

## **Technical Description**

**The brief circuit description is listed as below:**

- 1) U1 acts as a Voltage Regulator (TX6201).**
- 2) U2 acts as a 2.4GHz module (TNT24-RC1).**
- 2) Y1 acts as a Crystal for U2.**

**Antenna Type: Internal antenna**

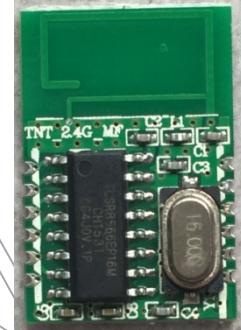
**Antenna Gain: 0dBi**

**Nominal rated field strength: 71 dB $\mu$ V/m at 3m**

**Maximum allowed field strength of production tolerance: +/- 3dB**

## DESCRIPTION

The TNT24-RC1 module is a low cost, high performance 2.4GHz Remote Controlled module. The TNT24-RC1 module designed for the worldwide ISM band at 2400-2483.5 MHz. The TNT24-RC1 have ultra-low receiver sensitivity lower to -98dBm @250Kbps, the highest modulation rates up to 2Mbps. TNT24-RC1 have 6 functions for RC car. The TNT24-RC1 can be widely applied in various wireless connections. It compliant with the specifications regulated and required by FCC and CE.



## FEATURES

- Operating frequency 2400-2483 MHz ISM band
- GFSK modulation
- High sensitivity (-89dBm @2Mbps; -98dBm @250kbps)
- Frequency hopping
- Low sleep current
- Easy to use

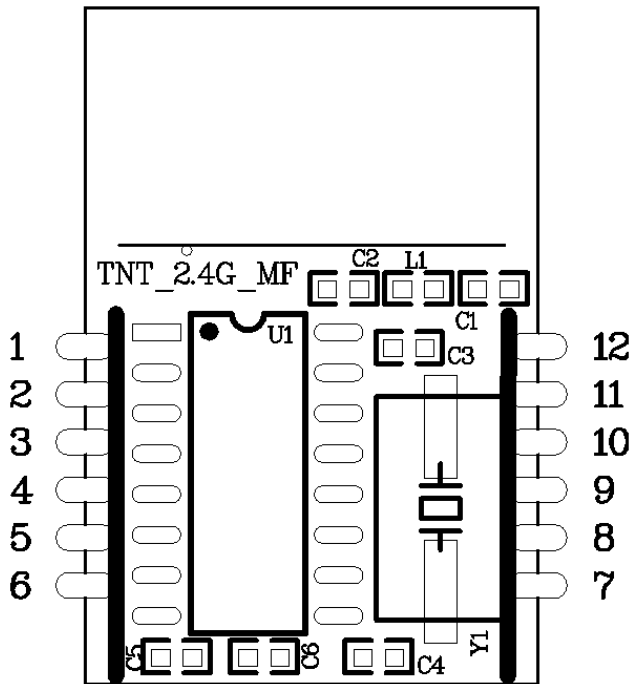
## APPLICATIONS

- Wireless Toy and Gaming

## TECHNICAL SPECIFICATIONS

Electrical Characteristics		Min	Typ	Max	Unit
Supply Voltage		2.0	3.3	3.6	V
Current Consumption					
Sleep Current			1	5	uA
RX MODE		24	30	36	mA
TX MODE (duty cycle 100%)		22	28	34	mA
Transmitting RF Parameters					
Frequency Range	ISM Band	2.4	N/A	2.5	GHz
Modulation			GFSK		
Output Power	Maximum Power Setting	-1	1	3	dBm
Data Rate		250k		2M	Hz
Frequency Deviation			500		KHz
Receiving RF Parameters					
Receiving Sensitivity @BER=0.1%	Data rate 250Kb/s	-99	-98	-96	dBm
	Data rate 2Mb/s	-91	-89	-88	dBm
IF Center Frequency			2		M Hz
Other Parameter					
Crystal Frequency	16MHz		+/- 20		ppm

