SDWF-13B

Product Specification

IEEE 802.11b/g/n Mini 2.4G 2T2R USB WiFi Module

Realtek RTL8192EU 11n 2T2R WIFI Module

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CONTENT

0. Revision History

REV NO	Date	Modifications	Approved	Draft
Rev1.0	2014-03-13	First version	SYMEN SONG	SJ LI
Rev1.1	2015-01-28	Update the pin number	William Tan	Neal Yu

1. Introduction

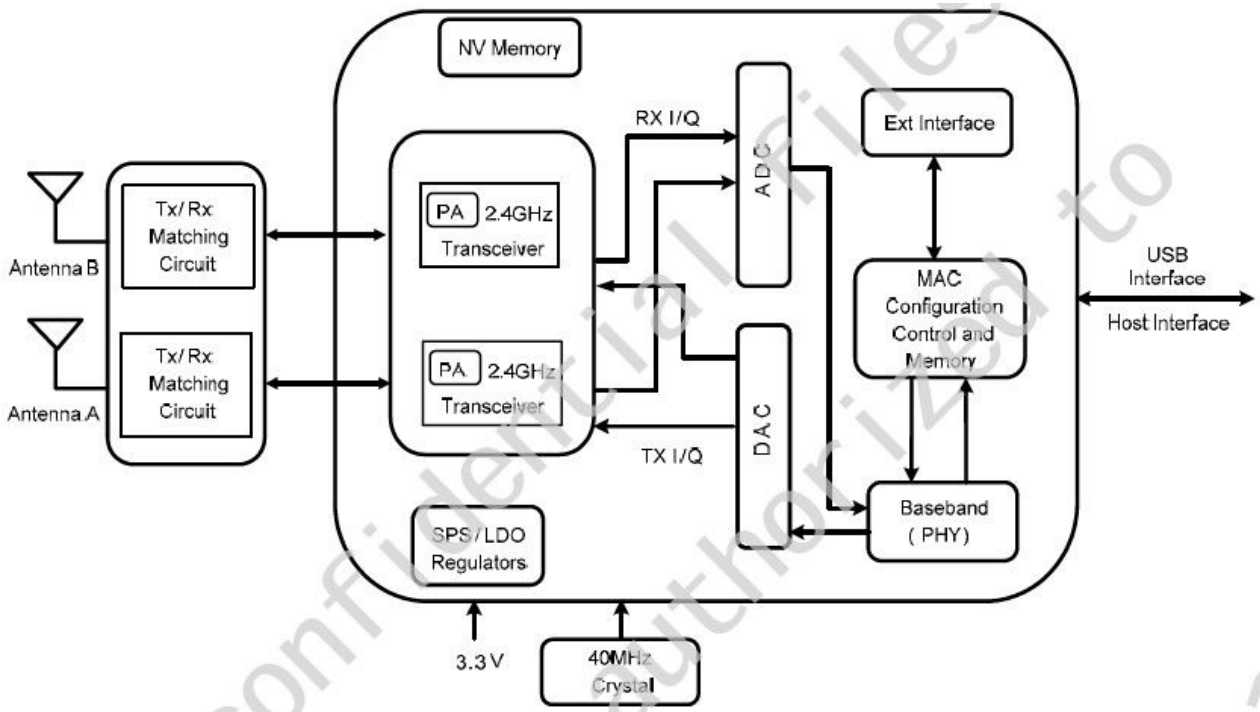
SDWF-13B is a highly integrated and excellent performance Wireless LAN (WLAN) USB network interface device. High-speed wireless connection up to 300 Mbps.

1.1 Overview

The general hardware for the module is shown in Figure 1. This WLAN Module design is based on Realtek RTL8192EU. It is a highly integrated single-chip 2*2 MIMO (Multiple In Multiple Out) Wireless LAN (WLAN) USB network interface controller complying with the 802.11n specification. It can work in two modes: Infrastructure and Ad-Hoc It combines a MAC, a 2T2R capable baseband, and RF in a single chip. It is designed to provide excellent performance with low power Consumption and enhance the advantages of robust system and cost-effective.

