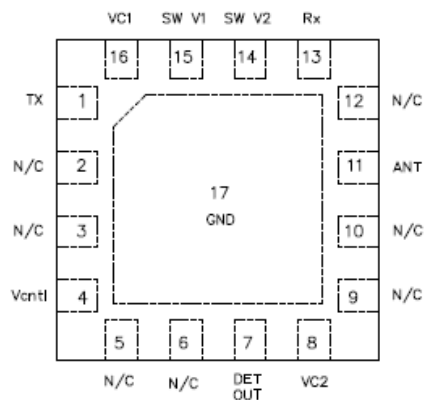
The FM2427 and FM2427U are fully integrated RF front-end module designed for dual-mode 802.11b/g WLAN applications. The device includes SPDT switch, a low-current linearized power amplifier (LPA), and power detector. Biasing and matching circuitries are all integrated to minimize the external components required.

The device is sold in a RoHS compliant miniature 3 x 3 x 0.8 mm (FM2427) or 3 x 3 x 0.5mm (FM2427U) 16-pin QFN package to make automated assembly simple. Its small and thin package size makes the device an ideal solution for radios built in small form factors for mobile applications.

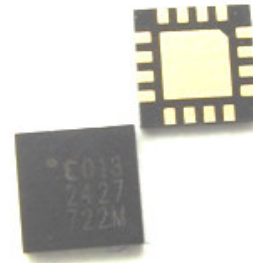
### Applications

- IEEE 802.11b DSSS WLAN
- IEEE 802.11g OFDM WLAN
- 2.4 GHz Cordless Phones
- 2.4 GHz ISM Radios

### Pin Assignment



< Top View >



### Features

- 2.4 to 2.5 GHz Operating Range
- 25 dB Gain
- 3% EVM at Pout=+16 dBm (Icc=130mA @Vcc=+3.3V) at 54 Mbps OFDM signal
- Input and Output Matched to 50ohm
- On-chip power detector
- +3.3V Supply
- FM2427 : 3 x 3 x 0.8 mm 16-pin QFN Package
- FM2427U : 3 x 3 x 0.5 mm 16-pin QFN Package
- RoHS compliant product



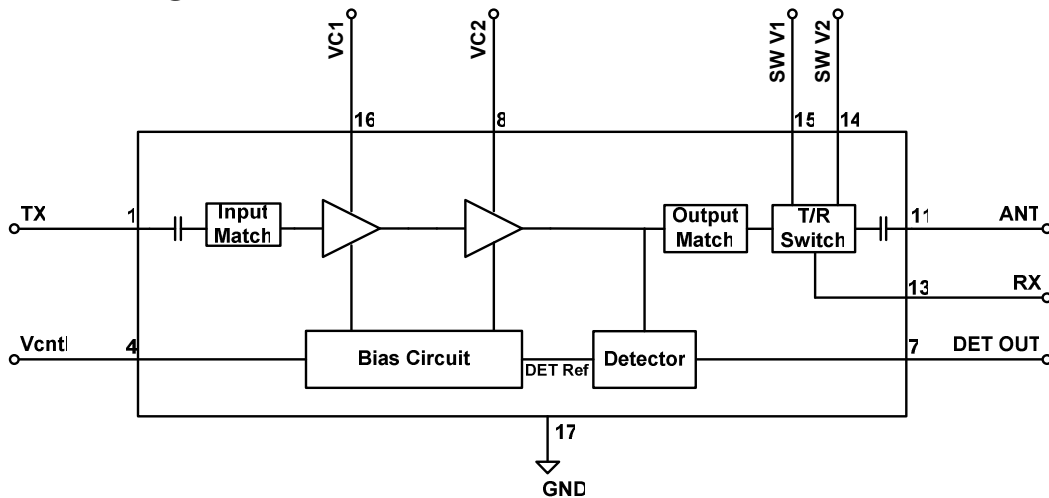
Caution!  
ESD sensitive device



### Pin Description

Pin	Pin Name	Pin Description
1	Tx	2.4 GHz Tx input
2	N/C	No connection
3	N/C	No connection
4	Vcntl	2.4 GHz PA control voltage
5	N/C	No connection
6	N/C	No connection
7	DET OUT	Detector output voltage
8	VC2	2.4 GHz PA Vcc
9	N/C	No connection
10	N/C	No connection
11	ANT	RF output Ant
12	N/C	No connection
13	Rx	2.4 GHz Rx output
14	SW V2	SW control voltage 2
15	SW V1	SW control voltage 1
16	VC1	2.4 GHz PA Vcc
17	GND	Package backside ground slug

### Functional Diagram



### Truth Table

State	V1	V2	ANT
1	' 0 '	' 1 '	TX
2	' 1 '	' 0 '	RX

V1, V2: ' 0 ' = 0 to +0.2V, ' 1 ' = +3 to +5V

## Specifications

### Absolute Maximum Ratings

PARAMETER	RATING
Vcc, Vc1, Vc2, Vcntl	-0.5V to +4.5V
Operating Temperature Range	-20°C to +85°C
Storage Temperature Range	-65°C to +125°C
Soldering Conditions	260°C peak for 20 seconds

### DC Electrical Characteristics (Temp.=25°C)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Supply Voltages</b>					
Vc1		3.0	3.3	3.6	Volts
Vc2		3.0	3.3	3.6	Volts
Vcntl			2.8		Volts
<b>Supply Currents</b>					
Ic1 + Ic2	Quiescent (no RF)		75		mA
Icntl			4		mA

### AC Electrical Characteristics (Temp.=25°C)

PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
RF Frequency Range (Note 1)		2.4		2.5	GHz
Power Gain	Vcc = 3.3V, Vcntl = 2.8V		25		dB
Input Return Loss			-10		dB
Output Return Loss			-10		dB
Isolation :					
Tx – Rx		18	20		dB
Tx – Antennas		18	20		dB
P1dB			22		dBm
Bias current @3.3V	Quiescent 64QAM/54Mbps, Pout=16dBm		75 130		mA
Sleep Mode current	Vcc = 3.3V, Vcntl = 0V		2		uA
Detector voltage range	Pout=16 dBm		500		mV
ACPR 1 <sup>st</sup> Side Lobe	11b, 1 Mbps Long, Pout=16 dBm		-38		dBc
ACPR 2 <sup>nd</sup> Side Lobe	11b, 1 Mbps Long, Pout=16 dBm		-57		dBc
2 <sup>nd</sup> Harmonics	Pout=18 dBm		-30		dBc
EVM	64QAM/54Mbps, Pout=16dBm		3		%

**Note 1:** Operation outside this range is possible, but not guaranteed

## Ordering Information

Ordering Number	Component Packing
FM2427	1000pcs / Tape & Reel
FM2427U	1000pcs / Tape & Reel
FM2427-EVB	FM2427 Evaluation Kit
FM2427U-EVB	FM2427U Evaluation Kit

**For additional product information, please contact  
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