Product Specification

XW704T

IEEE802.11BGN USB LGA Module

Version: 1.2

Date: Nov. 07, 2012

Release History

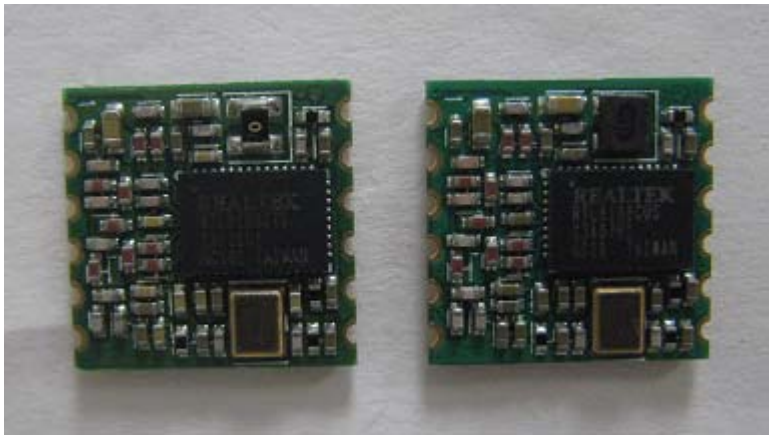
DATE	REV	Description of Change
2011/05/18	0.1	Preliminary release
2011/08/19	1.0	Formal release
2012/05/30	1.1	Add RTL8188CTV chip.
2012/11/07	1.2	Change module photo

XW704T

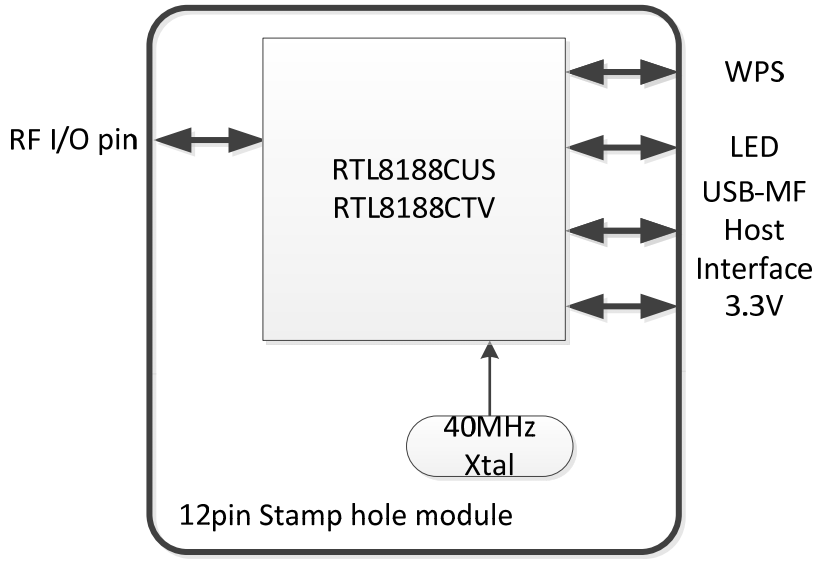
IEEE802.11BGN USB LGA Module

1 WLAN Features

- IEEE 802.11n OFDM
  - 1 transmit and 1 receive path (1T1R).
  - 20MHz and 40MHz bandwidth transmission.
  - Short Guard Interval (400ns).
- 1x1 MIMO technology for extended reception robustness and exceptional throughput
- Maximum PHY data rate up to 72.2Mbps using 20MHz bandwidth, 150Mbps using 40Mhz bandwidth
- Complies with USB specification revision 2.0
- IEEE802.11 b/g/n compatible WLAN
- IEE802.11e QoS enhancement (WMM)
- IEE802.11h TPC, spectrum measurement
- 802.11i (WPA, WPA2). Open, shared key, and pair-wise key authentication services
- Power saving mechanism
- Channel management and co-existence