1.2 SPECIFICATION REFERENCE

This specification is based on additional references listed as below.
iEEE 802.11b
iEEE 802.11g
iEEE 802.11n



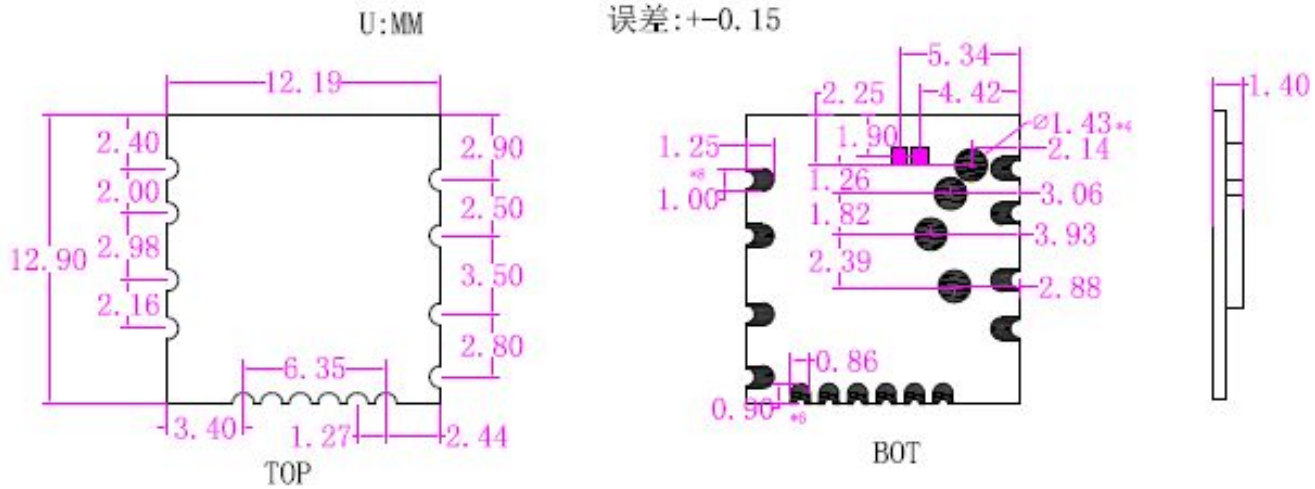
1.3 System Characteristics

Main Chipset	Realtek RTL8192EU
Operating voltage	3.3V（3.0-3.5V）
Host Interface	USB 2.0
Operating channel	2.4G: 1-13
Operating Frequency	2.4G: 2.405～2.485GHz
WIFI Standard	IEEE 802.11b/g/n 、IEEE 802.11e(WMM)、IEEE 802.11i(WPA,WPA2)、IEEE 802.11hTPC 、IEEE 802.11k、WAPI
Modulation	11 n: MCS
	11 g: OFDM
	11b: CCK(11, 5.5Mbps), QPSK(2Mbps), BPSK(1Mbps)
PHY Data rates	11n:6.5~72.2Mbps(20MHzBandwidth),13~300Mbps(40MHzBandwidth)
	11g: 54,48,36,24,18,12,9,6 Mbps
	11b: 11,5.5,2,1 Mbps
Transmit Output Power	802.11b@11Mbps 16±2dBm 802.11g@54Mbps 14±2dBm 802.11n@65Mbps 13±2dBm (MCS 0_HT20) 13±2dBm (MCS 7_HT20) 13±2dBm (MCS 0_HT40) 13±2dBm (MCS 7_HT40)
Receiver Sensitivity	300 Mbps：-65dBm@10% PER; 130 Mbps：-70dBm@10% PER; 108 Mbps：-70dBm@10% PER; 54 Mbps：-70dBm@10% PER; 11 Mbps：-87dBm@8% PER; 6 Mbps：-90dBm@10% PER; 1 Mbps：-92dBm@8% PER
Operation Range	Up to 100meters in open space
RF Power	<14dBm@11n,<18dBm@11b,<15dBm@11g
RF Antenna	External Antenna (2.4GHz 50Ohm Resistance)

