Innovation For Surfing

欧智通科技

Fn-Link

6189N-SE

WiFi Single-band 1X1

Module Datasheet

Revision History

Version	Date	Description	Draft	Approved
1.0	2018-03-21	First release	Jacky	William Tan

CONTENTS

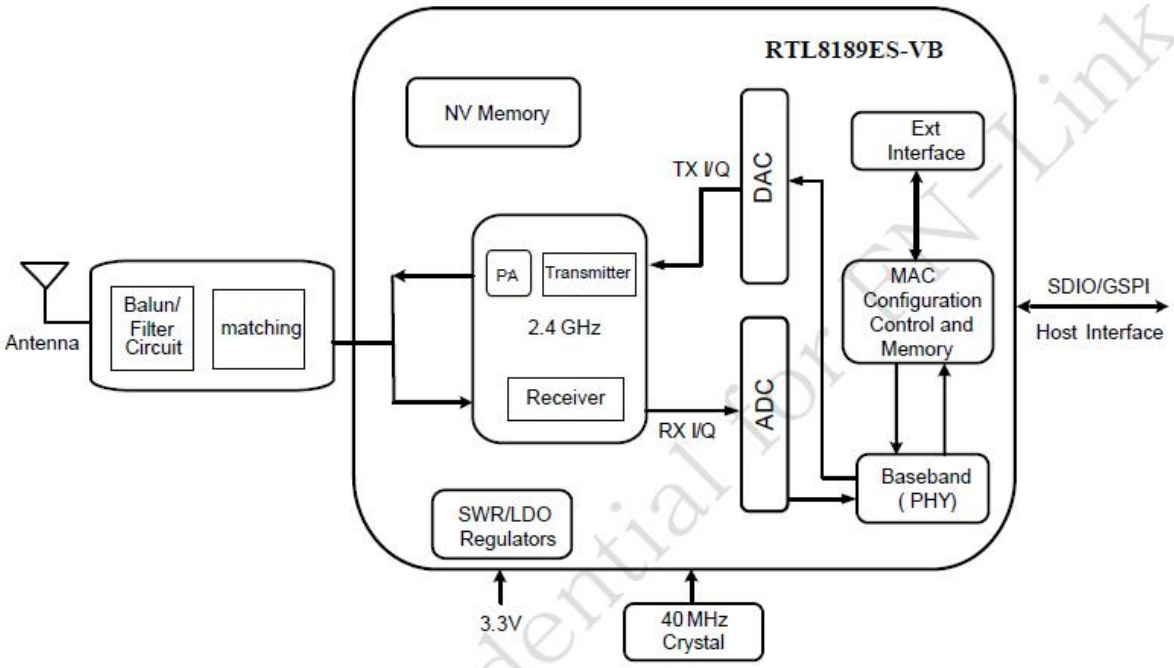
1. Introduction

6189N-SE is a highly integrated and excellent performance Wireless LAN (WLAN) SDIO network interface device. High-speed wireless connection up to 150 Mbps.It can be easily manufactured on SMT process.

This WLAN Module design is based on Realtek RTL8189ETV. It is a highly integrated single-chip 1*1 MIMO (Multiple In Multiple Out) Wireless LAN (WLAN) SDIO 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.
This compact module is a total solution for Wi-Fi technology. The module is specifically developed for Smart phones and Portable devices.

2. Features

- Operate at ISM frequency bands (2.4GHz)
- CMOS MAC, Baseband PHY , and RF in a single chip for 802.11b/g/n compatible WLAN
- WiFi 1 transmitter and 1 receiver allow data rates supporting up to 150 Mbps downstream and 150 Mbps upstream PHY rates



