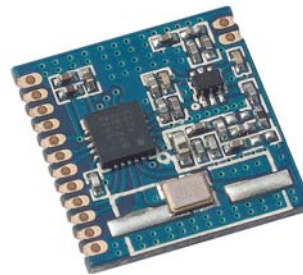


**DRF4432F20**  
**20dBm ISM RF Transceiver Module**

**V1.10**

**Features:**

- Frequency Range: 433/868MHz
- Modulation: FSK/GFSK/OOK
- SPI Data Interface
- Sensitivity: -121dBm
- Output Power: +20dBm
- 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:  $\leq 1\mu\text{A}$
- Supply voltage: 1.8~3.6V



**Applications**

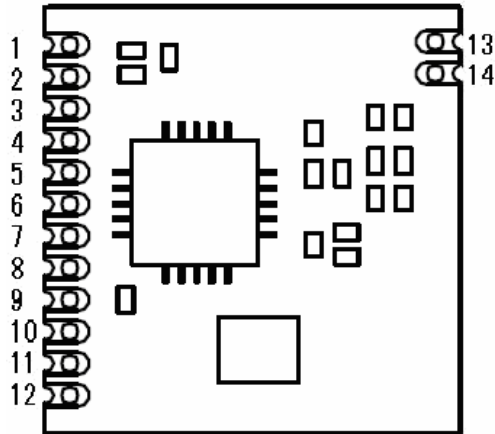
- Remote Control
- Remote AMR
- Home Automation
- Personal data logger
- Wireless sensor network
- Remote Keyless entry
- Wireless PC peripherals

**DESCRIPTION**

DRF4432F20 is a type of low cost RF front-end transceiver module based on SI4432 from Silicon labs. It keeps all the advantages of RFIC SI4432 but simplifies the circuit design. The high sensitivity (-121dBm) and 20dBm high power output make the module suitable for most short range applications.

DRF4432F20 module consists of RFIC Si4432, thin SMD crystal and antenna matching circuit. The antenna port is well matched to standard 50 Ohm impedance. Users don't need to spend time in RF circuit design and choose suitable antennas for different applications. DORJI also provides SMA connector and high gain antenna for longer communication distance. DRF4432D20 operates at 1.8~3.6V with extra low standby current which makes it suitable for battery powered-up applications. DORJI also provides high power module DRF4431F27 with 500mW output power, which provides users high flexible in designing products for different distances.

**PIN FUNCTIONS**



**Figure 1: DRF4432F20 Pin Layout**

PIN	Name	Function	Description
1	GND	Ground	Ground (0V)
2	GPIO0	Input	Tx_EN pin; High in transmit mode and Low in receive mode
3	GPIO1	Input	Rx_EN pin; High in receive mode and Low in transmit mode
4	GPIO2	Input/Output	General purpose Input/Output pin
5	VCC	Power	Normal 3.3V
6	SDO	Output	SPI data output pin
7	SDI	Input	SPI data input pin
8	SCLK	Input	SPI data clock pin
9	nSEL	Input	SPI select pin
10	nIRQ	Onput	Interrupt status output pin
11	SDN	Input	Shutdown Input pin
12	GND	Ground	Ground (0V)
13	Ant	Output	50 Ohm Impedance
14	GND	Ground	Ground (0V)

**Table 1: DRF4432F20 Pin Functions**

**ELECTRICAL SPECIFICATIONS**

Symbol	Parameter (condition)	Min.	Typ.	Max.	Units
VCC	Supply Voltage	1.8		3.6	V
Temp	Operating temperature range	-20	25	60	°C
Freq	Frequency range	428 863	433 868	438 873	MHz
F <sub>DEV</sub>	Modulation deviation @433MHz @868MHz	±0.625 ±0.625	--- ---	±160 ±320	KHz
RES <sub>RSSI</sub>	RSSI resolution		±0.5		dB
I <sub>DD_R</sub>	Current in receive mode @ 433Mhz @868Mhz		18.1 18.1		mA
I <sub>DD_T</sub> (1)	Current in transmit mode @ 433Mhz @ 868Mhz		85 85		mA
I <sub>DD_S</sub>	Current in sleep mode.			1	uA
P <sub>out</sub>	Max. output power @ 433Mhz @ 868Mhz		18.5 18.5	19.5 19.5	dBm
Sen. (2)	Receiver sensitivity @ 433Mhz @ 868Mhz	-121 -121	-118 -118		dBm
DR <sub>FSK</sub>	FSK data rate	0.123		256	Kbps
CH <sub>BW</sub>	Receiver channel spacing	2.6	---	620	kHz
Z <sub>ANT</sub>	Antenna Impedance		50		Ohm