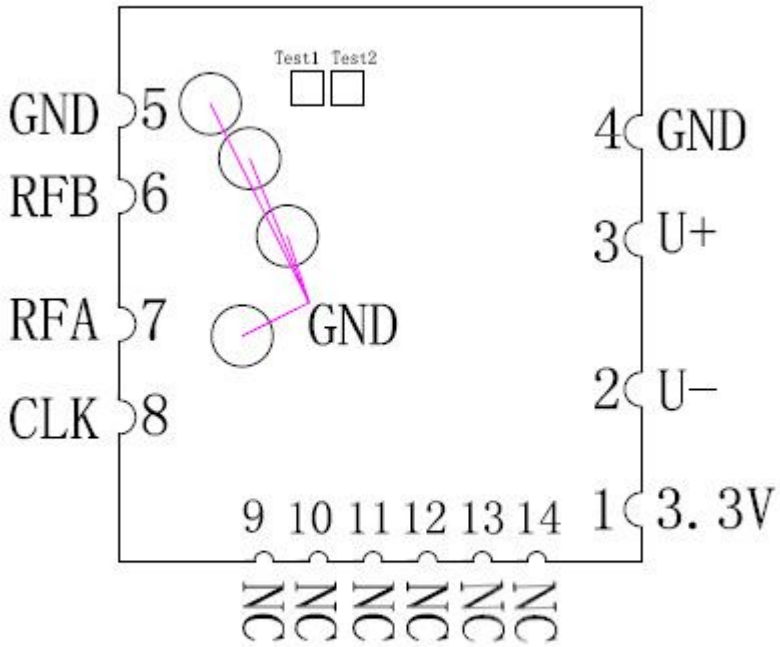
OS Support	Android/ Win 8 /Win 7 /Vista/ Linux/ Win CE /Windows XP
Security	WEP,TKIP,AES,WPA,WPA2
Operating Temperature	-20~ +50°C Ambient Temperature
Storage Temperature	-40~ +70°C Ambient Temperature
Humidity	Operating Temperature 10% to 90%maximum (non-condensing)
	Storage Temperature 5% to 90%maximum (non-condensing)
Dimension	Typical 12.90X12.19X1.4mm