2 Block Diagram



3 General Specifications

Model Name					
XW704T					
WLAN					
Product Specification					
WLAN Standard	IEEE 802.11b/g/n, 1T1R				
Host interface	USB				
Major Chipset	Realtek RTL8188CUS/ RTL8188CTV				
PID	8176	USB Product ID. Realtek defined.			
VID	0BDA	USB Vender ID. Realtek defined.			
Dimensions					
		Minimum	Typical	Maximum	Unit
	Length		13		mm
	Width		13		mm
	Height		TBD		mm
	Weight		TBD		g
Antenna Type	PCB antenna				
Operating Condition					
		Minimum	Typical	Maximum	Unit
Voltage	DC	3.0	3.3	3.6	V
Temperature		0		70	°C
Storage temperature		0		70	°C
Humidity Non-Operating		5		80	%
Electrical Specification					
Frequency Range	2400 – 2483.5MHz				
Modulation	BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, and CCK				
Output power					
		Minimum	Typical	Maximum	Unit
802.11b Mode	11MHz	13.5	15	16.5	dBm
802.11g Mode	54MHz	11.5	13	14.5	dBm
802.11n Mode	HT20-MCS7	10.5	12	13.5	dBm
802.11n Mode	HT40-MCS7	10.5	12	13.5	dBm

Receiver Sensitivity					
		Minimum	Typical	Maximum	Unit
802.11b Mode	11Mbps			-83	dBm
802.11g Mode	54Mbps			-70	dBm
802.11n Mode	HT20 MCS7			-67	dBm
802.11n Mode	HT40 MCS7			-64	dBm
Data Rate					
		Minimum	Typical	Maximum	Unit
802.11b CCK Mode		11, 5.5, 2, 1			Mbps
802.11g OFDM Mode		54, 48, 36, 24, 18, 12, 9, 6			Mbps
802.11n HT20 Mode	800ns GI	65, 58.5, 52, 39, 26, 19.5, 13, 6.5			Mbps
802.11n HT20 Mode	400ns GI	72.2, 65, 57.8, 43.3, 28.9, 21.7, 14.4, 7.2			Mbps
802.11n HT40 Mode	800ns GI	135, 121.5, 108, 81, 54, 40.5, 27, 13.5			Mbps
802.11n HT40 Mode	400ns GI	150, 135, 120, 90, 60, 45, 30, 15			Mbps
Security					
WEP, TKIP, and AES hardware encryption					

Absolute Maximum Rating		
■ Maximum I/O supply voltage	+3.6	V
■ Maximum WLAN RF input level (reference to 50Ohm)	0	dBm

4 Power Consumption

Test condition

OS：Windows XP

Channel 6：2437MHz

Standard：IEEE802.11b,g,n

Input voltage for whole circuit：3.3V

TX uses continuous mode

Test tool

MP_Kit_RTL11n_SingleChip_9xC_USB_v024_20110318_01

Test result：Continuous TX/RX

Mode	Standard	Current (mA)		Power (mWatt)	
		DUT：01	DUT：02	DUT：01	DUT：02
TX	1M	287	284	947.1	937.2
	11M	289	285	953.7	940.5
	6M	331	340	1092.3	1122
	54M	267	262	881.1	864.6
	HT20-MCS0	331	340	1092.3	1122
	HT20-MCS7	263	255	867.9	841.5
	HT40-MCS0	331	340	1092.3	1122
	HT40-MCS7	260	258	858	851.4
RX	1M	111	108	366.3	356.4
	11M	111	108	366.3	356.4
	6M	111	108	366.3	356.4
	54M	111	108	366.3	356.4
	HT20-MCS0	111	108	366.3	356.4
	HT20-MCS7	111	108	366.3	356.4
	HT40-MCS0	116	113	382.8	372.9
	HT40-MCS7	117	113	386.1	372.9

