USB Product Specifications

IEEE 802.11 a/ b/g/n 2.4 to 5.8GHz 2T2R WiFi Modul

RL-UM02SP(RTL8192DU)

Version: V1.0

Overview

General **CMOS MAC, Baseband PHY, and RF in a single chip for IEEE 802.11a/b/g/n compatible WLAN** **Complete 802.11n MIMO solution for 2.4GHz and 5GHz band** **2x2 MIMO technology for extended reception robustness and exceptional throughput** **Maximum PHY data rate up to 144.4 Mbps using 20MHz bandwidth, 300Mbps using 40MHz bandwidth** **Complies with 802.11n specification** **Backward compatible with 802.11a/b/g devices while operating at 802.11n data rates** **Host Interface** **Complies with USB 2.0** **Standards Supported** **IEEE 802.11a/b/g/n compatible WLAN** **IEEE 802.11e QoS Enhancement (WMM)** **IEEE 802.11i (WPA, WPA2). Open, shared key, and pair-wise key authentication services** **IEEE 802.11h TPC, Spectrum Measurement** **IEEE 802.11k Radio Resource Measurement** **WAPI (Wireless Authentication Privacy**	**MAC Features** **Frame aggregation for increased MAC efficiency (A-MSDU, A-MPDU)** **Low latency immediate High-Throughput Block Acknowledgement (HT-BA)** **Long NAV for media reservation with CF-End for NAV release** **PHY-level spoofing to enhance legacy compatibility** **MIMO power saving mechanism** **Channel management and co-existence** **Multiple BSSID feature allows the RTL8192DU-VC to assume multiple MAC identities when used as a wireless bridge** **Supports Wake-On-WLAN via Magic Packet and Wake-up frame** **Transmit Opportunity (TXOP) Short Inter-Frame Space (SIFS) bursting for higher multimedia bandwidth** **Dual MAC architecture allows dual band or dual network access, or operation as a station and an AP concurrently** **WiFi Direct supports wireless peer to peer applications** **Peripheral Interfaces** **General Purpose Input/Output (12 pins)** **Three configurable LED pins** **Configurable Bluetooth Coexistence Interface** **Maximum data rate 54Mbps in 802.11a/g and 300Mbps in 802.11n** **OFDM receive diversity with MRC using up**

Infrastructure) certified. **PHY Features** **IEEE 802.11n MIMO OFDM** **Two Transmit and Two Receive paths** **(2T2R)** **20MHz and 40MHz bandwidth transmission** **Supports 2.4GHz and 5GHz band channels** **Short Guard Interval (400ns)** **DSSS with DBPSK and DQPSK, CCK** **modulation with long and short preamble** **OFDM with BPSK, QPSK, 16QAM, and** **64QAM modulation.** **Convolutional Coding Rate: 1/2, 2/3, 3/4,and 5/6**	**to 2 receive paths. Switch diversity used for** **DSSS/CCK** **Hardware antenna diversity** **Selectable digital transmit and receiver FIR** **filters** **Programmable scaling in transmitter and** **receiver to trade quantization noise against** **increased probability of clipping** **Fast receiver Automatic Gain Control (AGC)** **On-chip ADC and DAC** **QFN76 9x9mm package**