2. Mechanical Specification

2.1 Outline Drawing(Unit: ±0.15mm)

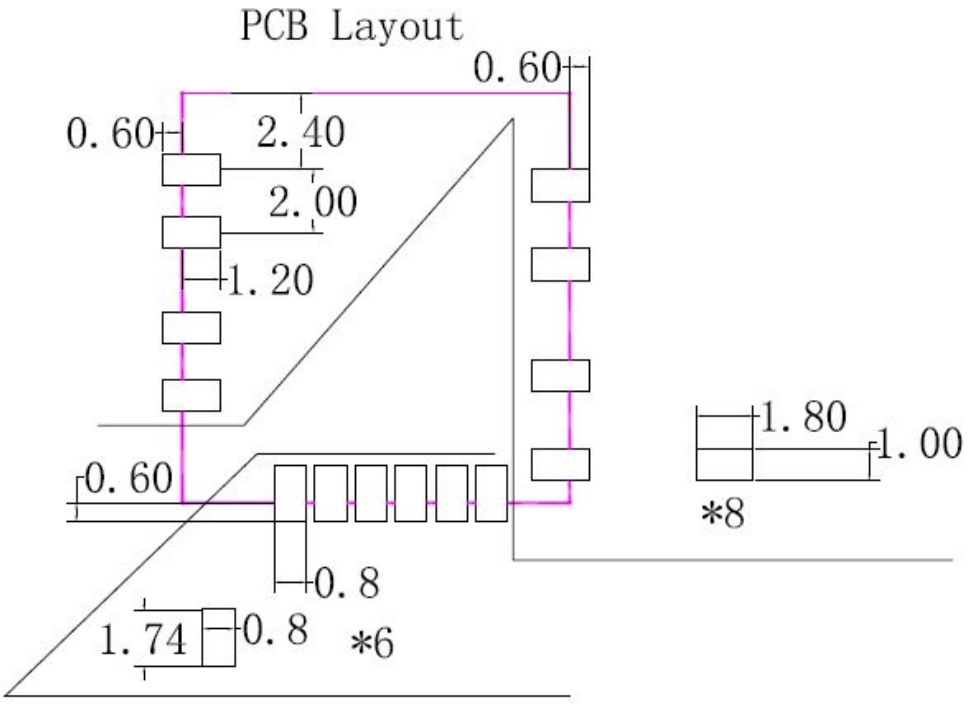


2.2 Pin Definition



Pin #	Name	Description
1	VCC	Power Supply Voltage (3.0-3.5V)
2	U-	USB DATA PIN (USB DM)
3	U+	USB DATA PIN (USB DP)
4~5	GND	GROUND
6	RFB	RFB OUTPUT/INPUT
7	RFA	RFA OUTPUT/INPUT
8	CLK	EXTERNAL 40MHz CRYSTAL(HOLD)
9~14	NC	NO CONNECTED

2.3 Layout reference(Unit:mm)



3. Electric Current

Test Environment：Win　XP SP3、Voltage:3.3V

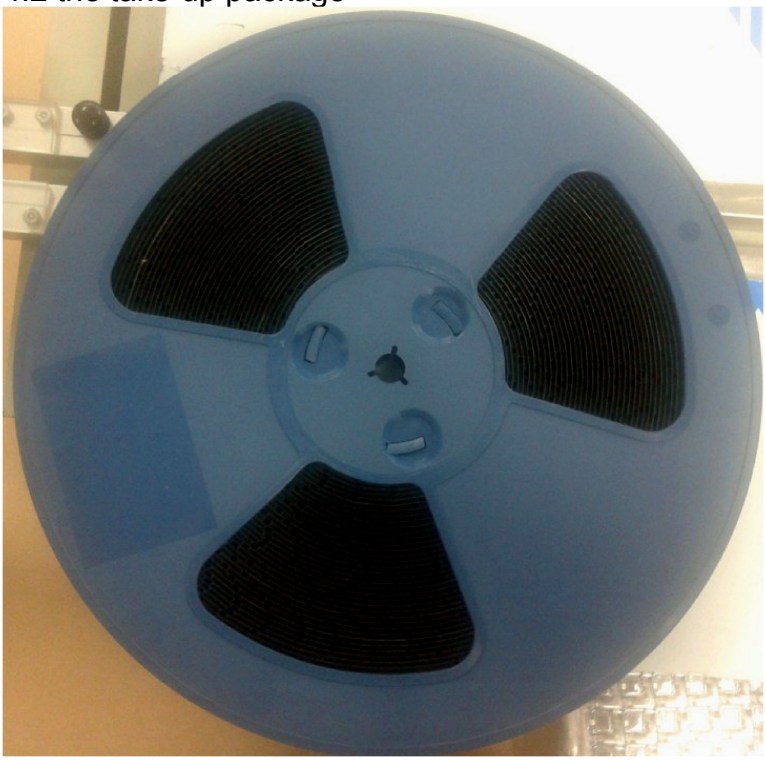
ITEMS	2.4G Current (mA)
WLAN module not connecting with AP	129
WLAN module connecting with AP	150
Disable WLAN module	0.8
WLAN RF OFF	19
Tx (n mode 40MHz MCS15)	340
Rx (n mode 40MHz MCS15)	220
Tx (n mode 40MHz MCS7)	83
802.11g mode	
Tx (OFDM 54M)	245
Rx (OFDM 54M)	195
802.11b mode	
Tx	270
Rx	185

