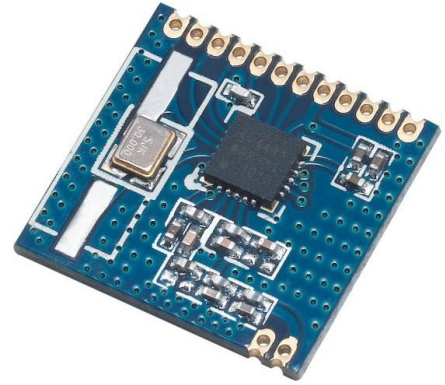


RF4431 wireless transceiver module

1. Description

RF4431 adopts Silicon Labs Si4431 RF chip, which is a highly integrated wireless ISM band transceiver chip. Extremely high receive sensitivity (-121 dBm) and +13 dBm output power ensure that the covering of the range and improve the data link performance. Built-in antenna diversity and the hopping function can be used to aggressively improve the performance.



2. Features

- Frequency Range: 433/868 (Customizable 240-930 MHz)
- Sensitivity up to **-118dBm**
- Data transfer rate: 0.123-256 kbps
- FSK, GFSK and OOK Modulation mode
- 1.8-3.6 V Power supply
- Ultra-low consumption shutdown mode
- Digital received signal strength indicator (RSSI)
- Timed wake-up function
- The antenna automatically match and two-way switch control
- Configurable packet structure
- Preamble detection
- 64-byte transmit and receive data register (FIFO)
- Low-power detection
- Temperature sensor and 8-bit analog-to-digital converters
- Operating Temperature Range: -40 ~ + 85 °C
- Integrated voltage regulator
- Frequency hopping
- Power-on reset function
- Built-in crystal adjustment function

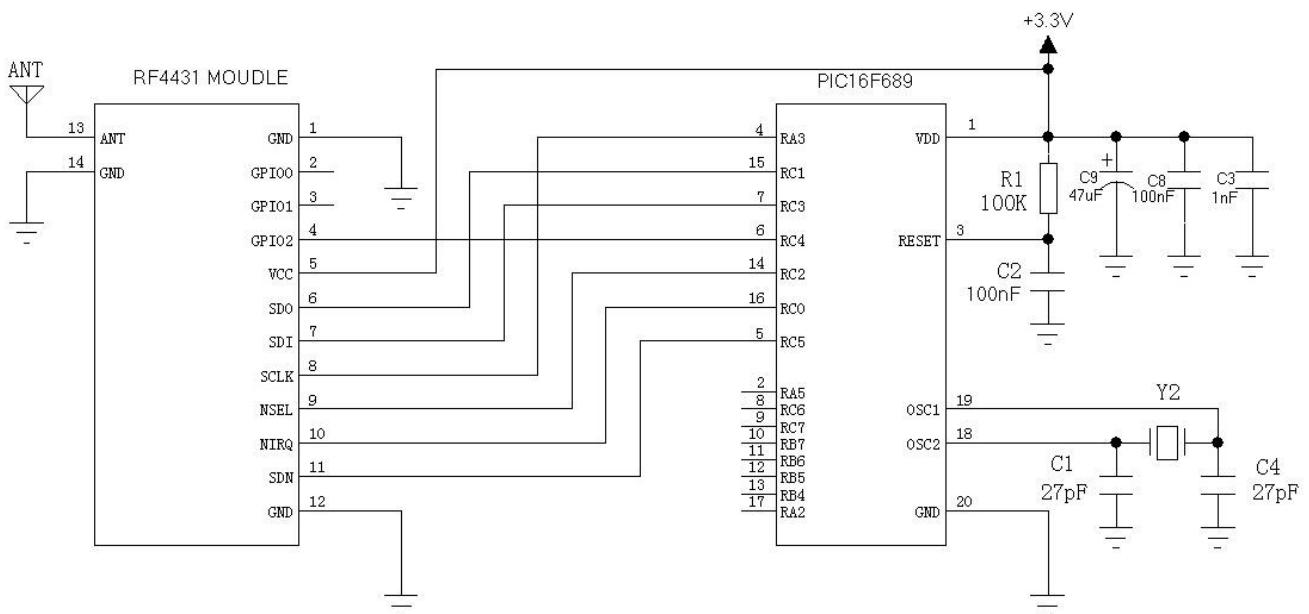
3. Application

- Remote control
- Remote meter reading
- Home security alarm and remote keyless entry
- Sensor networks
- Industrial control
- Tire Pressure Monitoring
- Home automation telemetry
- Health Monitoring
- Personal data records
- Wireless PC peripherals
- Toy control
- Tag reader

