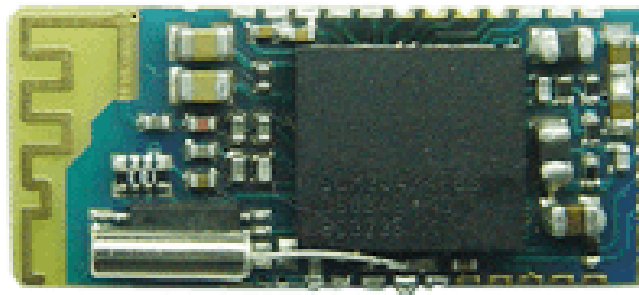


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Bluetooth Human Input Device Module (Class 2 Output Power)

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#### Version History

Version	Date	Changes
V1.01	Jun. 22, 2007	1 <sup>st</sup> . Edition
V1.02	Aug.20,2007	2 <sup>nd</sup> . Edition

WENSHING Bluetooth Module TRW-24BUL is a Bluetooth module using Broadcom BCM2042 Bluetooth controller. This module is ideal for applications in wireless mouse, keyboard, joystick and gamepad. Build-in firmware adheres to Bluetooth HID profile. This module is integrated with PCB antenna, crystal, EEPROM and switching regulators to reduce the external BOM cost. It has been designed to provide ultra low power, low cost and robust communications and fully compliant with Bluetooth radio specification V 2.0.

### **Application**

- Wireless mouse, trackball, pointing device.
- Wireless keyboard, keypad.
- RF Remote controller.
- RF Remote sensor for medical use or security.
- Wireless presenter.
- Wireless gamepad, joystick.
- POS (point of sale) input device.

### **Feature**

- Bluetooth V2.0 specification compliant.
- Bluetooth HID profile V1.0 compliant.
- Provide 3.0V and 1.8V DC output power.
- Conform to Bluetooth Class 2 output power .
- Ultra low power design.(ex: wireless optical mouse: below 10mA in operation).
- Support AFH (Adaptive Frequency Hopping).
- Built-in switching regulator to reduce external BOM and provide high efficient power for external sensor.
- On module EEPROM and crystal and PCB Antenna..
- Excellent Receiver Sensitivity.
- Dimension: 25.6mm(L) x 11.7mm(W) x 4mm(H) with Crystal
- Dimension: 25.6mm(L) x 11.7mm(W) x 2.3mm(H) no Crystal
- Pad: 28
- Supports general HID interface.
- It can provide the custom-made firmware of HID application.

