# T1 wireless transmit module

## 1. Overview

T1 is a small-size, high-power ASK/OOK transmitting module with independent intellectual property rights. The module adopts high performance RF integrated chip, built-in harmonic suppression circuit, with ultra-small size, low power consumption, wide voltage range, high stability, high performance price ratio and other characteristics. Can pass FCC, CE certification, suitable for button battery power supply.

## 2. Characteristics

● Wide voltage 2-12V (typical 3V)

● Low power consumption 18mA@3V

● High power +15dBm@3 V

● Built-in harmonic suppression circuit

● Wide working temperature range, suitable for harsh working environment

● Super small size (10.5*6.5*2.0mm)

## 3. Parameter indicators

● Operating frequency: 315MHz/433.92MHz is optional

● Working voltage: 2-12V

● Working current: 18mA (3V power supply,40% modulation duty cycle)

● Modulation method: ASK/OOK

● Output power: 15dBm(3V), 16dBm(5V), 18dBm(12V)

● Harmonic suppression :>40dBc

● Transmission rate: 0.1 ~ 9.6kbps

● Frequency deviation: ±0.1MHz

● Antenna impedance: 50Ω

● Data input: 3V level (2.2-3.6V)

● Overall size: 10.5×6.5×2.0mm [width × length × thickness]

● Operating temperature: -40 to +85°C

| 型号Type | 2.4V | 3V | 5V | 7V | 9V | 11V | 12V | 推荐值 Recommended value |
|---|---|---|---|---|---|---|---|---|
| T1 | 10dBm | 15dBm | 16dBm | 16dBm | 16.5dBm | 17dBm | 18dBm | 3V |
| T2 | | | 16dBm | 18dBm | 22dBm | 25dBm | 26dBm | 12V |
| T2L | 17dBm | 22dBm | 26dBm | | | | | 3V |
| T3 | | | | 28dBm | 31dBm | 31.5dBm | | 9V |

Power comparison table

T系列发射模块功率对照表

## 4. Matters needing attention

1. The data terminal of DAT is 3V level, so the DAT terminal should be directly connected to the IC output, do not pull up or down, do not capacitive.

2. Some coded IC(MCU) output 3.6-12V logic level, please connect a 22K (3.6-5V) resistor between DAT and coded IC output, or 51K resistance (5-12V) to protect the DAT end.

3. Stable power supply is very important, please do a good job of filtering, as far as possible away from large inductors, DC-DC recommended low frequency.

## 5. Installation method

Patch installation is recommended. The module has a large welding hole design, which can be welded to the bottom plate or directly filled with tin. The module is suitable for wave soldering and reflow welding.

## 6. Pin description

1. DAT data input

2. The VCC power supply

3. The GND grounded

4. ANT antenna

## 7.1 Remote control special coding chip FB1527 introduction

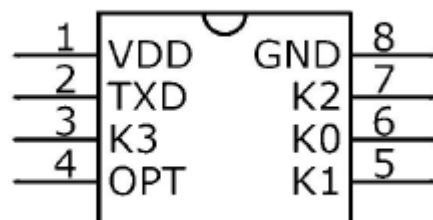Low power consumption: static current < 0.7uA @ 3V

Low repeat: millions of group address code

Many keys: maximum of 15 buttons

Wide voltage: 2.0 V to 5.5 V

High flexible: minimum pulse width can be chosen

Encapsulation: SOP – 8



**1** – VDD: Power supply positive pole (2.0-5.5V)

**2** - TXD: data output, connected to the DAT pin of T1/T2L/T4A

(When the power supply of FB1527 is higher than 3.5V, the TXD and transmitter modules shall be connected with 22K resistance in series)

**3** - K3 key pin: active high level

**4** – OPT: pulse width time selector pin (CLK=75us for ground, CLK=100us for suspended or high level

**5** - K1: key pin, active high level

**6** - K0: key pin, active high level

**7** - K2: key pin, active high level

**8** – GND: Negative power terminal

## 7.2 Remote control special decoding chip "FJ1527" introduction

● Automatic recognition and learning of FB1527, 2262, 2240 and other common coding methods.

