Bluetooth Human Input Device Module (Class 2 Output Power)

Version History

Version	Date	Changes
V1.01	Jun. 21, 2007	1st. Edition
V1.02	Aug.20,2007	2nd. Edition
V1.03	Jun.19,2008	3rd. Edition

WENSHING Bluetooth Module TRW-24BUF 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 V 2.0 specification compliant.
- Bluetooth HID profile V1.0 compliant.
- 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.
- Provide 3.0V and 1.8V DC output power.
- On module EEPROM and crystal and PCB Antenna..
- Excellent Receiver Sensitivity.
- Dimension: 30.1mm(L) x 15mm(W) x 2.2mm(H)
- 47 Pad
- 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 3P0V_1	2.85	3	3.15	V
DC Supply Voltage Output for 1P8V_1	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

TRW-24BUF

2.2mm

SIDE VIEW

30.1mm

15.0mm

TOP VIEW

BOTTOM VIEW

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SIDE VIEW
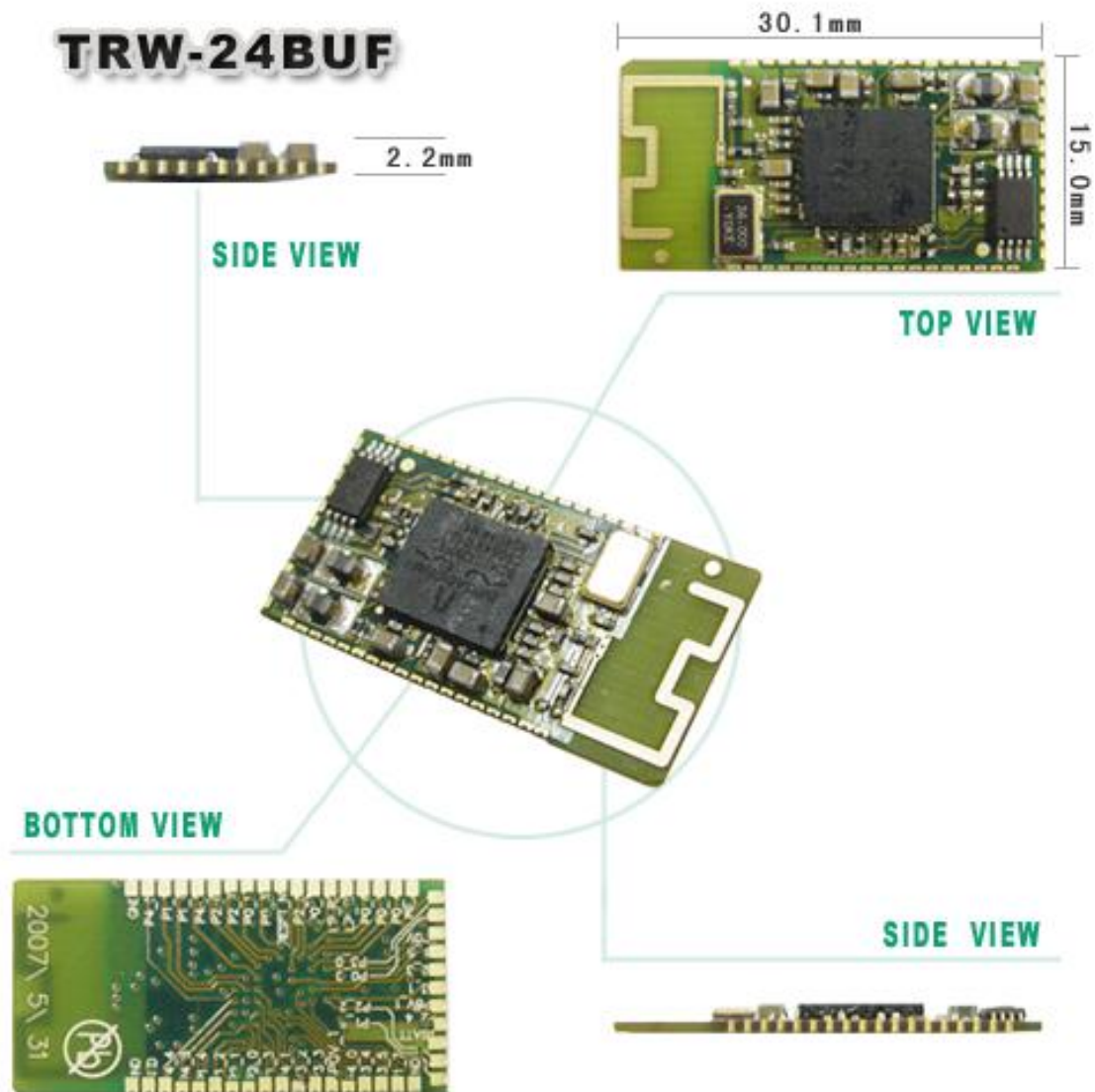
Size & Pin Assignment
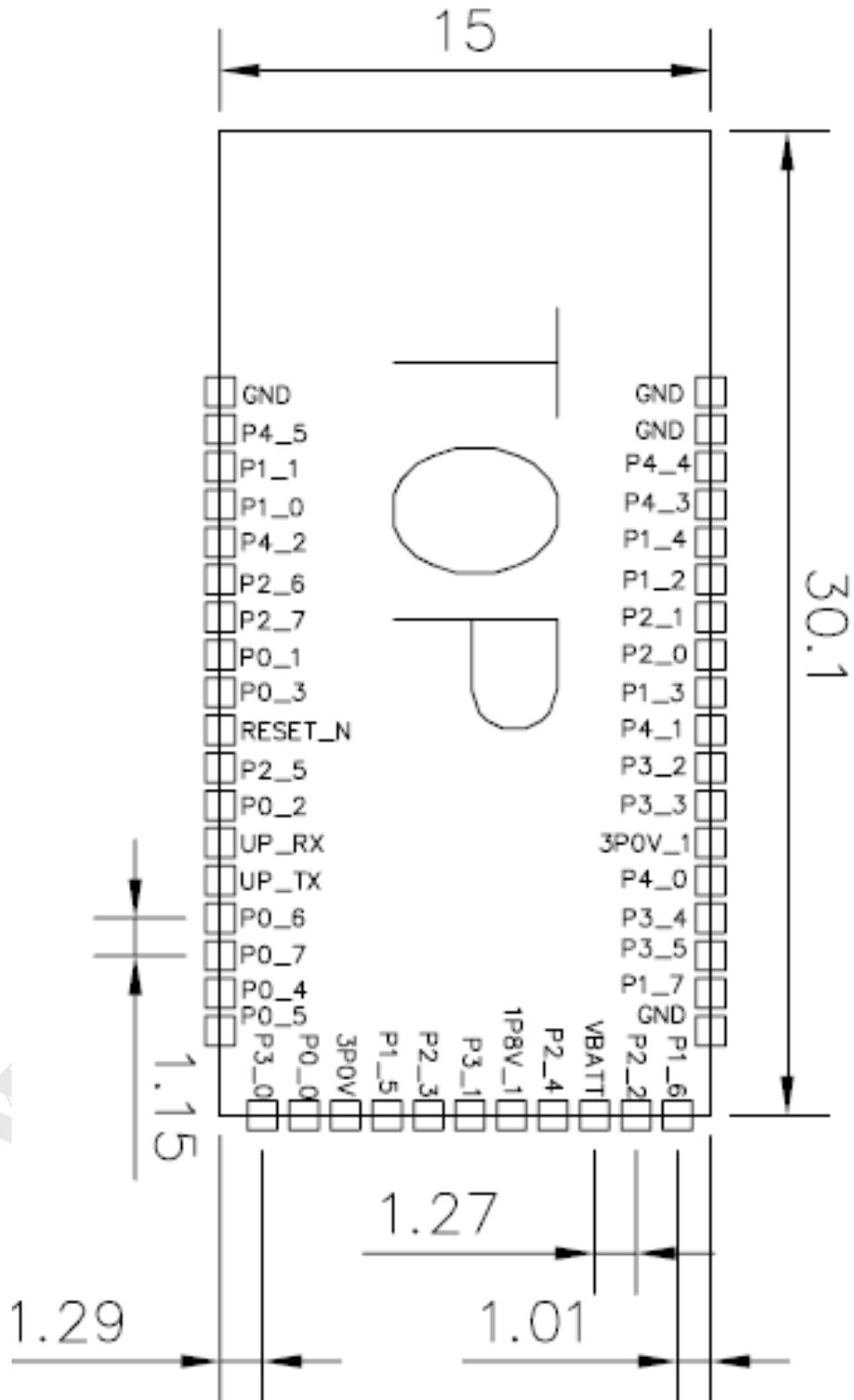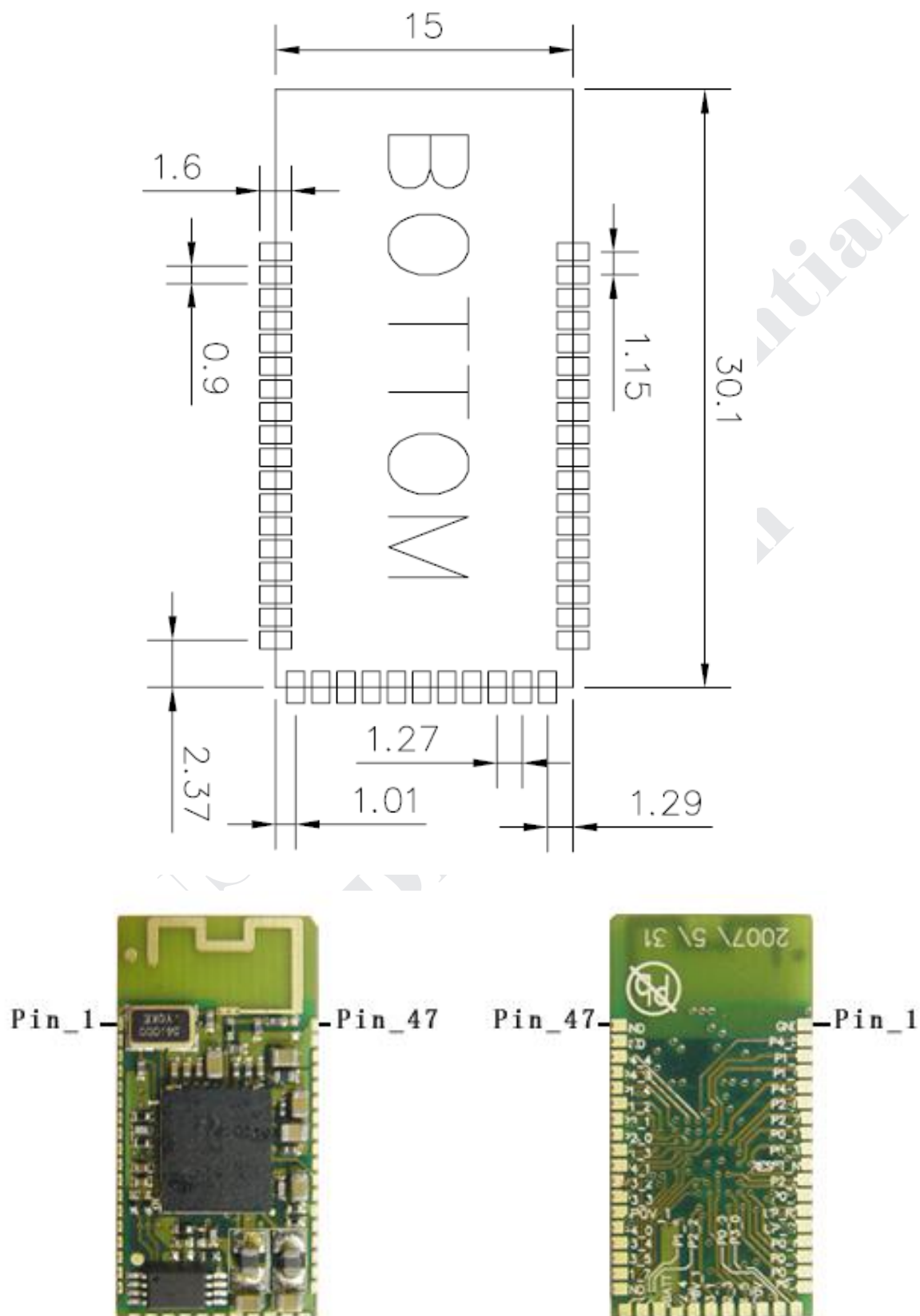
Pin No	Pin Name	Default Direction	Function
1	GND	Power	System GND
2	P4_5	Input	GPIO with A/D
3	P1_1	Input	GPIO with A/D
4	P1_0	Input	GPIO with A/D
5	P4_2	Input	GPIO with A/D (Battery detect)
6	P2_6	Input	GPIO with A/D
7	P2_7	Input	GPIO with A/D
8	P0_1	Input	GPIO with A/D
9	P0_3	Input	GPIO with A/D
10	RESET_N	Input	Active low system reset- with a weak pull up
11	P2_5	Input	GPIO with A/D
12	P0_2	Input	GPIO with A/D
13	UP_RX	Input	Debug UART Receiver port. After Power On Reset, if UP_RX=1, firmware download mode. If UP_RX=0, normal mode
14	UP_TX	Output	Debug UART Transmit port
15	P0_6	Input	GPIO with A/D
16	P0_7	Input	GPIO with A/D
17	P0_4	Input	GPIO with A/D
18	P0_5	Input	GPIO with A/D
