

HK NATER TECH LIMITED

RL-UM12BTD-8188EUS-5V Specification

Customer: _____

Description: RL-UM12BTD-8188EUS-V1.0

Customer P/N: _____

Date: _____

Customer		
Approve	Auditing	Admit

Provider		
Approve	Auditing	Admit

Customer:

Add:

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SPECIFICATION

WLAN 11b/g/n USB module (1T1R)

RL-UM12BTD-8188EUS

Version: V1.0

1.Overview

UM12BTD is a WLAN 11n USB module, which fully supports the features and Functional compliance of IEEE 802.11n,e and i standards. It supports up to 150Mbps high-speed wireless network connections.

It is designed to provide excellent performance with low power Consumption and enhance the advantages of robust system and cost-effective.

It is targeted at competitive superior performance, better power Management applications.

2.Features

- ◆ Operates in 2.4 GHz frequency bands
- ◆ 1x1 MIMO technology improves effective throughput and range existing 802.11 b/g products
- ◆ Data rates: up to 150Mbps
- ◆ 802.11e-compatible bursting and I standards
- ◆ BPSK, QPSK, 16 QAM, 64 QAM modulation schemes
- ◆ WEP, TKIP, and AES, WPA, WPA2 hardware encryption schemes

3.General Specification

Model	RL-UM12BTD-8188EUS-V1.0
Product Name	WLAN 11n USB module
Major Chipset	Realtek RTL8188EUS
Standard	802.11b/g/n, 802.3, 802.3u
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60,90,120 and maximum of 150Mbps
Modulation Method	BPSK/ QPSK/ 16-QAM/ 64-QAM
Frequency Band	2.4~2.4835 GHz ISM Band
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n:OFDM (Orthogonal Frequency Division Multiplexing)
Operation Mode	Ad hoc, Infrastructure
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	DC 5V
Operating Temperature	-20 ~ +60° C ambient temperature
Storage Temperature	-20 ~ 70°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	25 .0x 12.0 x 1.6mm (LxWxH) +-0.2MM

4. Electrical Specifications

1) DC Characteristics

Module	Voltage	Current Consumption (linking)	Current consumption (Runthroughput)
RL-12BTD-818 8EUS-V1.0	5V	60MA	MAX:90MA/MIN:70 MA

2) RF Characteristics for IEEE802.11b (11Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11b			
Mode	DSSS/CCK 11 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (PER \leq -85 dBm@8%)	-85 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (17 \pm 2 dBm)		16		dBm
EVM (\leq -18)		-23		dB

3) RF Characteristics for IEEE802.11g (54Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11g			
Mode	OFDM 54 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (PER \leq -70dBm@10%)	-70 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (14 \pm 2 dBm)		13		dBm
EVM (\leq -27)		-29		dB

4) RF Characteristics for IEEE802.11n (BW20_MCS7)

Items	Contents			
Specification	IEEE802.11n BW20_MCS7			
Mode	OFDM 65 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (PER \leq -65dBm@10%)	-65 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (13 \pm 2 dBm)		12.5		dBm
EVM (\leq -28)		-28		dB

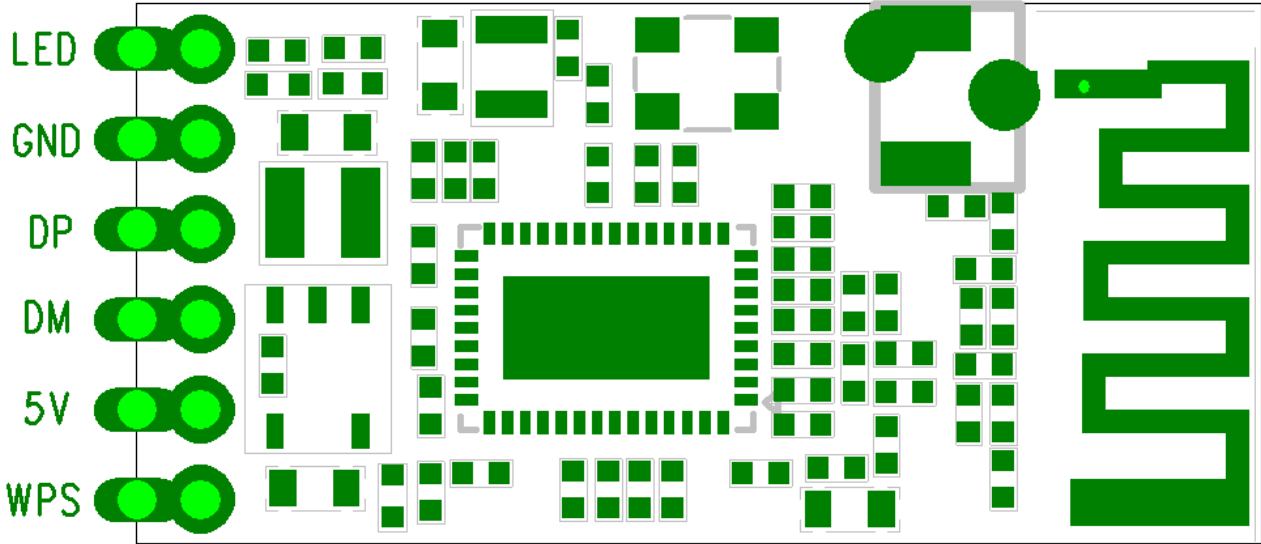
5) RF Characteristics for IEEE802.11n (BW40_MCS7)

