DRF4431F27
27dBm ISM RF Transceiver Module V1.10

Features:

- Frequency Range: 433/868MHz
- Modulation: FSK/GFSK/OOK
- SPI Data Interface
- Sensitivity: -122dBm
- Output Power: +27dBm
- Data Rate: -0.123~256 kbps
- Digital RSSI
- Wake-up Timer
- 64 bytes TX/RX FIFOs
- Integrated Voltage Regulator
- Frequency Hopping Capability
- Temperature sensor and 8-bit ADC
- Working Temperature: -20°C ~+60°C
- Standby current: ⩽ 3uA
- Supply voltage: 3.3~6.0V

Applications

- Remote Control
- Remote AMR
- Home Automation
- Personal data logger
- Wireless sensor network
- Remote Keyless entry
- Wireless PC peripherals

DESCRIPTION

DRF4431F27 is a type of low cost RF front-end transceiver module based on SI4431 from Silicon labs. It keeps all the advantages of RFIC SI4431 but simplifies the circuit design. The high sensitivity (-122dBm) and 27dBm output power make the module suitable for long range applications. DRF4431F27 module consists of RFIC Si4431, thin SMD crystal, LDO and PA circuit. The antenna port is well matched to standard 50 Ohm impedance. Users don't need to spend time in RF circuit design. It is fully compatible with DRF4431F13 and DRF4432F20 modules.

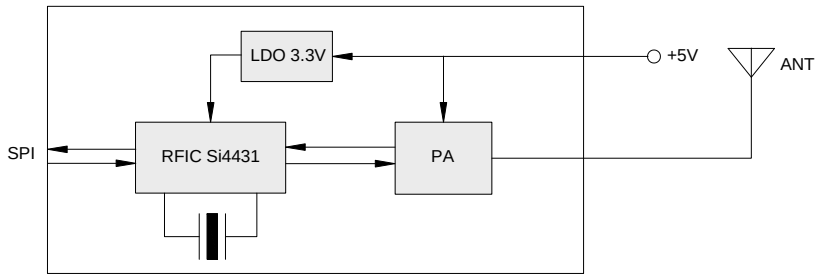

Figure 1: Function Block

PIN FUNCTIONS

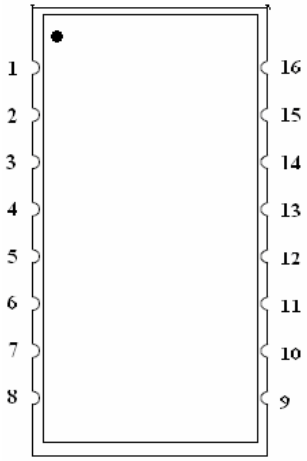

Figure 2: DRF4431F27 Pin Layout

PIN	Name	Function	Description
1	ANT	Output	50 Ohm Impedance
2	GND	Ground	Ground (0V)
3	NC	---	No connection
4	NC	---	No connection
5	GPIO2	Input/ Output	General purpose Input/Output pin
6	SDO	Output	SPI data output pin
7	SDI	Input	SPI data input pin
8	SCLK	Input	SPI data clock pin
9	GND	Ground	Ground (0V)
10	nSEL	Input	SPI select pin
11	nIRQ	Onput	Interrupt status output pin
12	SDN	Input	Shutdown Input pin
13	NC	---	No connection
14	NC	---	No connection
15	GND	Ground	Ground (0V)
16	VCC	Power	+ 5.0V