19	P3_0	Output	GPIO
20	P0_0	Input	GPIO with A/D
21	VDD_IO	Power	VDD for I/O port
22	P1_5	Input	GPIO with A/D
23	P2_3	Input	GPIO with A/D

24	P3_1	Output	GPIO
25	1P8V_1	Power	VDD :1.8V DC/DC Buck output
26	P2_4	Input	GPIO with A/D
27	VBATT	Power	V_Battery Input
28	P2_2	Input	GPIO with A/D
29	P1_6	Input	GPIO with A/D
30	GND	Power	System GND
31	P1_7	Input	GPIO with A/D
32	P3_5	Input	GPIO with A/D (PWM)
33	P3_4	Input	GPIO with A/D (PWM)
34	P4_0	Output	GPIO with A/D (PWM)
35	3P0V_1	Power	VDD : 3.0V DC/DC Boost Output
36	P3_3	Input	GPIO with A/D (PWM)
37	P3_2	Input	GPIO with A/D (PWM)
38	P4_1	Input	GPIO with A/D
39	P1_3	Input	GPIO with A/D
40	P2_0	Input	GPIO with A/D
41	P2_1	Input	GPIO with A/D
42	P1_2	Input	GPIO with A/D
43	P1_4	Input	GPIO with A/D
44	P4_3	Input	GPIO with A/D
45	P4_4	Input	GPIO with A/D
46	GND	Power	System GND
47	GND	Power	System GND