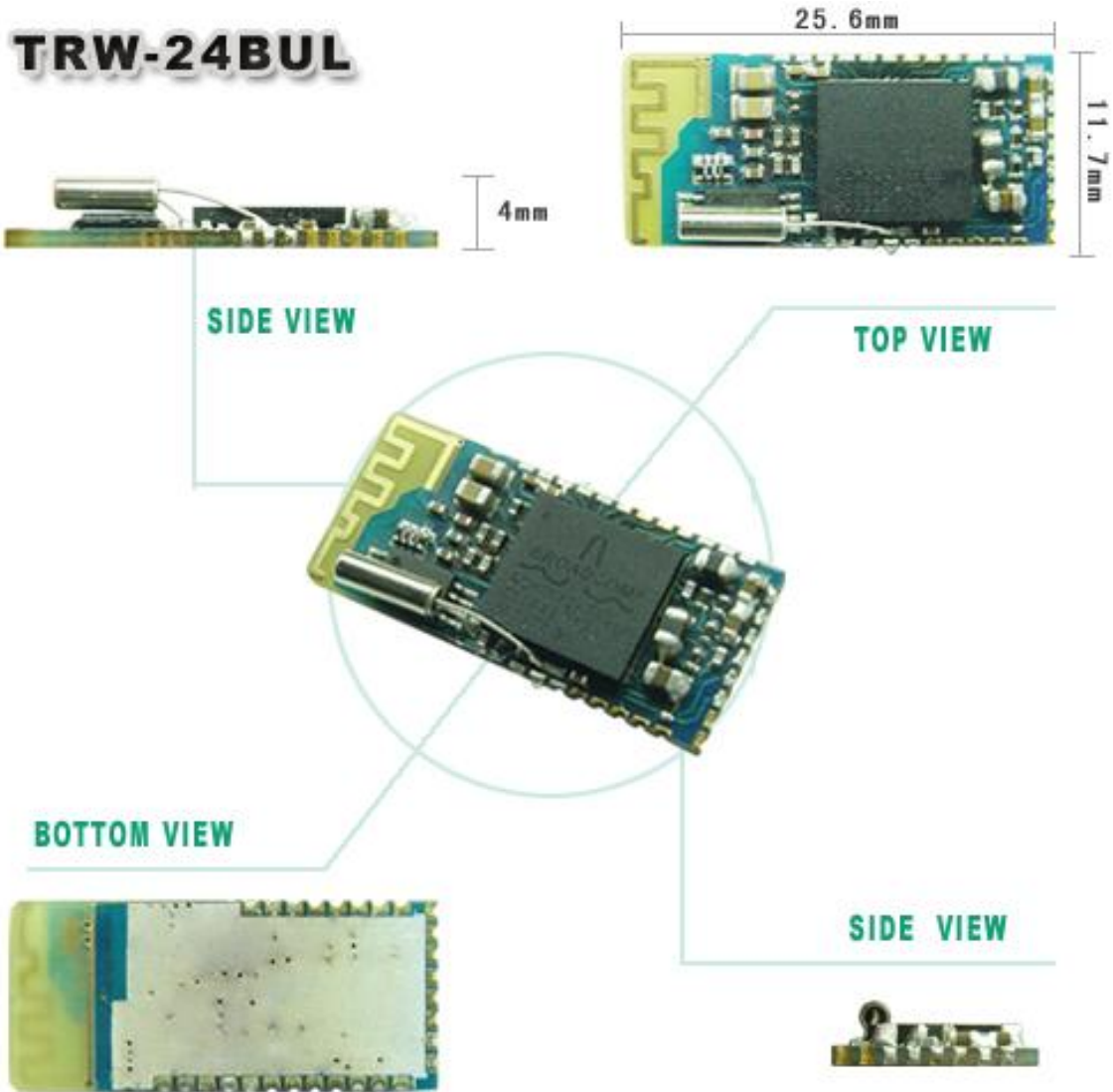
## Electrical Characteristic

Power Supply				
Parameter	Min	Type	Max	Unit
DC Supply Voltage for Core and RF	1.4	1.5	1.65	V
DC Supply Voltage for VDD_IO	1.62		3.6	V
DC Supply Voltage Output for 3V OUT	2.85	3	3.15	V
DC Supply Voltage Output for 1V8 OUT	1.7	1.8	1.9	V
DC Supply Battery Voltage	1.8		3.3	V
Digital Level				
Parameter	Min	Type	Max	Unit
Input low voltage. (3.3V I/O)	1.4	1.5	1.65	V
Input low voltage. (3.3V I/O)	1.62		3.6	V
Input low voltage. (3.3V I/O)	2.85	3	3.15	V
Input low voltage. (3.3V I/O)	1.7	1.8	1.9	V
Output low voltage			0.4	V
Output high voltage	VDD-0.4			
Input low current		15		uA
Input high current		15		uA
Output low current			2	mA
Output high current			2	mA

RF Spec				
Parameter	Min	Type	Max	Unit
Frequency Range	2402		2480	Mhz
TX output power	-2		4	dBm
Freq Deviation GFSK		150		Khz
Channel spacing		1		Mhz
RX sensitivity		-85	-80	dBm
RX max input		-10		dBm
Input impedance		50		Ohms
Input IP3		-10		dBm