Wide range decoding, automatically adapt to the conventional pulse width.

● SOP-8 package, almost no peripheral components.

● One-key emergency shutdown function.

● Can learn 80 remote control, power off can save information.

● Decode corresponding D0-D3 four-way output.

● Optional serial port mode output, fixed baud rate 9600bps.



FJ1527
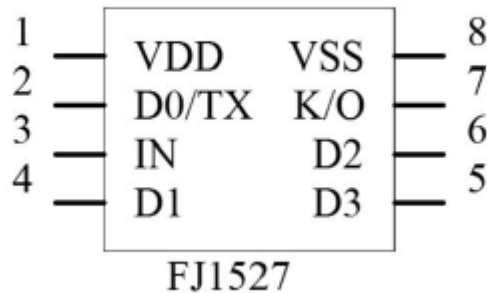
**K/O**: Connect to the code button, double click into the code mode (This pin is the port time-sharing multiplexing, pull up LED, connect down
Button, please refer to Note 1)

**D0~D3**: 4-channel switch output, D0 is the serial port output in mode 5 (M5/M5N mode)

**IN**: DATA input, connected to "T series" receiving module or data pin of LR680/670 chip

**VDD**: power supply +, 2.6V-5.5V (typical 3.0V)

**VSS**: power –

## Model selection of FJ1527:

**M1** - Flip mode, with matching code function: 4 channel switching quantity output, the transmitter press the output high/low level, then press again to flip

**M3** - Spotting mode, with the function of matching code: 4 channel switching quantity output, the transmitter holds the output high level, release the low level

**M4** - Interlock mode, with code matching function: four switch output, each time only one high, the other low

**M5** - serial port mode, with code function: 9.6kbps serial port output corresponding three-byte decoding, ASC2 code plaintext output,

For example, LC: 1234569C\r\n, the valid three bytes are 0X12,0X34, and 0X56

LC: Fixed frame header, 0x9C is a three-byte sum check, \r\n is an escaped newline character, you can view this string through the serial assistant.

**M5N** - Serial interface mode: no need to code version, the function is the same as M5

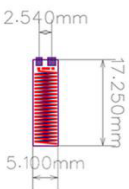## 8. Mechanical dimensions (Unit: mm)
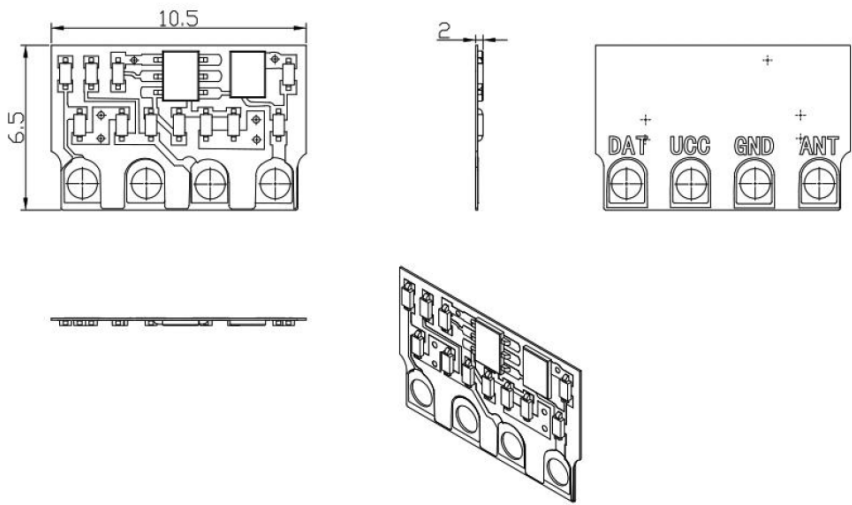


## 9. About the antenna

Antenna is very important, no antenna or improper antenna will seriously affect the effect, the module usually uses three kinds of antenna:

Type 1: Tie rod antenna or single/multi-strand wire, 315MHz corresponds to 230mm long, 433.92MHz corresponds to 170mm
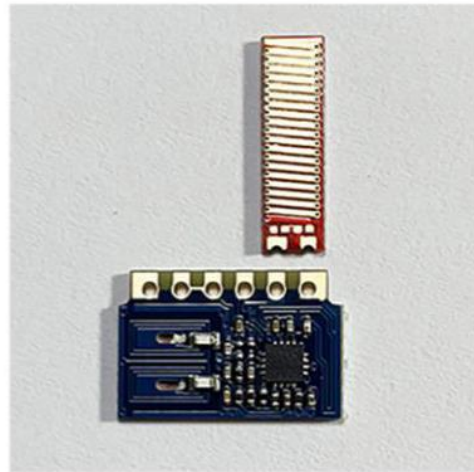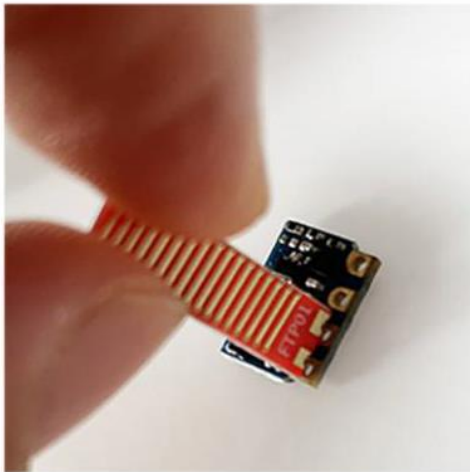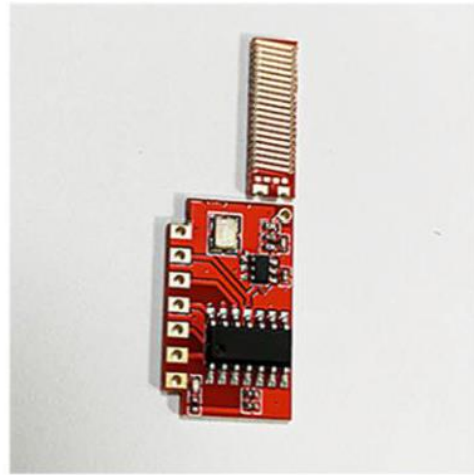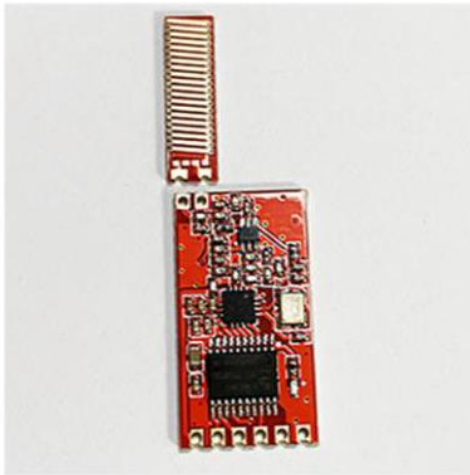
Diameter of 0.5mm to 5mm, when using this antenna should pay attention to the antenna as far as possible and away from the metal body, antenna effect is good.

Type 2: PCB antenna, easy to FCC certification, good consistency, but need special design, the company provides design services.

Type 3: patch antenna, the distance to far penetration is better, the following antenna can be used:

| 型号 Model | 图片 Picture | 频率 Frequency | 增益 Yield value | 尺寸 Dimension |
|---|---|---|---|---|
| FTP13/14 | | 433Mhz | 3.0dBi | 2.540mm 17.250mm 5.100mm |

| FTP14P | | 433Mhz | 4.0dBi | |
|---|---|---|---|---|
| |  | | |  |



**Note:**

1. Connect A and G to the ANT and GND of the wireless module

2. You can also directly ANT and decide according to the actual effect

3. Do not wire or apply copper to the bottom of the antenna

4. The antenna can be mounted and installed upright