Table 1: DRF4431F27 Pin Functions

ELECTRICAL SPECIFICATIONS

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
VCC	Supply Voltage	3.3	5	6.0	V
Temp	Operating temperature range	-20	25	60	°C
Freq	Frequency range	428 863	433 868	438 873	MHz
F_{DEV}	Modulation deviation @433MHz @868MHz	±0.625 ±0.625	--- ---	±160 ±320	KHz
RES_{RSSI}	RSSI resolution		±0.5		dB
I_{DD_R}	Current in receive mode @ 433Mhz @868Mhz		20.5 20.5		mA
I_{DD_T} (1)	Current in transmit mode @ 433Mhz @ 868Mhz		320 320		mA
I_{DD_S}	Current in sleep mode.			3	uA
Pout	Output power @ 433Mhz @ 868Mhz			27 27	dBm
Sen. (2)	Receiver sensitivity @ 433Mhz @ 868Mhz	-122 -122	-120 -120		dBm
DR_{FSK}	FSK data rate	0.123		256	Kbps
CH_{BW}	Receiver channel spacing	2.6	---	620	kHz
Z_{ANT}	Antenna Impedance		50		Ohm

Table 2: DRF4431F27 Electrical Specifications

Notes:

(1) Transmit current is tested at the Max. output power.

(2) Sensitivity is measured at DR_{FSK} =1.2k bps and F_{DEV} =30 kHz

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Min.	Max.	Units
VCC	Supply Voltage	-0.3	3.6	V
VI	Input voltage	-0.3	VCC+0.3	V
VO	Output voltage	-0.3	VCC+0.3	V
T_{ST}	Storage temperature	-55	125	°C