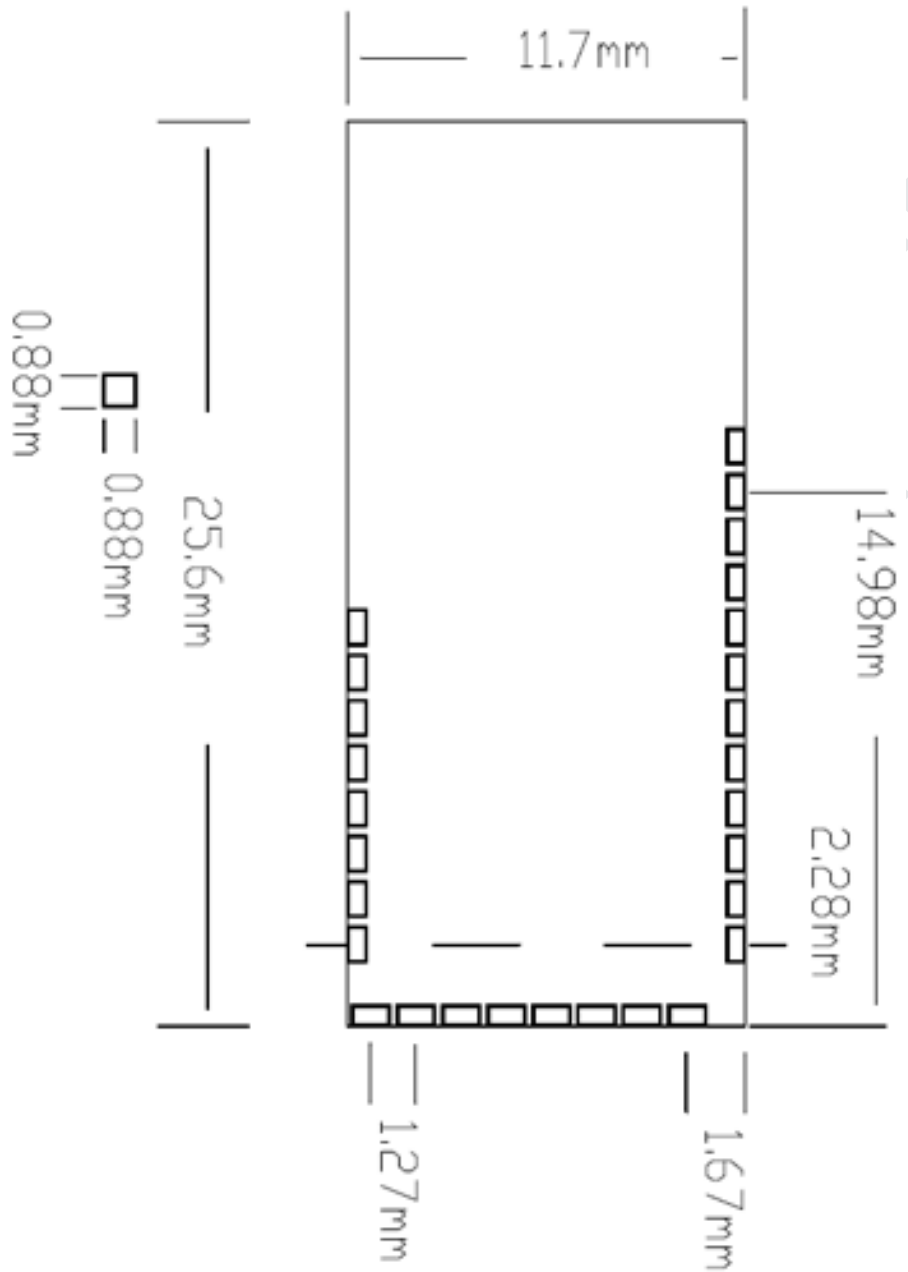
Typical Current Consumption				
Parameter	Min	Type	Max	Unit
Transmit 100% on		43		mA
Receive 100% on		38		mA
DM1 TX mode		28		mA
DM1 RX mode		25		mA
Sniff mode 10ms		2.35		mA
Sniff mode 10ms		0.39		mA
Sniff mode 10ms		0.24		mA
Sniff mode 10ms		0.018		mA
Sleep		50		uA
Deep Sleep		16		uA