Test condition

OS：Windows XP

Channel 6：2437MHz

Standard：IEEE802.11b,g,n

Input voltage for whole circuit：3.3V

Throughput test mode

RF output connects with antenna

Test driver

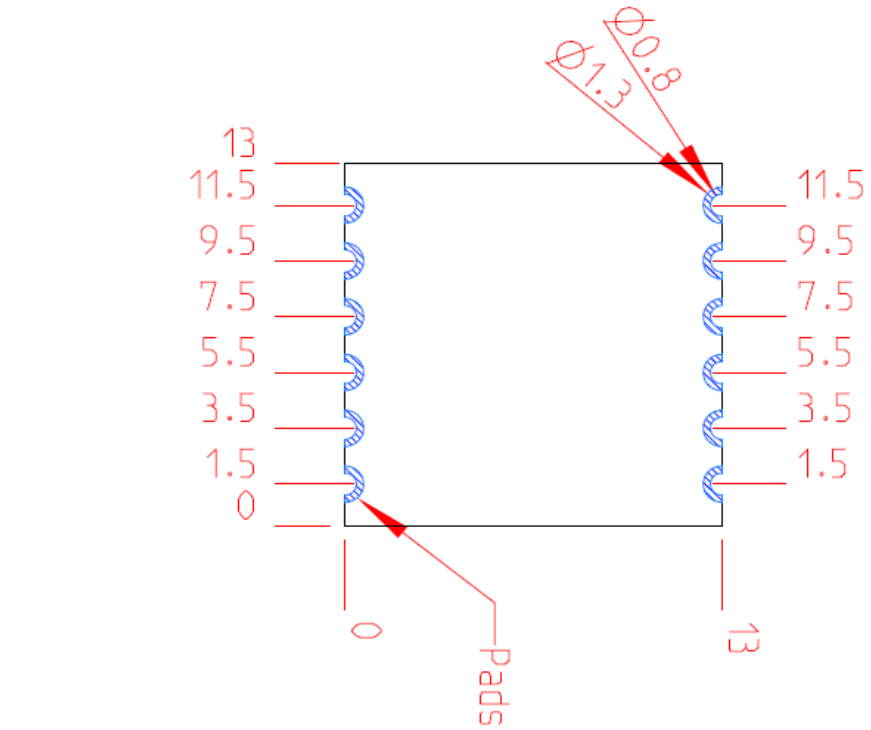
Realtek, 2011/7/12 1015.0.0712.2011

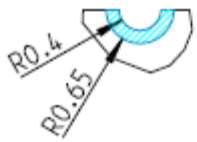
Test result：Throughput test

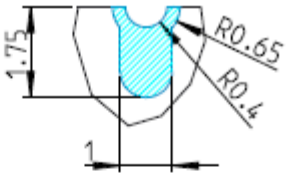
Mode	Standard	Current (mA)		Power (mWatt)	
		DUT：01	DUT：02	DUT：01	DUT：02
TX	11M	160	170	528	561
	54M	117	120	386.1	396
	HT20-MCS7	198	190	653.4	627
	HT40-MCS7	147	150	485.1	495
RX	11M	120	125	396	412.5
	54M	97	100	320.1	330
	HT20-MCS7	116	119	382.8	392.7
	HT40-MCS7	124	124	409.2	409.2
Idle	Associated with AP	97	100	320.1	330
	Unassociated with AP	110	109	363	359.7
Driver disable	Disable DUT on device Mgmt	0	0	0	0
Driver Uninstall	Remove the WLAN driver	23	23	75.9	75.9