**TOP SILKSCREEN**



**PIN DESCRIPTION**

TX PIN

PIN	PIN NAME	PIN TYPE	DESCRIPTION
1	F	I	Forward function selected by active low
2	B	I	Backward function selected by active low
3	L	I	Left function selected by active low
4	R	I	Right function selected by active low
5	Pairing	I	Pairing function
6	VDD	PWR	Positive Power supply
7	F1	I	F1 function selected by active low
8	F2	I	F2 function selected by active low
9	VPP	PWR	power supply for OTP program
10	LED	O	LED for indicate Power on or pairing status.
11	GND	PWR	Ground
12	GND	PWR	Ground

PS. (F: Forward; B: Backward; L: Left ; R: Right; ANT: Antenna; I: Input; O:Output)

RX PIN

PIN	PIN NAME	PIN TYPE	DESCRIPTION
1	F	O	Decoder Forward output
2	B	O	Decoder Backward output
3	L	O	Decoder Left output
4	R	O	Decoder Right output
5	N/A		
6	VDD	PWR	Positive power supply
7	F1	O	Decoder F1 output
8	F2	O	Decoder F2 output
9	VPP	PWR	OTP power supply
10	N/A		
11	GND	PWR	Ground
12	GND	PWR	Ground

PS. (F: Forward; B: Backward; L: Left ; R: Right; ANT: Antenna; I: Input; O:Output)

## FUNCTION DESCRIPTION

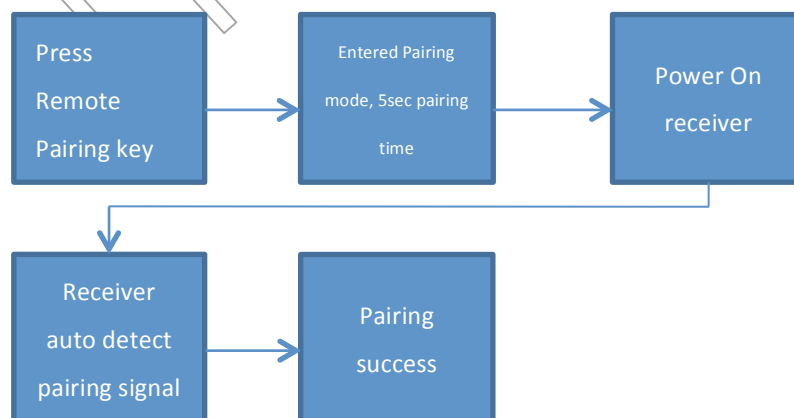
PIN	Tx (Encoder)	Rx(Decoder)	Remark
1	F2 = 1 (default)	F2=0	
	F2 = 0	F2=1	
2	F1 = 1(default)	F1=0	
	F2=0	F1=1	
3	F = 1 (default)	F=0	
	F = 0	F=1	
4	B = 1 (default)	B=0	
	B = 0	B=1	
5	L = 1 (default)	L=0	
	L = 0	L=1	
6	R = 1 (default)	R=0	
	R = 0	R=1	

(0 = logic Low; 1 = logic high)

PS. Forward and Backward selected at same time, decoder decode as Forward, and Left and Right selected at same time, decoder decode as Left