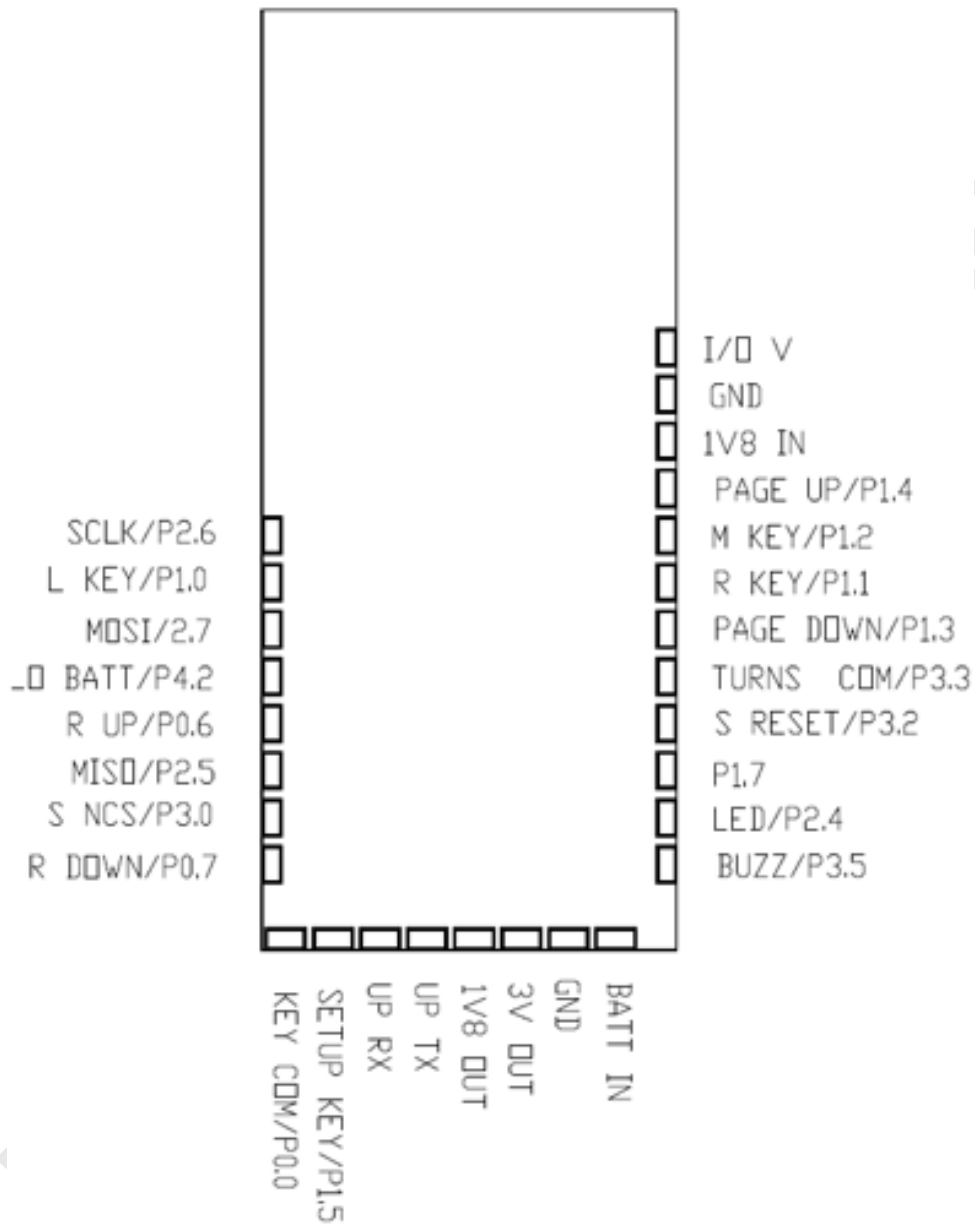
**View**



W  
DoN

## Size & Pin Assignment





Pin No.	Pin Name	Default Direction	Function
1	P2-6	Input	GPIO with A/D
2	P1_0	Input	GPIO with A/D
3	P2_7	Input	GPIO with A/D

4	P4_2	Input	GPIO with A/D (Battery detect)
5	P0_6	Input	GPIO with A/D
6	P2_5	Input	GPIO with A/D
7	P3_0	Output	GPIO
8	P0_7	Input	GPIO with A/D
9	P0_0	Input	GPIO with A/D
10	P1_5	Input	GPIO with A/D
11	UP RX	Input	Debug UART Receiver port. After Power On Reset, if UP_RX=1, firmware download mode. If UP_RX=0, normal mode
12	UP TX	Output	Debug UART Transmit port
13	1V8 OUT	Power	VDD : 1.8V DC/DC Buck output
14	3V OUT	Power	VDD : 3.0V DC/DC Boost Output
15	GND	Power	System GND
16	BATT IN	Power	V_Battery Input
17	P3_5	Input	GPIO with A/D (PWM)
18	P2_4	Input	GPIO with A/D
19	P1_7	Input	GPIO with A/D
20	P3_2	Input	GPIO with A/D (PWM)
21	P3_3	Input	GPIO with A/D (PWM)
22	P1_3	Input	GPIO with A/D
23	P1_1	Input	GPIO with A/D
24	P1_2	Input	GPIO with A/D
25	P1_4	Input	GPIO with A/D
26	1V8 IN	Power	1.8V Input
27	GND	Power	System GND
28	I/O V	Power	VDD for I/O port