Items	Contents			
Specification	IEEE802.11n BW40_MCS7			
Mode	OFDM 135 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (PER \leq -65dBm@10%)	-65 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (13 \pm 2 dBm)		12		dBm
EVM (\leq -28)		32		dB

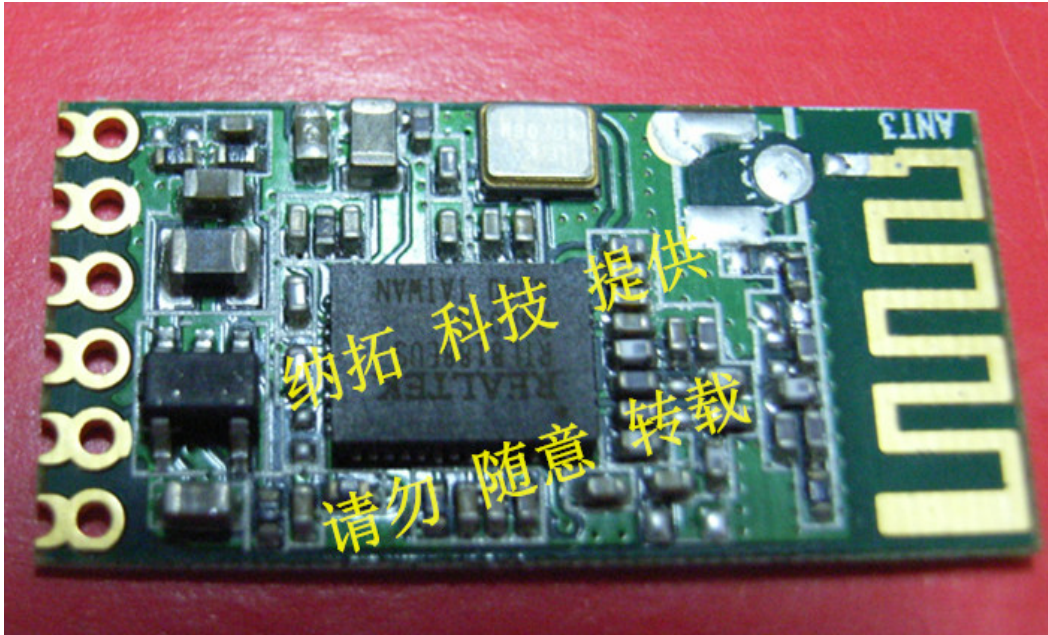
5.Dimensions:



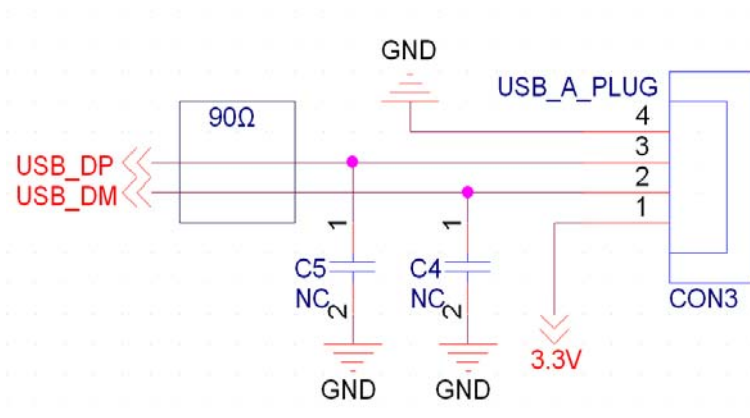
6.PIN Definition



7.Physical map



8.USB interface electrical characteristics



Two root go line do difference, but also required to make 90Ω the impedance test.

