

WG233 Datasheet

802.11 a/b/g/n/ac 2T2R

USB WiFi Module

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Revision History

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V1.01	Initial Release	George He	2019.05.20
V1.02	11n/ac PHY rate debug	George He	2019.08.2
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Contents

1. General Description	4
2. Applications	4
3. Feature	5
4. Application Block Diagram	5
5. Module Pinout and Pin Description	6
6. Performance Specification	6
7. Module Pinout	8
8. Electrical Characteristics	8
9. PCB Footprint and Dimensions	9
10. Manufacturing Process Recommendations	10
11. Reference Design Schematic	11
12. Packaging Specification	12
13. Contact Information	12

1. General Description

WG233 is a highly integrated USB Wi-Fi module which supports 867Mbps PHY rate. It is compliant with IEEE 802.11ac draft specification, offering feature-rich wireless connectivity and reliable throughput from an extended distance.

WG233 is designed to support standard based features in the areas of security, quality of service and international regulations, giving end users the greatest performance any time and in any circumstance.

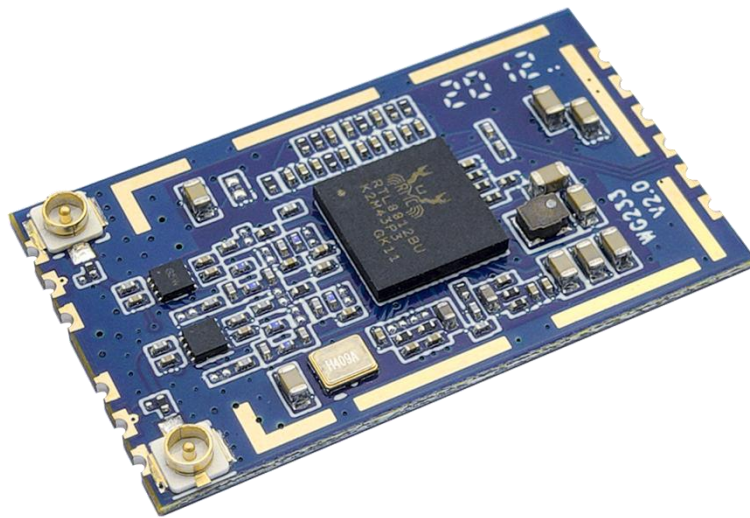


Figure 1: WG233 Top View

2. Applications

- ◆ IP Camera
- ◆ IP TV
- ◆ IP DVD(Internet VOD Player)
- ◆ Set Top Box
- ◆ Home Gateways
- ◆ Gaming Consoles
- ◆ DVR

3. Feature

- ◆ IEEE 802.11a/b/g/n/ac WLAN
- ◆ 2.4G /5G 2T2R mode
- ◆ With support of 867Mbps PHY rate
- ◆ IEEE 802.11e QoS Enhancement(WLAN)
- ◆ USB LPM/Selective Suspend support
- ◆ Fully compliance with USB2.0 High-speed mode.
- ◆ IEEE 802.11i(WPA, WPA2). Open, shared key, and pair-wise key authentication services
- ◆ Supports for Windows XP 32/64, 2000, Vista 32/64bit, Windows 7 32/64bit, Linux, Android
- ◆ RoHS compliance meets environment-friendly requirement.
- ◆ FCC,CE compliance
- ◆ 29.0(L) x 17.0(W) x 2.8mm small dimension.