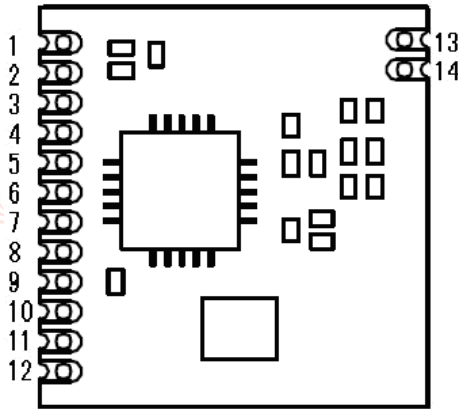
4. Electrical Specifications

Parameter	Min.	Typ.	Max.	Unit	Conditions
Operation conditions					
Supply Voltage	1.8	3.3	3.6	V	
Operating Temperature	-40	25	85	°C	
Current consumption					
RX Current		18.5		mA	
TX current		35		mA	@13dBm
Sleep Current		<1		uA	
RF parameters					
Frequency	403	433	463	MHZ	@433MHZ
	838	868	898	MHZ	@868MHZ
Air data rate	0.123		256	Kbps	FSK
Output power	-8		13	dBm	
Sensitivity		-118		dBm	@data=1.2kbps,Fdev=30kHz