**Table 2: DRF4432F20 Electrical Specifications**

**Notes:**

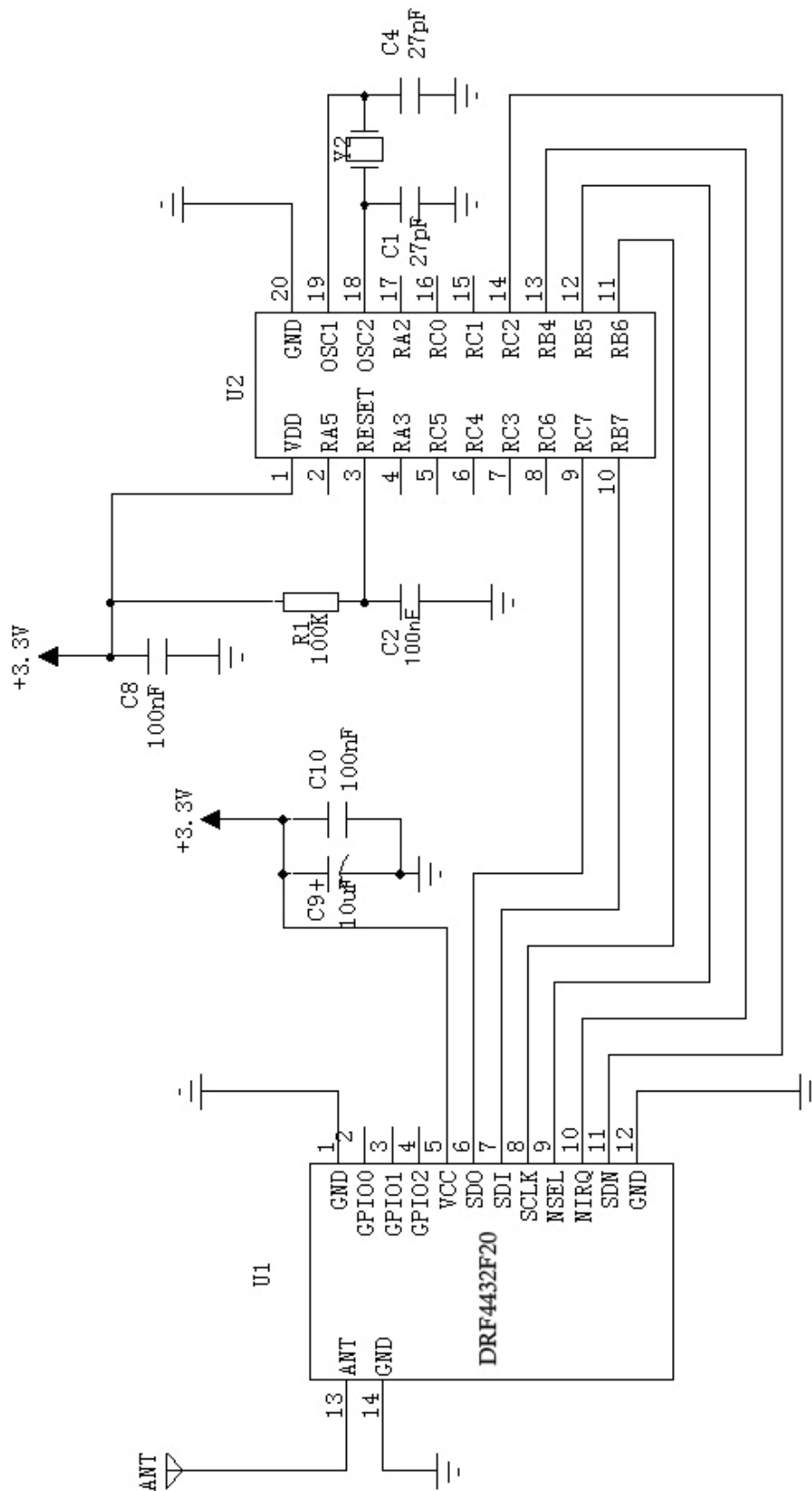
- (1) Transmit current is tested at the Max. output power.
- (2) Sensitivity is measured at DR<sub>FSK</sub> = 1.2k bps and F<sub>DEV</sub> = ±30 kHz