建议在电源输入端留一个电源开关，每次开关卡时，可以做一个上电断电的作用，可以使用 wifi 复位，就不会有打开 wifi 出错的现象了。

WIFI Module

Environmental Requirements and Specifications TP Content

1 Temperature

1.1 Operating Temperature Conditions

The product shall be capable of continuous reliable operation when operating in ambient temperature of -10°C to +70°C.

1.2 Non-Operating Temperature Conditions

Neither subassemblies shall be damaged nor shall the operational performance be degraded when restored to the operating temperature when exposed to storage temperature in the range of -45°C to +135°C.

2 PCB Bending

The PCB bending spec shall be keep planeness under 0.1mm for both Nater and end assembly customer.

3 Handling environment

3.1. ESD

Symbol	Ratings	Max	Unit
V_{ESD} (HBM)	Electrostatic discharge voltage (human body model)	2000	V
V_{ESD} (CDM)	Electrostatic discharge voltage (charge device model)	500	

Please handle it under ESD protection environment.

3.2. Terminals

The product is mounted with motherboard through half hole. In order to prevent poor soldering, please do not touch the pad by hand.

3.3. Falling

It will cause damage on the mounted components when the product is falling or receiving drop shock. It may cause the product mal-function.

4 Storage Condition

4.1 Moisture barrier bag before opened

Moisture barrier bag must be stored under 30 degree C, humidity under 85% RH. The calculated shelf life for the dry packed product shall be a 12 months from the bag seal date.

4.2. Moisture barrier bag open

Humidity indicator cards must be blue, <30%.

5 Baking Condition

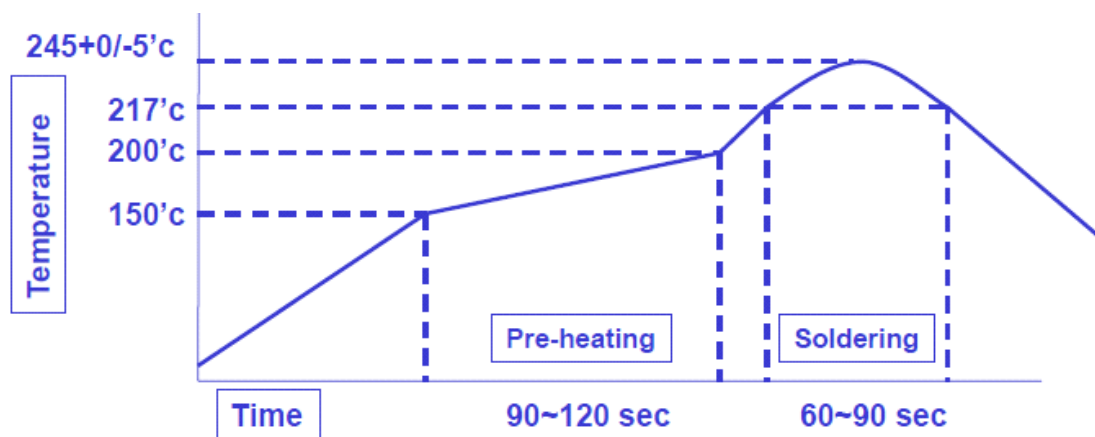
Products require baking before mounting if

- humidity indicator cards reads >30%
- temp <30 degree C, humidity < 70% RH, over 96 hours

Baking condition: 90 degree C, 12-24 hours

Baking times: 1 time

6 Soldering and reflow condition



- ◆ Follow the solder paste composition to set the reflow profile
- ◆ Lead free solder paste(SAC305, SAC387 or SAC405) reflow profile setting as above :
 - Ramp up rate (to Peak temp) : < 1.2°C/sec, typically
 - Time above Liquidus(217°C) : 60~90Sec
 - Peak Temp : 245+0/-5°C
 - Ramp-down rate (Peak to RT) : 1~3°C/sec, typically