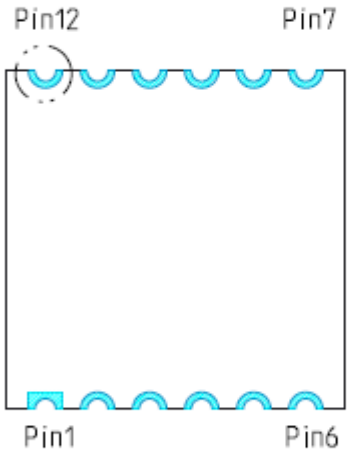
5 Mechanical Dimensions

Unit：mm

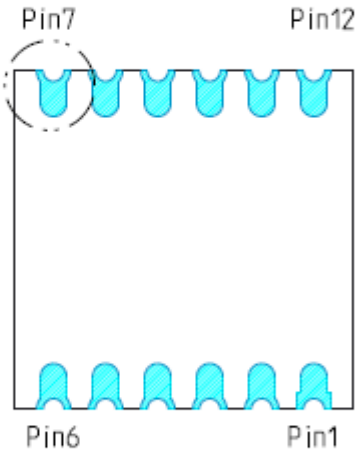








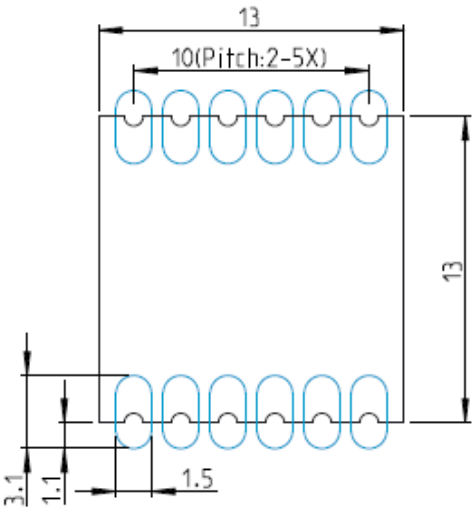
TOP VIEW



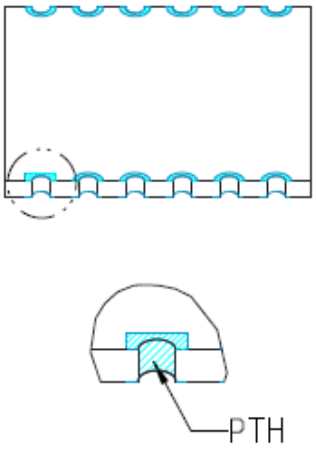
BOTTOM VIEW

6 Recommended Footprint

Unit：mm



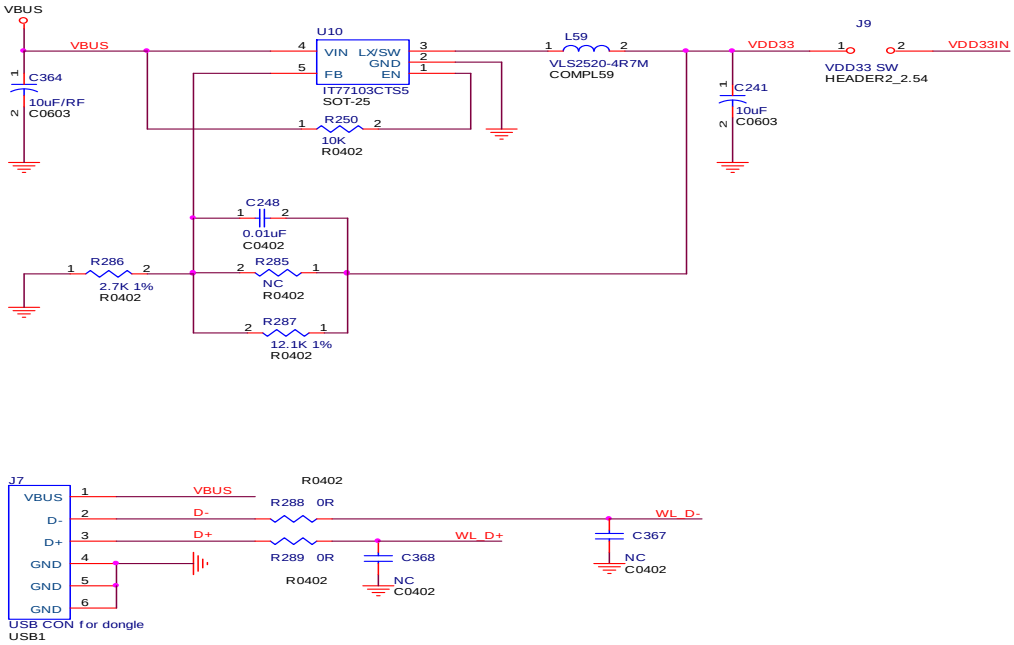
Recommended
Layout footprint



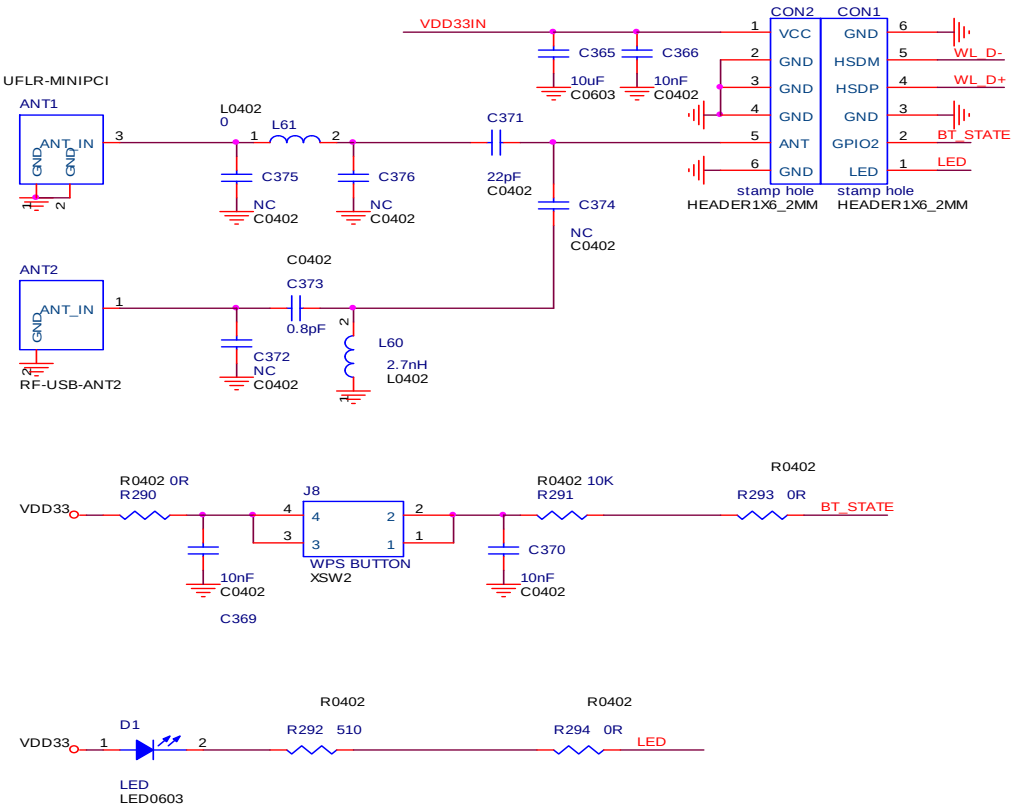
7 Connector Pin-out Definitions

Pin	Definition	Type	Description
1	3.3V	P	3.3V power supply.
2	GND	G	Ground
3	GND	G	Ground
4	GND	G	Ground
5	ANT	I/O	Transmit/Receive path
6	GND	G	Ground
7	LED	O	Low enable LED.
8	GPIO2	I	WPS button input.
9	GND	G	Ground
10	USB D+	I/O	USB D+ for WiFi's USB2.0
11	USB D-	I/O	USB D- for WiFi's USB2.0
12	GND	G	Ground
P：Power; G：Ground; I：Input; O：Output.			

8 Application Circuit



USB connector and power circuit



RF matching, LED and WPS circuit