ProductSpecification

IEEE 802.11 b/g/n 2.4GHz 1T1R WiFi Module
Realtek RTL8188ETV 11n WIFI Module

1. Introduction

1.1 Overview

FN8112-MET is a highly integrated and excellent performance Wireless LAN (WLAN) USB2.0 network interface device. High-speed wireless connection up to 150 Mbps.

The general hardware for the module is shown in Figure 1. This WLAN Module design is based on Realtek RTL8188ETV. It is a highly integrated single-chip 1*1 MIMO (Multiple In Multiple Out) Wireless LAN (WLAN) USB2.0 network interface controller complying with the 802.11n specification. It combines a MAC, a 1T1R 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.

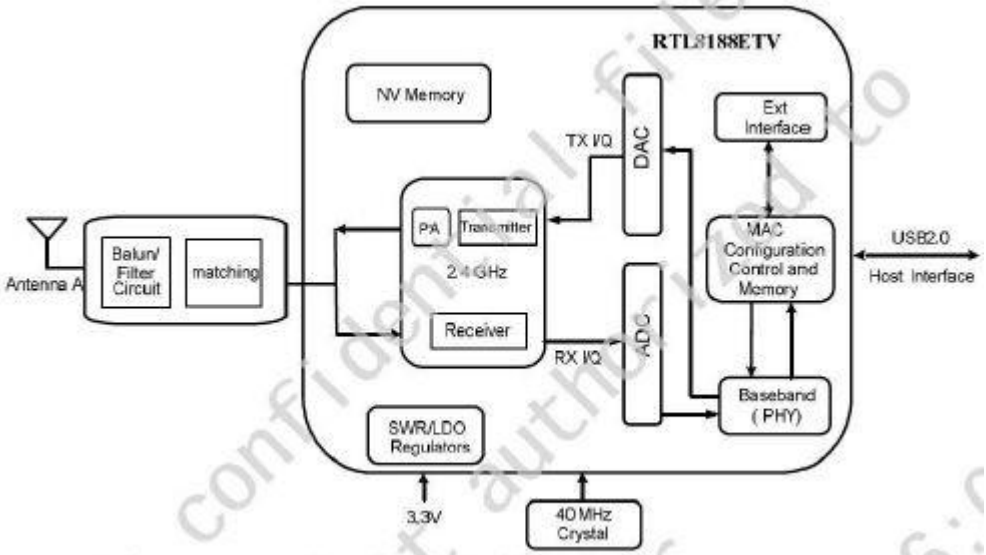


Figure 1. Single-Band 11n (1x1) Solution

1.2 Product Features

- Operate at ISM frequency bands (2.4GHz)
- USB Interface for WiFi
- IEEE standards support: IEEE 802.11b, IEEE 802.11g, IEEE 802.11n,
- Enterprise level security which can apply WPA/WPA2 certification for WiFi.
- WiFi 1 transmitter and 1 receiver allow data rates supporting up to 150 Mbps downstream and 150 Mbps upstream PHY rates

2. GENERAL SPECIFICATION

2.1 WiFi RF Specifications

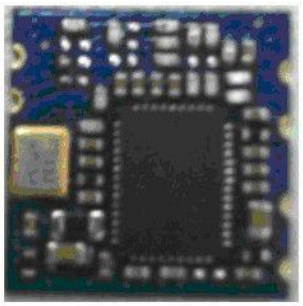
Features	Descriptions
Main Chipset	RTL8188ETV
Frequency Range	2.400～2.4835GHz
Operating Voltage	3.3Vdc ±10% I/O supply voltage
Host Interface	WiFi: USB
Standards	WiFi: IEEE802.11b, ZEEE802.11g, IEEE802.11n,
Modulation	WiFi: 802.11b(DSSS): CCK(11, 5.5Mbps), DQPSK(2Mbps), DBPSK(1Mbps); 802.11g(OFDM): BPSK(9,6Mbps), QPSK(18,12Mbps), 16QAM(36,24Mbps), 64QAM(54,48Mbps); 802.11n(OFDM): BPSK, QPSK, 16QAM, 64QAM(150Mbps)
PHY Data rates	WiFi: 802.11b: 11,5.5,2,1 Mbps, 802.11g: 54,48,36,24,18,12,9,6 Mbps, 802.11n: up to 150Mbps
Transmit Output Power	WiFi: 802.11b <18dBm, 802.11g <14dBm, 802.11n <13dBm
EVM	802.11b /11Mbps : EVM≦-9dB, 802.11g /54Mbps : EVM≦-25dB, 802.11n /65Mbps : EVM≦-28dB
Receiver Sensitivity	802.11b@8% PER, 11Mbps -86dBm
	802.11g@10% PER, 54Mbps -73dBm
	802.11n@10% PER , HT20_MCS 7 -70dBm HT40_MCS 7 -66dBm
Operating Channel	WiFi 2.4GHz: 11: (Ch. 1-11) – United States(North America) 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Media Access Control	WiFi: CSMA/CA with ACK
Network Architecture	WiFi: Ad-hoc mode (Peer-to-Peer) Infrastructure mode Software AP WiFi Direct
Security	WiFi: WPA, WPA-PSK, WPA2, WPA2-PSK, WEP, AES, TKIP
Antenna	External
OS Supported	Android /Linux/ Win CE /iOS /XP/WIN7/WIN8
Compliance	EN 300 328 V1.8.1/EN301489-1(-17)/EN60950/EN62311, RoHS, REACH
Dimension	Typical L13.0*W12.20*H2.0mm