**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 <sub>ST</sub>	Storage temperature	-55	125	°C

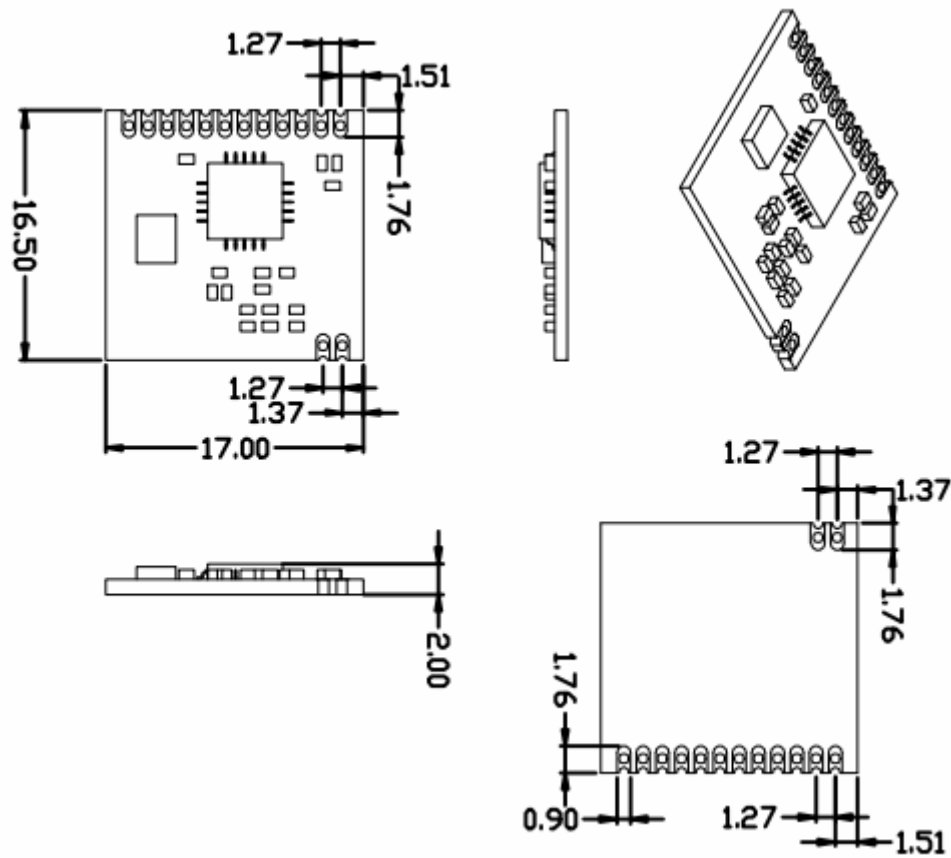
**Table 3: DRF4432F20 Maximum Ratings**

**TYPICAL APPLICATION CIRCUIT**



**Figure 2: Application Circuit**

**MECHANICAL DATA**



**Figure 3: Mechanical Dimension**

**ORDERING INFORMATION**

**DRF 4432 F 20 — 043 S**

- ① ② ③ ④ ⑤ ⑥

Num	Symbol	Meaning
①	RF module	RF FSK/GFSK module
②	IC Type	SI4432
③	Module Function	RF front-end module
④	Power	20dBm output power
⑤	Freq. Band	043: 433MHz 086:868MHz
⑥	Package	SMD package

**Table 4: Ordering Information**

<p>Dorji Applied Technologies A division of <i>Dorji Industrial Group Co., Ltd</i></p> <p>Add.: Xinchenuayuan 2, Dalangnanlu, Longhua, Baoan district, Shenzhen, China 518109</p> <p>Tel: 0086-755-28156122 Fax.: 0086-755-28156133 Email: <a href="mailto:sales@dorji.com">sales@dorji.com</a> Web: <a href="http://www.dorji.com">http://www.dorji.com</a></p>	<p>Dorji Industrial Group Co., Ltd reserves the right to make corrections, modifications, improvements and other changes to its products and services at any time and to discontinue any product or service without notice. Customers are expected to visit websites for getting newest product information before placing orders.</p> <p>These products are not designed for use in life support appliances, devices or other products where malfunction of these products might result in personal injury. Customers using these products in such applications do so at their own risk and agree to fully indemnify Dorji Industrial Group for any damages resulting from improper use.</p>
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