General Specification

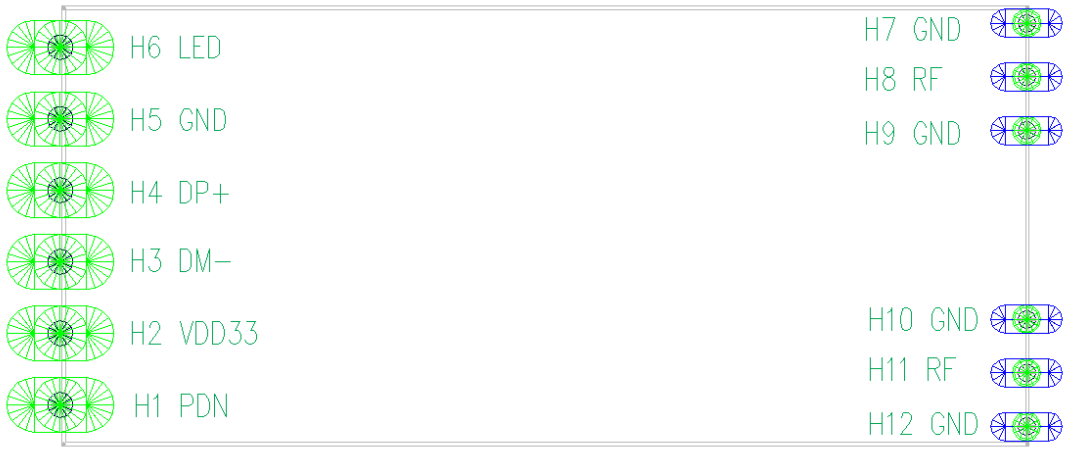
Model	RL-UM02SP V1.0
Product Name	WLAN 11a/b/g/n USB module
Major Chipset	Realtek RTL8192DU
Standard	IEEE802.11n current draft、IEEE 802.11g、IEEE 802.11b、IEEE 802.11a、IEEE 802.3、IEEE 802.3u、IEEE 802.3x
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60,90,120 and maximum of 300Mbps
Modulation Method	BPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/ 64-QAM)
Frequency Band	2.4/5.8GHz
Spread Spectrum	IEEE 802.11a: ISM(Industrial Scientific Medical) IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n:OFDM (Orthogonal Frequency Division Multiplexing)
RF Output Power	< 18dBm@11b,< 14dBm@11g ,< 13dBm@11n, < 12dBm@11a,
Operation Mode	Ad hoc, Infrastructure
Receiver Sensitivity	11Mbps -86dBm@8%,135Mbps -73dBm@10%,300Mbps -66dBm@10%
Operation Range	Up to 180 meters in open space
LED	
OS Support	Windows 2000,XP32-64,Vista 32/64,Win7 32/64,Linux,Mac, Android, WIN CE
Security	WEP, TKIP, AES, WPA, WPA2
Interface	USB 2.0
Power Consumption	DC3.3V Power consumption in the normal Internet is 130MA
Operating Temperature	-10 至 +70° C ambient temperature
Storage Temperature	-10 ~ 70°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	27 x 12.2 x 1.9mm (LxWxH) +-0.2MM

Mechanical

	Length	Width	Height
Dimensions (mm)	27 **(Tolerance:±0.2mm)**	12.2 **(Tolerance:±0.2mm)**	1.9 **(Tolerance:±0.2mm)**

MODULE PIN ASSIGNMENT

Pin	Function	Pin	Function
H1	PDN	**H7**	GND
H2	VDD33	**H8**	RF
H3	DM-	**H9**	GND
H4	DP+	**H10**	GND
H5	GND	**H11**	RF
H6	LED	**H12**	GND



DC Characteristics

Symbol	Parameter	Minimum	Typical	Maximum	Units
VD15A, VD15D	1.5V Supply Voltage	1.4	1.5	1.6	V
IDD33	3.3V Rating Current	-	-	500	mA

Power Consumption

Parameters	Sym	Conditions	Min	Typ	Max	Unit
V Supply Voltage	Vc3.3		3.1	3.3	3.5	V
1.5V Supply Voltage	Vc15		1.4	1.5	1.6	V
Receiving Tests the biggest receive						
3.3V Current Consumption	Icc5 rx	H40MCS15		189		MA
3.3V Current Consumption	Icc5 rx	OFDM 54M		230		MA
Transmission Biggest transmission test						
3.3V Current Consumption	Icc5 tx	H40MCS15		286		MA
3.3V Current Consumption	Icc5 tx	OFDM 54M		312		MA
The depth waits for an opportunity	**Icc5 tx/rx**			**13**		**MA**
Deep sleep	**Ic5 tx/rx**			**13**		**MA**

USB interface electrical characteristics