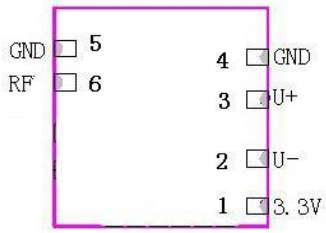
2.2 Power Consumption

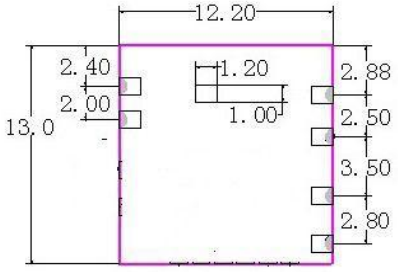
Power Consumption (Typical by using SWR)	WiFi only: TX Mode: (Continuous mode) 185mA (MCS7/BW40/13dBm) RX Mode: (Continuous mode) 145mA (MCS7/BW40/-68dBm) LINK:140mA DISABLE:40mA

3. Mechanical Specification

3.1 Outline Drawing (Unit: ±0.15mm)

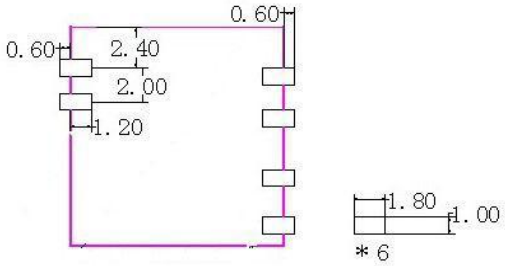






U:MM

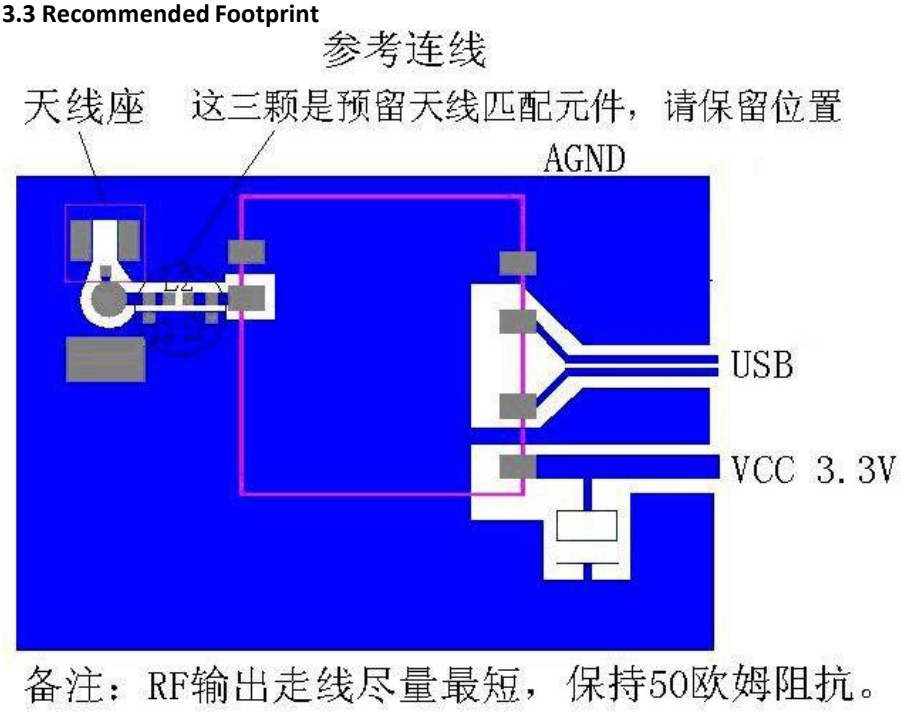
PCB Layout



3.2 PIN Assignment

Pin #	Name	Description
1	3.3V	3.3V DC power supply input
2	U-	USB Data DN
3	U+	USB Data DP
4	GND	Ground
5	GND	RF Ground
6	RF	External Antenna (2.4GHz 50Ohm)