Table 3: DRF4431F27 Maximum Ratings

TYPICAL APPLICATION CIRCUIT

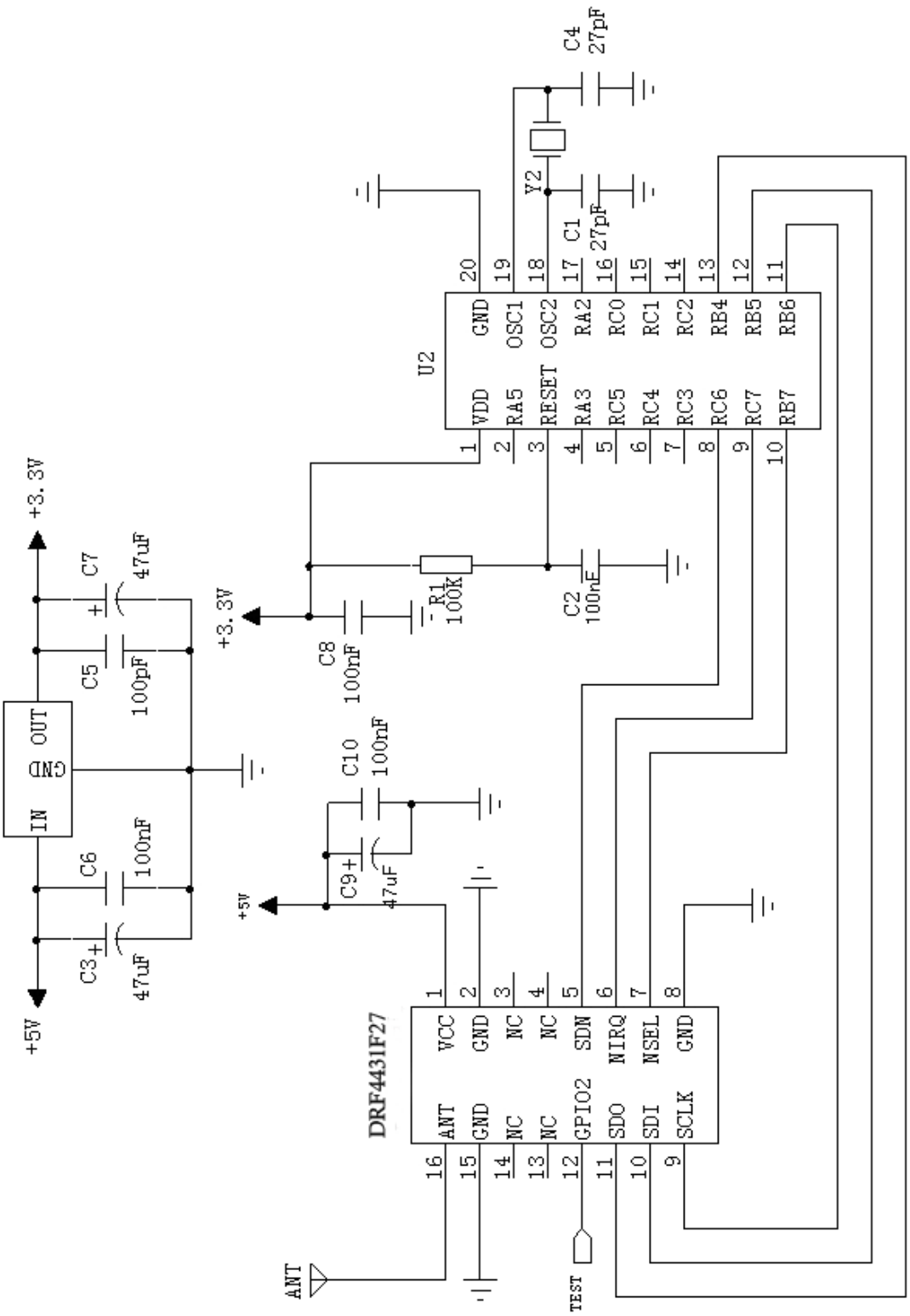

Figure 3: Application Circuit

MECHANICAL DATA

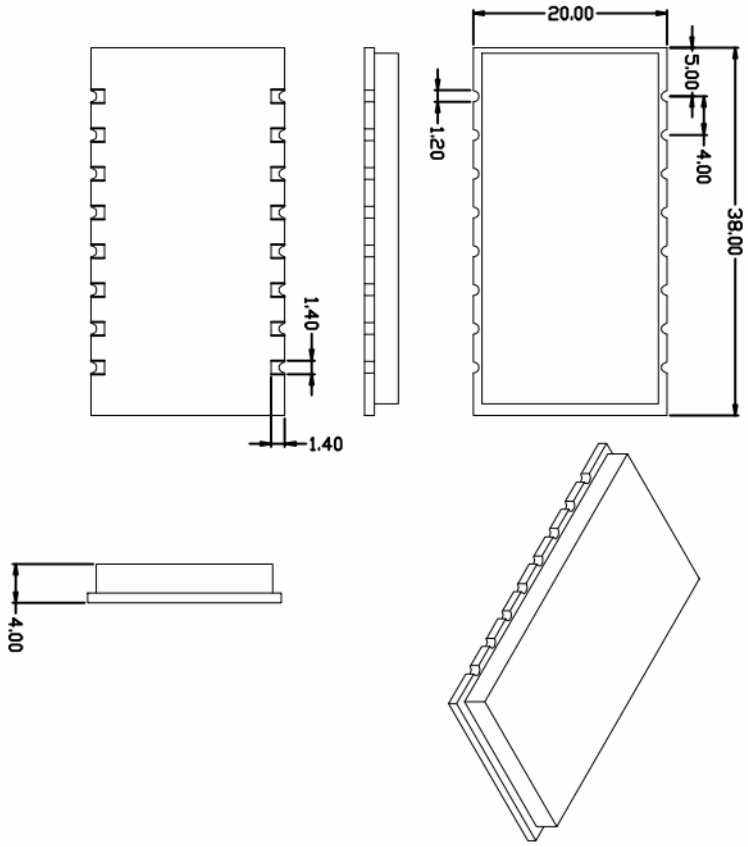

Figure 4: Mechanical Dimension

ORDERING INFORMATION

DRF 4431 F 27 — 043 S
① ② ③④ ⑤ ⑥

Num	Symbol	Meaning
①	RF module	RF FSK/GFSK module
②	IC Type	SI4431
③	Module Function	RF front-end module
④	Power	27dBm output power
⑤	Freq. Band	043: 433MHz 086:868MHz
⑥	Package	SMD package

Table 4: Ordering Information

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