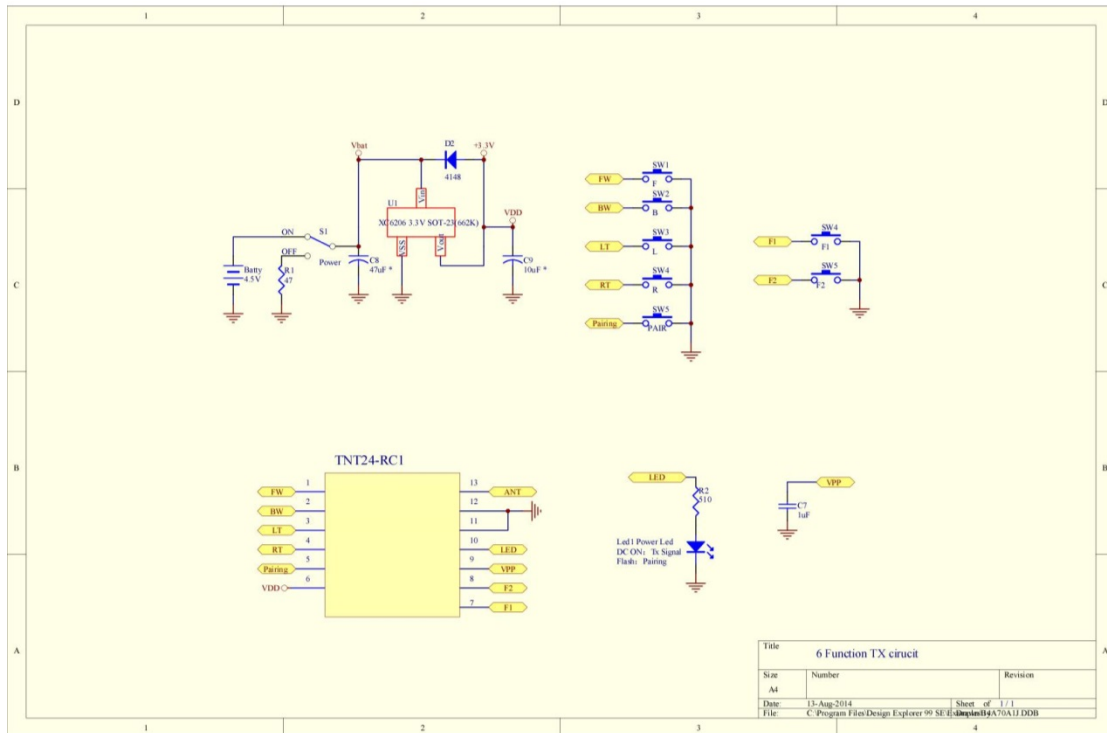
## PAIRING METHOD

Power on pairing

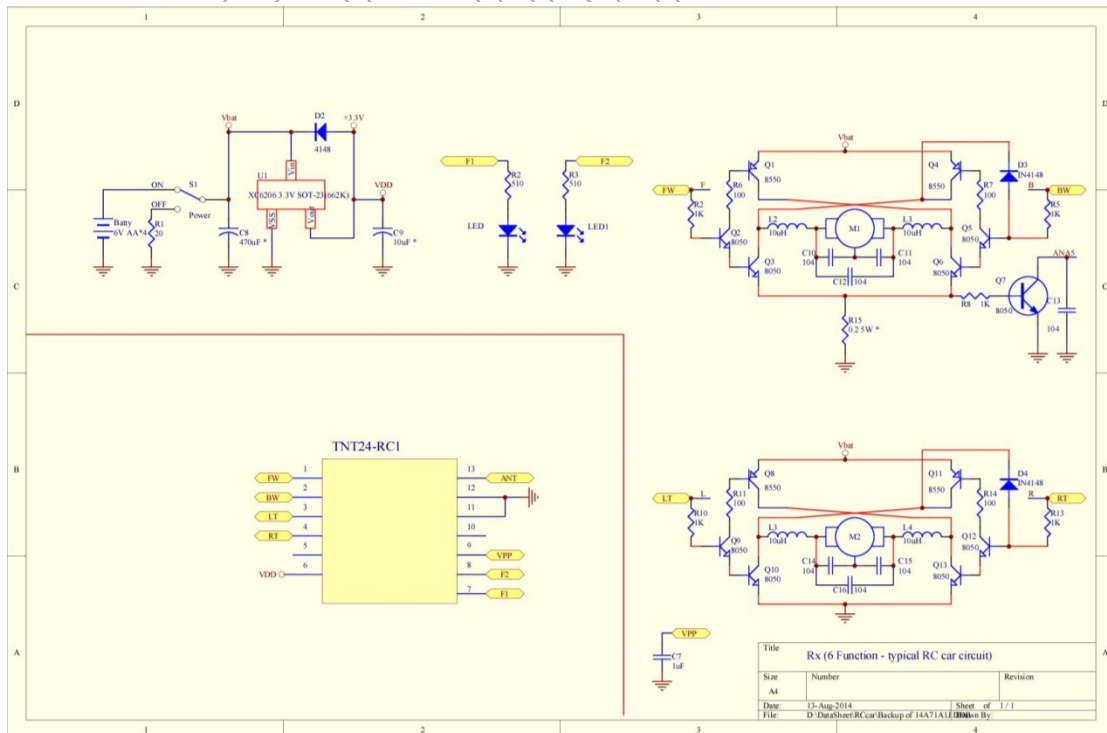


**TYPICAL APPLICATION CIRCUIT**

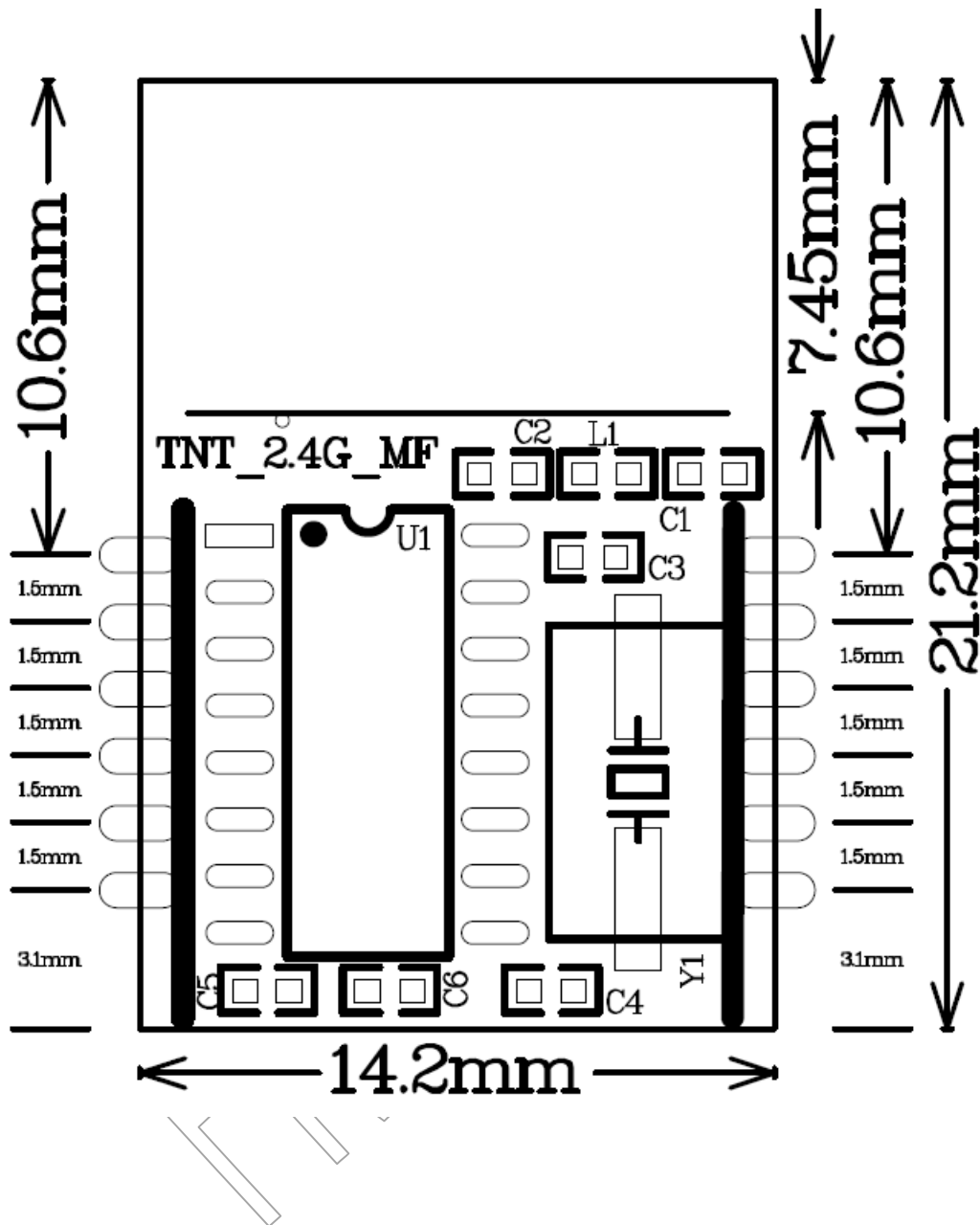
Remote (6 Function typical circuit)



Receiver (6 Function typical circuit)



**PIN DIMENSION**





## VERSION HISTORY

DATE	VERSION	DESCRIPTION
2013/12/1	V0	Perliminary version release
2014/05/12	V1	Update the PIN NAME

## CONTACT INFORMATION

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