Single-Band 11n (1x1) Solution

3. GENERAL SPECIFICATION

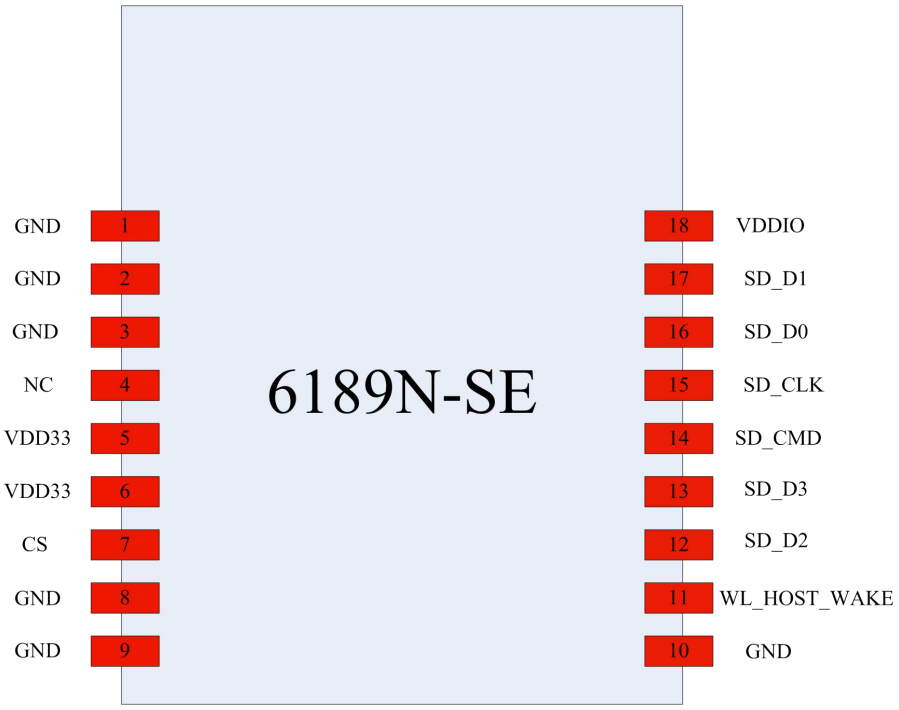
3.1 WiFi RF Specifications

Features	Descriptions
Main Chipset	Realtek RTL8189ETV
Operating Frequency	2.400～2.4835GHz
Operating Voltage	3.3Vdc ±10% I/O supply voltage
Host Interface	SDIO/GSPI
WIFI Standard	**WiFi:** IEEE 802.11b, IEEE 802.11g, IEEE 802.11n,
Modulation	**WiFi:** 802.11b: CCK(11, 5.5Mbps), QPSK(2Mbps), BPSK(1Mbps), 802.11 g/n: OFDM
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@11Mbps 17**±2**dBm 802.11g@6Mbps 15**±2**dBm 802.11g@54Mbps 15**±2**dBm 802.11n@65Mbps 14**±2**dBm (MCS 0_HT20) 14**±2**dBm (MCS 7_HT20) 14**±2**dBm (MCS 0_HT40) 14**±2**dBm (MCS 7_HT40)
EVM	802.11b /11Mbps : EVM≦-9dB 802.11g /54Mbps : EVM≦-25dB 802.11n /65Mbps : EVM≦-28dB
Receiver Sensitivity (HT 20)	**802.11b@8% PER** 1Mbps -88±1dBm 2Mbps -87±1dBm 5.5Mbps -85±1dBm 11Mbps -82±1dBm
	802.11g@10% PER 6Mbps -86±1dBm 9Mbps -85±1dBm 12Mbps -84±1dBm 18Mbps -82±1dBm 24Mbps -80±1dBm 36Mbps -77±1dBm 48Mbps -73±1dBm 54Mbps -71±1dBm
	802.11n@10% PER MCS 0 -83±1dBm MCS 1 -82±1dBm MCS 2 -80±1dBm MCS 3 -78±1dBm MCS 4 -75±1dBm MCS 5 -71±1dBm MCS 6 -69±1dBm MCS 7 -67±1dBm
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 64bit & 128bit,
Antenna	External
OS Supported	Android /Linux/ Win CE /iOS /XP/WIN7
Dimension	Typical L18.50*W15.00*T2.90mm