3.3 Recommended Footprint



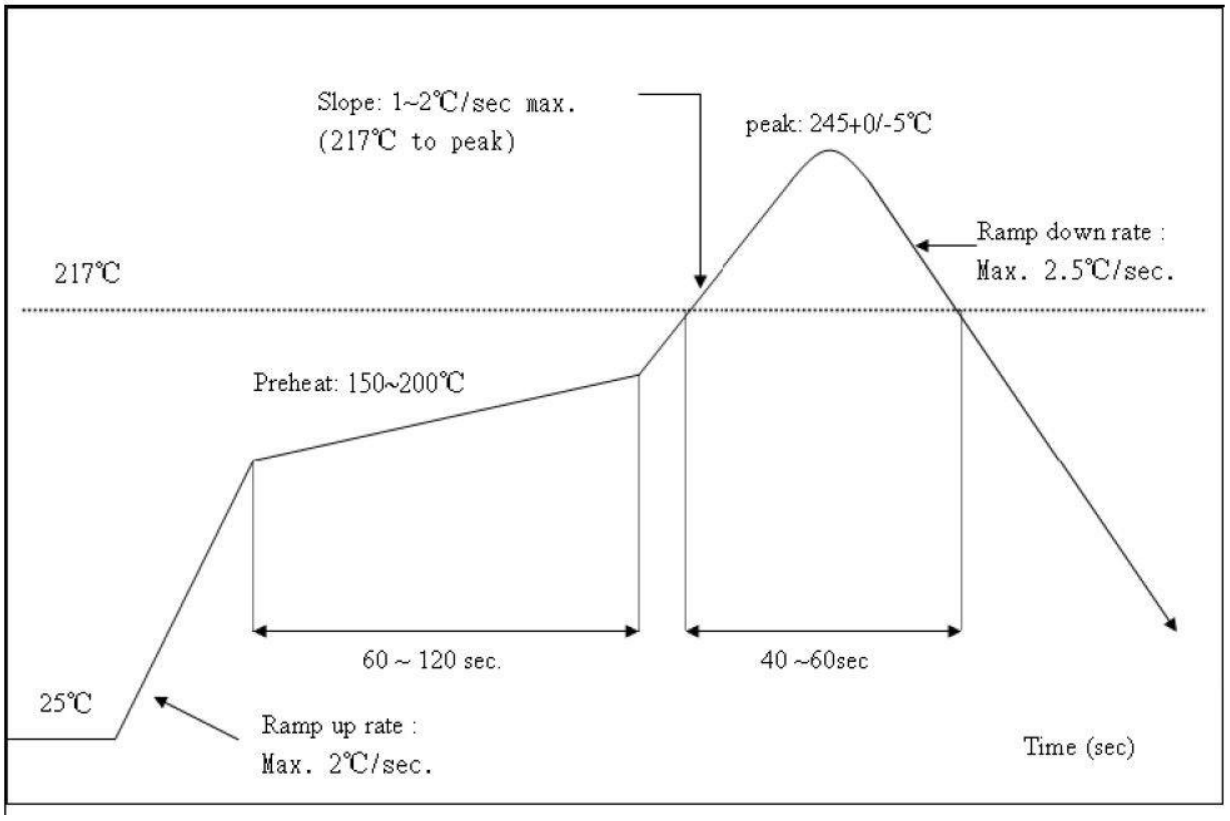
备注：RF输出走线尽量最短，保持50欧姆阻抗。

4. Environmental Requirements

4.1 Operating& Storage Conditions

Operating	Temperature: 0°C to +70°C
	Relative Humidity: 10-90% (non-condensing)
Storage	Temperature: -40°C to +80°C (non-operating)
	Relative Humidity: 5-90% (non-condensing)
MTBF (Mean Time Between Failures)	Over 150,000hours

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



4.3 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.