

# REALTEK

## RTL8188SU

### 802.11b/g/n RTL8188SU Slim module User's Manual

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**Realtek Semiconductor Corp.**

No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan

Tel.: +886-3-578-0211. Fax: +886-3-577-6047

[www.realtek.com.tw](http://www.realtek.com.tw)

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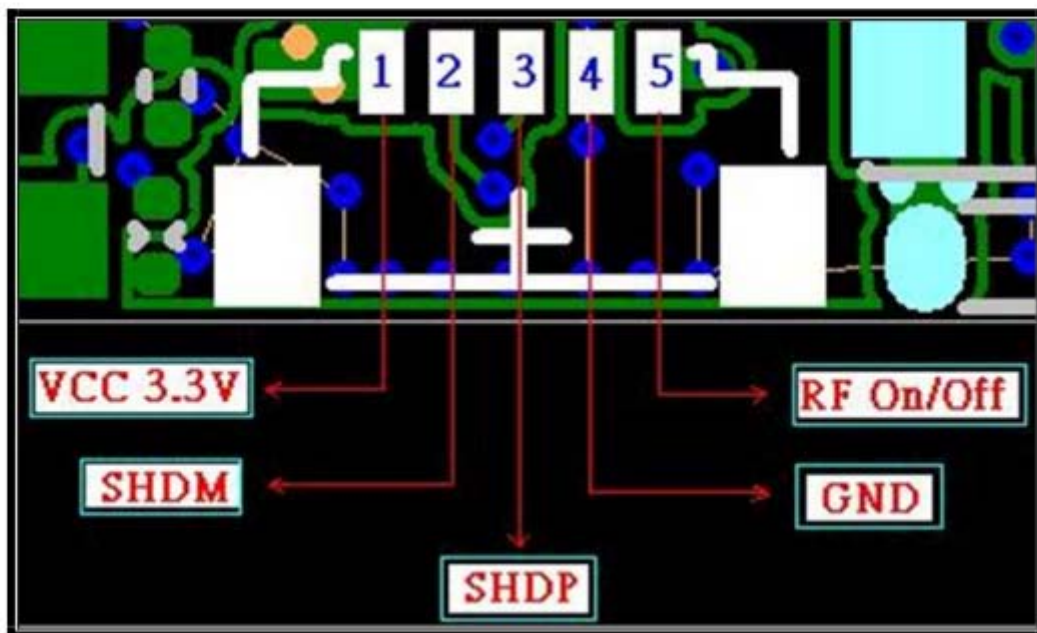
# 1. Specifications

REV : Draft-1.6

<b>Host Interfaces</b>	USB2.0
<b>Form factor</b>	USB Wireless module
<b>Chipset</b>	Realtek RTL8188SU
<b>Operation Voltage</b>	1.2V Core Supply Voltage : 1.10V to 1.32V (VDC) 1.8V Supply Voltage : 1.71V to 1.89V (VDC) I/O Supply Voltage : 3.135V to 3.465V (VDC)
<b>Network Standards</b>	IEEE802.11 b/g/n 1T1R Wireless LAN
<b>Modulation Techniques</b>	DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM
<b>Modulation Technology</b>	72.2Mbps receive PHY rate and 72.2Mbps transmit PHY rate using 20MHz Bandwidth 150Mbps receive PHY rate and 150Mbps transmit PHY rate using 40MHz Bandwidth
<b>Data Rate</b>	IEEE 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps IEEE 802.11b: 11, 5.5, 2, 1 Mbps IEEE 802.11n/Draft 2.0 Mode: MCS0-7 (HT20/40)
<b>Network Architectures</b>	Infrastructure and Ad Hoc
<b>Operating Frequencies</b>	2.412 -2.484 GHz
<b>Antenna Type</b>	Fractal- Antenna
<b>Operating Channels</b>	802.11b/g/n : Channel 1~ Channel 13 (1~11Active Scan ,12~13 Passive San)
<b>RF Output Power</b>	802.11b : 15 dBm, 802.11g:11 dBm, 802.11n: 11dBm, @ MCS_7 (HT20) 802.11n: 11dBm, @ MCS_7 (HT40)
<b>Receiver sensitivity (PER &lt;10%)</b>	802.11b: -88dBm @ 11Mbps and PER<8% 802.11g: -75dBm @ 54Mbps and PER<10% 802.11n: -72dBm @ MCS_7 B.W 20MHz and PER<10% 802.11n: -68dBm @ MCS_7 B.W 40MHz and PER<10%
<b>Power Consumption</b>	<b>Current (mA) @ DC3.3V form MP Tools :</b> <b>Receive at HT40 MCS : 198mA</b> <b>Transmit at HT40 MCS : 317mA</b> <b>Receive at 1Mbps : 172mA</b> <b>Transmit at 1Mbps : 347mA</b> <b>End-point support required : 11 / 6 / 4</b>  <b>Current (mA) @ DC3.3V form User Driver (V1094.21.1229.2009):</b> <b>Disable Device : 3mA</b> <b>System Sleep Mode : 3mA</b> <b>Connection to AP : 186mA</b> <b>Disconnection : 178mA</b> <b>RF Turn-off : 46mA</b>
<b>Security</b>	QoS-WMM, WPA, WPA2, Cisco Compatible Extensions (CCX4)
<b>Operating Systems</b>	Windows XP, 2000, Vista, Win 7,
<b>Temperatures</b>	Operation Temperature 0℃ to 75℃ Storage Temperature -40℃ to 85℃
<b>Humidity (non-condensing)</b>	
<b>Manufacturer ID</b>	PID: <b>0752</b>
<b>Product ID</b>	VID: <b>1690</b>
<b>Certifications</b>	

## 2. Pin Assignment

Pin	Assignment	Description	Used
1	VCC	DC Power Input	Yes
2	SHDM	High-Speed USB D- Signal	Yes
3	SHDP	High-Speed USB D+ Signal	Yes
4	GND	Ground	Yes
5	RF On/Off	Wireless Radio on/off	Yes



### 3. Federal Communication Commission Interference Statemen

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**IMPORTANT NOTE:**

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

**IMPORTANT NOTE:**

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to

operate this equipment.

**USERS MANUAL OF THE END PRODUCT:**

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

**LABEL OF THE END PRODUCT:**

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: TX2-RTL8188SU ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.