5. Schematic

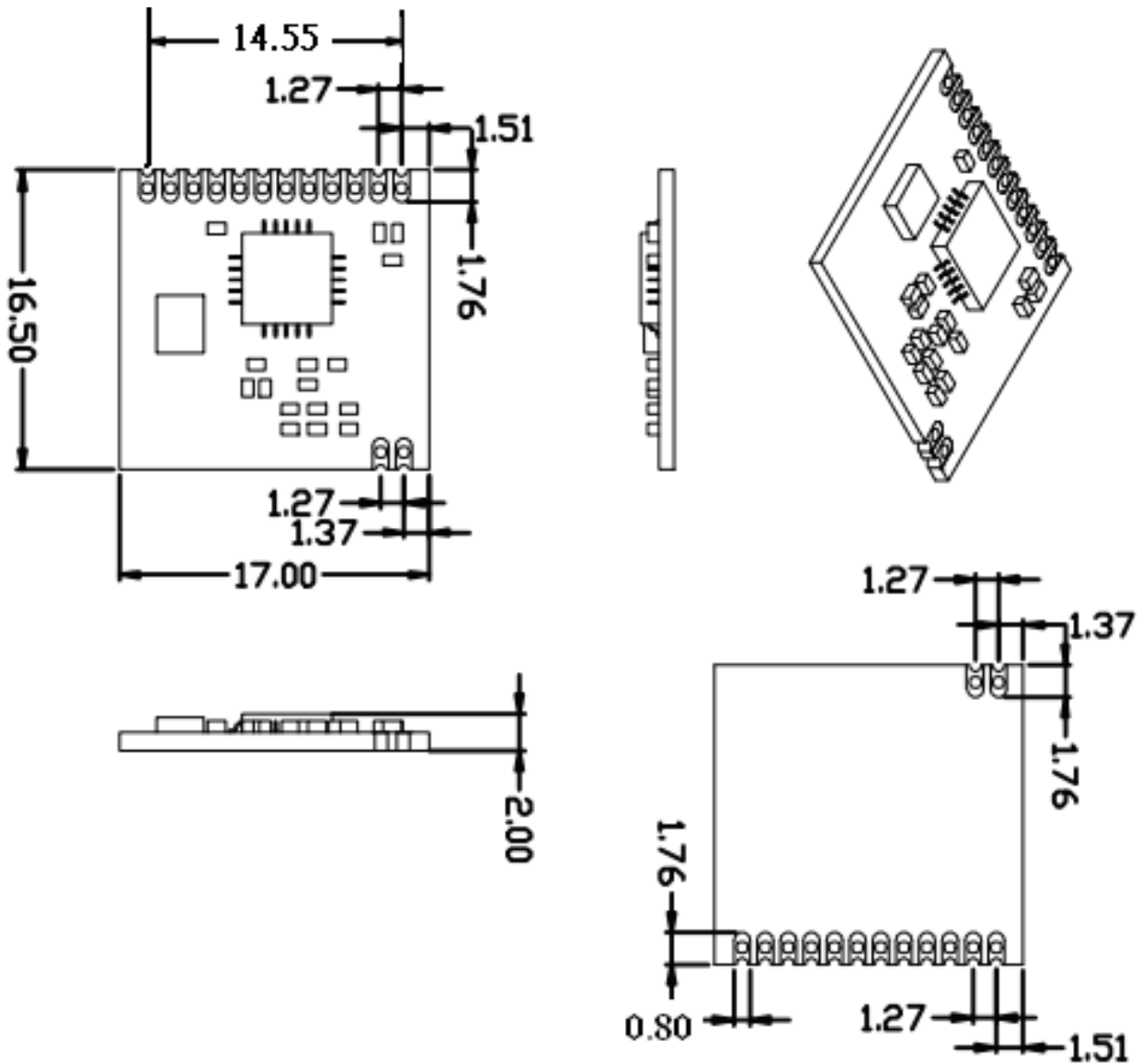


6. Pinout



Pin Number	Pin Definitions	Description
1	GND	Connected to power ground
2	GPIO0	General-purpose digital I / O can be configured to perform a variety of functions, including: microcontroller clock output FIFO state, power-on reset, wake-up timer, low battery voltage detection TRSW AntDiversity control ,I GPIO configuration through registersregisters, address 0BH 0CH and 0DH
3	GPIO1	
4	GPIO2	
5	VCC	Positive power supply3.3V
6	SDO	0~VDD Vdigital output, providing serial readback function of the internal control registers
7	SDI	Serial data input. 0 ~ VDD V digital input. The pin 4-wire serial data stream of serial data bus
8	SCLK	Serial clock input. 0 ~ VDD V digital input. This pin provides a 4-wire serial data clock function
9	nSEL	The serial interface input pin. 0 ~ VDD V digital input. This pin to 4-wire serial data bus select / enable function, this signal is also used, said the burst read / write mode.
10	nIRQ	Interrupt output pin
11	SDN	Close the input pin. 0 ~ VDD V digital input. In addition to all modes of shutdown mode SDN = 0. When SDN = 1 Shi chip will be completely closed and the register contents will be lost.
12	GND	Connected to power ground
13	ANT	From 50 ohm coaxial antenna
14	GND	Connected to power ground

7. Mechanical dimensions



8. Products Ordering Information

RF4431-T-433-3225

Module Model

Module package

Frequency

Crystal Package Type

For example:

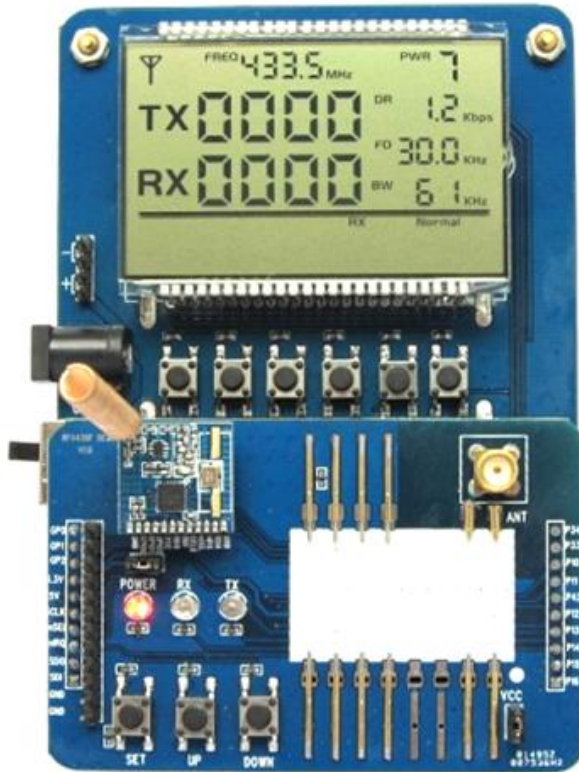
- If the customer needs the patch module small crystal 433MHZ band module that order Model: RF4431-T-433-3225
- If a customer needs a plug-in module crystal 433MHZ module that order model for the: RF4431-C-433-3225

RF4431 products following models:

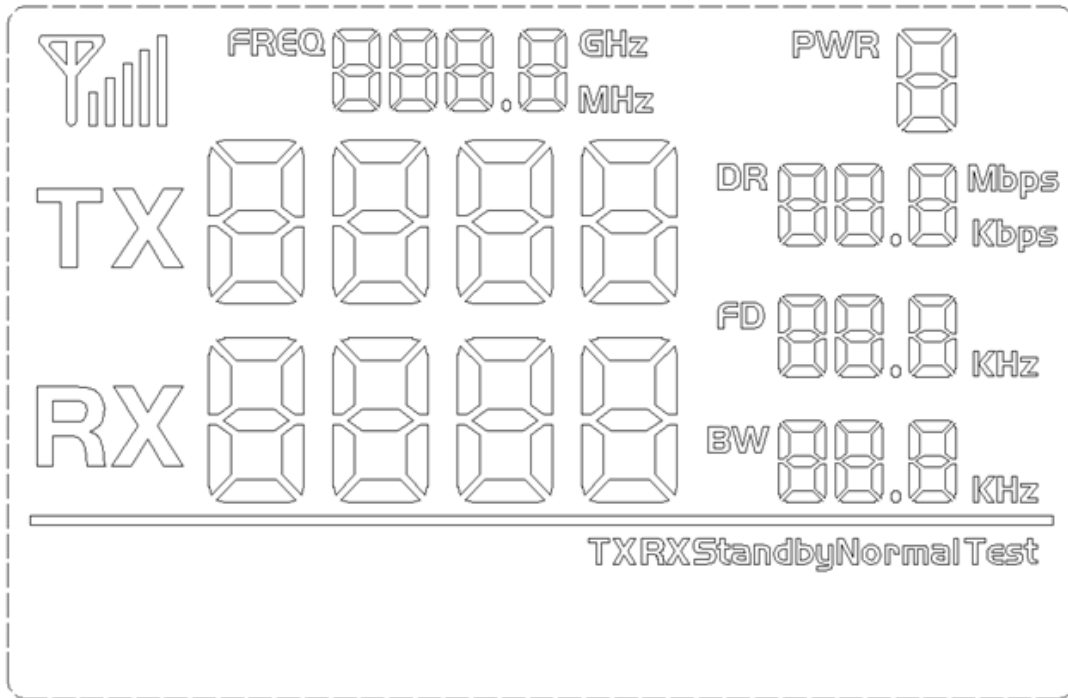
Orders Model	Product Type
RF4431-T-433-3225	433MHZ, SMD module crystal pack
RF4431-T-433-49S	433MHZ, SMD module crystal pack
RF4431-T-470-3225	470MHZ, SMD module crystal pack
RF4431-T-470-49S	470MHZ, SMD module crystal pack
RF4431-T-868-3325	868MHZ, SMD module crystal pack
RF4431-T-868-49S	868MHZ, SMD module crystal pack
RF4431-T-915-3325	915MHZ, SMD module crystal pack
RF4431-T-915-49S	915MHZ, SMD module crystal pack
RF4431-C-433-3225	433MHZ, Pin module crystal pack
RF4431-C-433-49S	433MHZ, Pin module crystal pack
RF4431-C-470-3225	470MHZ, Pin module crystal pack
RF4431-C-470-49S	470MHZ, Pin module crystal pack
RF4431-C-868-3225	868MHZ, Pin module crystal pack
RF4431-C-868-49S	868MHZ, Pin module crystal pack
RF4431-C-915-3225	915MHZ, Pin module crystal pack
RF4431-C-915-49S	915MHZ, Pin module crystal pack

Appendix:

Module equipped with standard DEMO demo program, debugging, for customers to test distance. As shown in the following illustration:



The board of DEMO LCD display interface as shown below:



Users can set the button transceiver frequency, transmitter power, wireless transmission module, serial number rate of transmission rate, the serial data bits, stop bits, parity bit parameters.

➤ Work mode:

- 1) Transmitting mode: Send data packets period (In setup mode, not to send data packets);
- 2) Reception mode: Enter the receiving mode after power up. Receive data packets and send to the serial ports.
- 3) Regular transmitting mode: the modules continuously transmit;
- 4) Regular receive mode: module is often receive state (not forwarding data);
- 5) Sleep mode: data transmission module in the standby state.

➤ Button operation

1) SET Button

Press enter setup mode, such as the setting of the last one parameter, then press jump set mode.

2) UP /Down Button

In setup mode, changes corresponding to the set parameters by these bottoms

3) Read Button

Read parameters of module, and updated on the LCD display.

4) Write Button

The button will be the current display interface parameters of write current connection module.

5) Default Button

Button factory default configuration parameters written to the current connection module.

Note: The data transmission module with FLASH, power-down all the parameters set can be saved automatically read the relevant parameters of the plug inside the module after power-on.