4. Package

4.1 blister packaging

A piece of 100 PCS

4.2 the take-up package

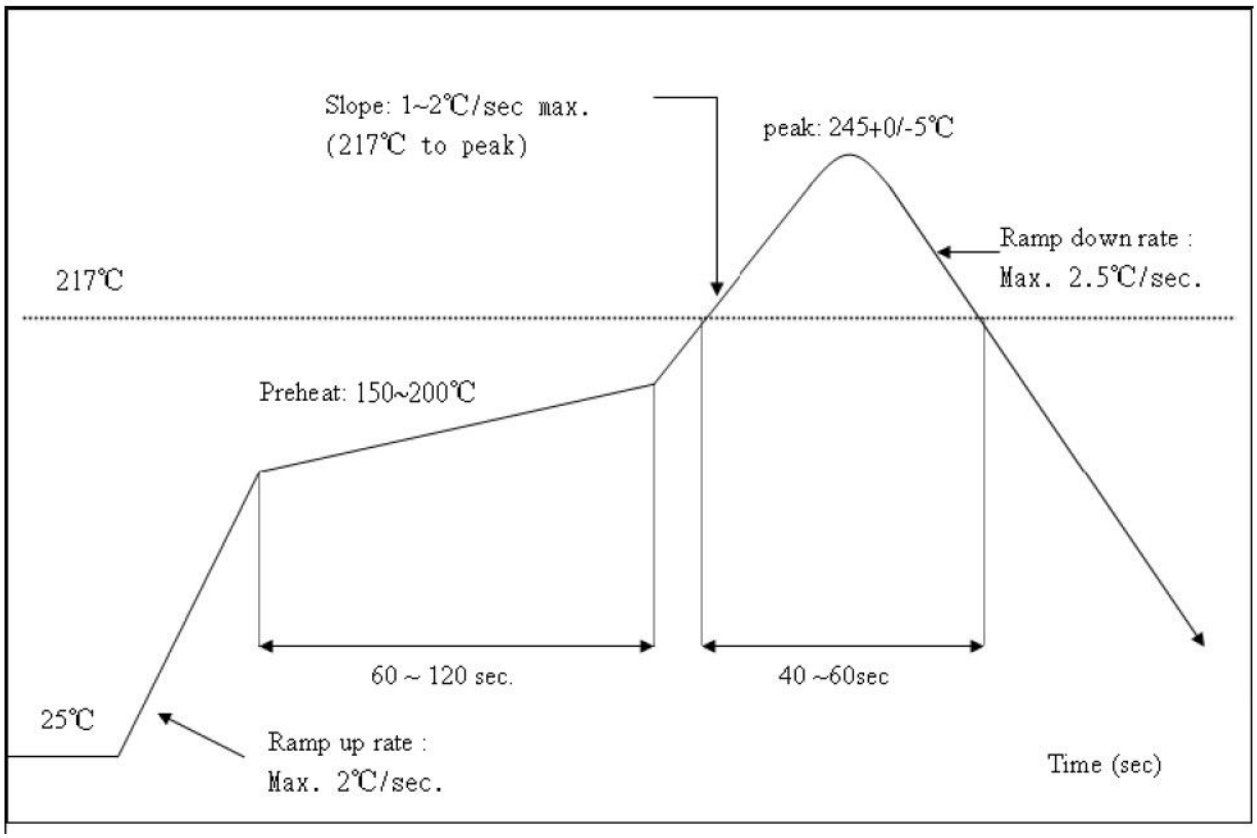


A roll of 2000pcs

5. User's Manual

5.1 Recommended Reflow Profile

Referred to IPC/JEDEC standard.
Peak Temperature : <250°C
Number of Times : ≤2 times



5.2 Patch WIFI modules installed before the notice:

WIFI module installed note:
1. Please press 1 : 1 and then expand outward proportion to 0.7 mm, 0.12 mm thickness When open a stencil
2. Take and use the WIFI module, please insure the electrostatic protective measures.
3. Reflow soldering temperature should be according to the customer the main size of the products, such as the temperature set at 250 + 5 ℃ for the MID motherboard.

About the module packaging, storage and use of matters needing attention are as follows:
1. The module of the reel and storage life of vacuum packing: 1). Shelf life: 8 months, storage environment conditions: temperature in: < 40 ℃, relative humidity: < 90% r.h.
2. The module vacuum packing once opened, time limit of the assembly:
Card: 1) check the humidity display value should be less than 30% (in blue), such as: 30% ~ 40% (pink), or greater than 40% (red) the module have been moisture absorption.
2.) factory environmental temperature humidity control: ≦ 30% ℃, ≦ 60% r.h..
3). Once opened, the workshop the preservation of life for 168 hours.
3. Once opened, such as when not used up within 168 hours:
1). The module must be again to remove the module moisture absorption.
2). The baking temperature: 125 ℃, 8 hours.
3.) after baking, put the right amount of desiccant to seal packages.