4. Pin Assignments

4.1 Pin Outline



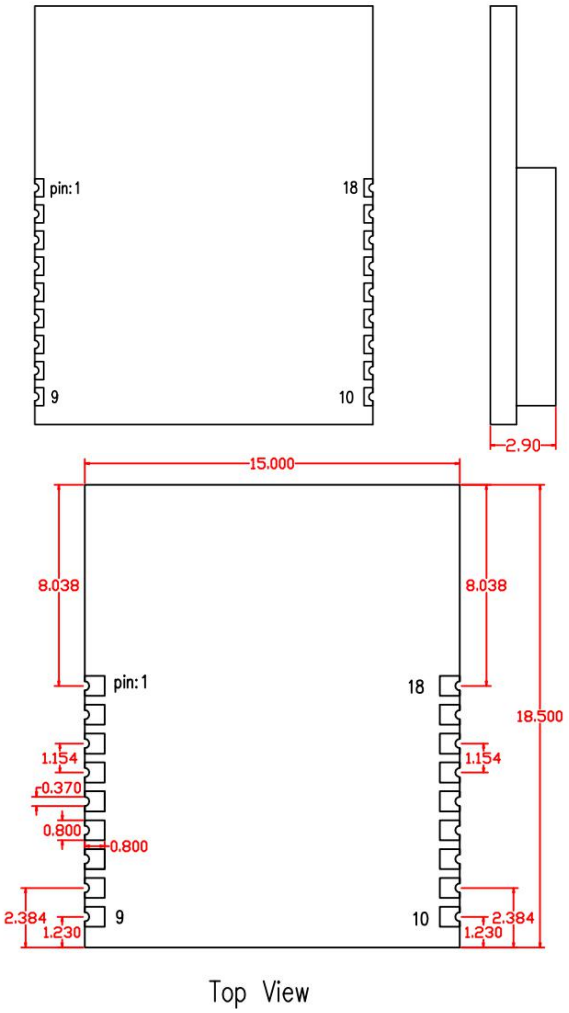
4.2 Pin Definition

Pin #	Name	Description
1	GND	POWER GND
2	GND	POWER GND
3	GND	POWER GND
4	NC	No connect
5	VDD33	Power Supply
6	VDD33	Power Supply
7	CS	Chip Select
8	GND	POWER GND
9	GND	POWER GND
10	GND	POWER GND
11	WL_HOST_WAKE	Wake Function
12	SD_D2	SDIO Data Line 2
13	SD_D3	SDIO Data Line 3
14	SD_CMD	SDIO Command Input
15	SD_CLK	SDIO Clock Input
16	SD_D0	SDIO Data Line 0
17	SD_D1	SDIO Data Line 1
18	VDDIO	SDIO Voltage 1.8V-3.3V

5. Dimensions

5.1 Module Physical Dimensions

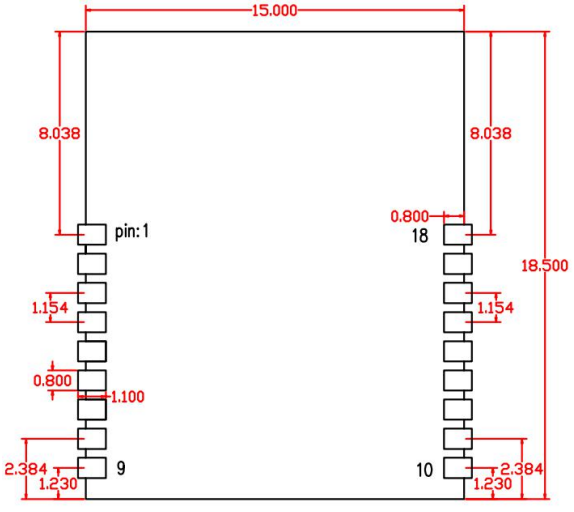
(Unit: mm)



Top View

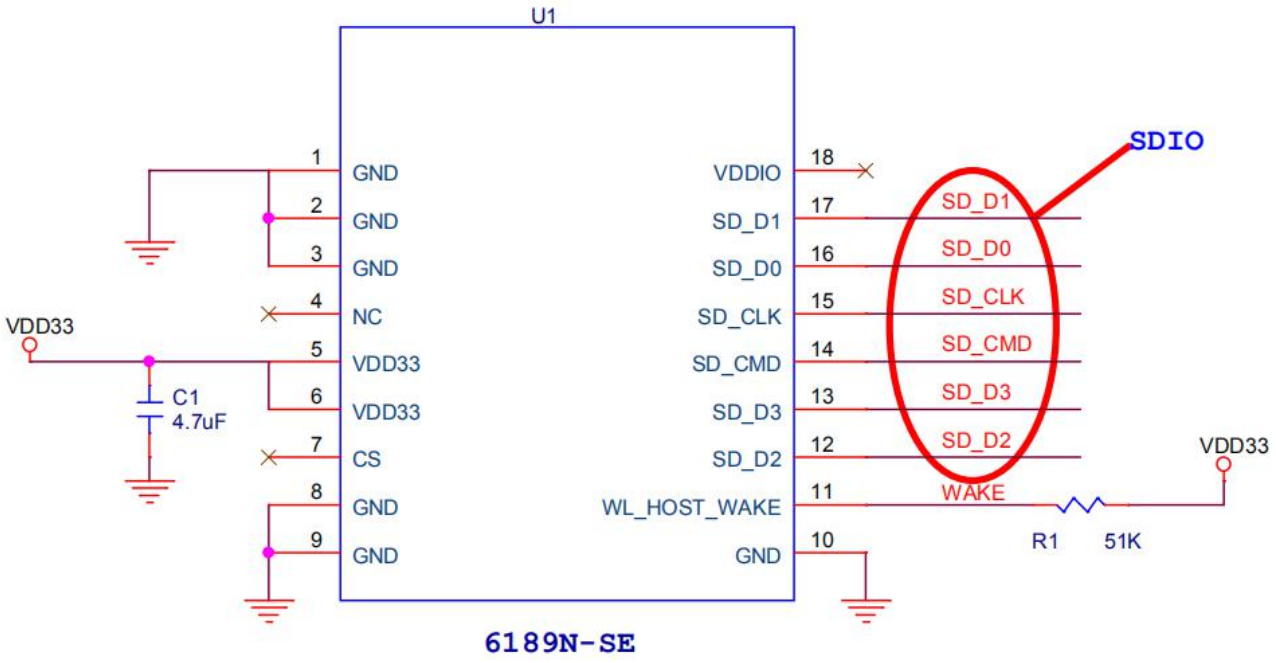
5.2 Layout Reference

(unit: mm)



Pcb Layout

6. Reference Design



7. The Key Material List

	名称	规格
主料	SMD 晶振	3225　40Mhz　10ppm　7M40000010（TXC）
主料	主 IC	RTL8189ETV-CG
主料	PCB	RTL8189ETV_V1.2　18.5*15mm

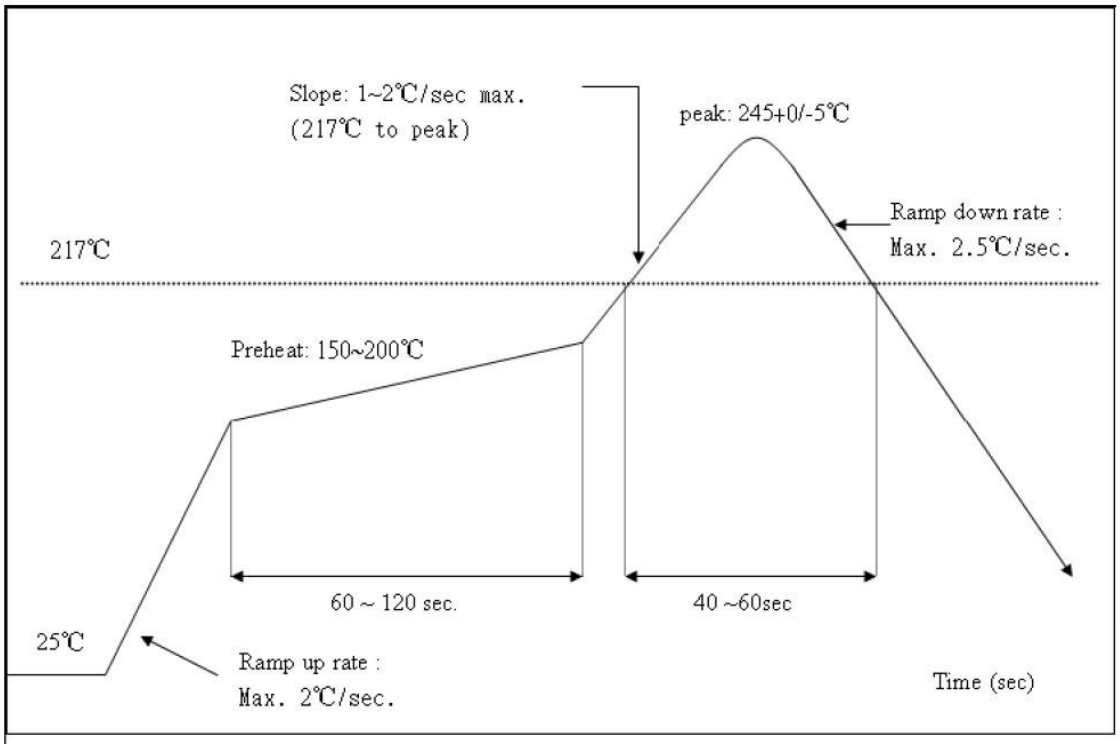
8. Environmental Requirements

8.1 Operating& Storage Conditions

Operating	Temperature: 0°C to +55°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

8.2 Recommended Reflow Profile

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



8.3 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.

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.