4. Application Block Diagram

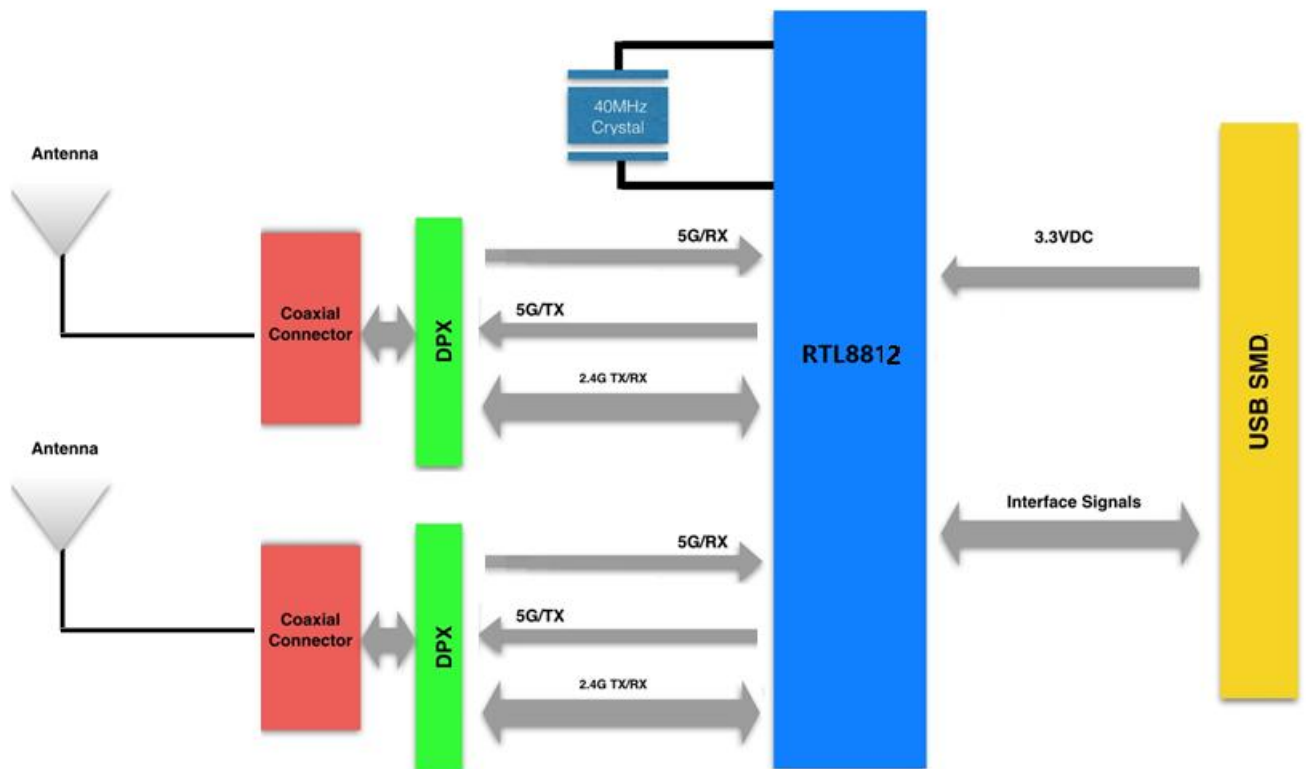


Figure 2: WG233 Block Diagram

5. Module Pinout and Pin Description

Module NO.	Antenna Connector Type	Shield
WG233E	IPEX Connector	NO
WG233P	PCB PIN	NO
WG233EC	IPEX Connector	YES

6. Performance Specification

Hardware Features	
Model	WG233
ANTENNA TYPE	IPEX connector
Voltage	3.0—3.6V
DIMENSIONS(W×D)	29mm*17mm*2.5mm
Wireless Features	
WIRELESS STANDARDS	IEEE 802.11 a/b/g/n/ac
FREQUENCY RANGE	2.4/5GHz
DATA RATES	IEEE 802.11a Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11 b Standard Mode: 1,2,5.5,11Mbps
	IEEE 802.11g Standard Mode: 6,9,12,18,24,36,48,54Mbps
	IEEE 802.11n/Draft 2.0 Mode: 300Mbps @ HT40
2.4G RECEIVE SENSITIVITY	IEEE 802.11ac Standard Mode: 867Mbps @VHT80
	HT40 MCS15: -69dBm@10% PER(MCS7)
	HT20 MCS15 : -72dBm@10% PER(MCS7)
	54M: -74dBm@10% PER
5G RECEIVE SENSITIVITY	11M: -89dBm@ 8% PER
	VHT80 MCS15: -59dBm@10% PER(MCS9)
	HT40 MCS15: -68dBm@10% PER(MCS7)

	OFDM 54M: -75dBm@10% PER			
	OFDM 6M: -90dBm@ 8% PER			
MODULATION TECHNOLOGY	802.11 Legacy b/g/n			
	DSSS (DBPSK, DQPSK, CCK)			
	OFDM (BPSK, QPSK, 16-QAM, 64-QAM)			
	802.11ac			
	OFDM (256-QAM)			
WIRELESS SECURITY	Supports WEP64/128, WPA, WPA2, TKIP, WAPI, and AES hardware encryption			
5GHZ TRANSMIT POWER	IEEE 802.11ac: 9-13dBm @AC80 MCS7			
2.4GHZ TRANSMIT POWER	IEEE 802.11n: 14-17dBm @HT40 MCS7			
	14-17dBm@HT20 MCS7			
	IEEE 802.11g: 15-17dBm			
	IEEE 802.11b: 16-20dBm			
WORK MODE	AP/Ad-Hoc / Infrastructure mode			
Others				
POWER Consumption@25°C	Status	POWER	2.4G/mA	5G/mA
	Transmission HT40/MCS 7	3.3V	300	350
	Receiving VHT80/MCS15	3.3V	90	90
SYSTEM REQUIREMENTS	Windows 7(32/64bits), Windows Vista(32/64bits), Windows XP(32/64bits), Windows 2000, Linux, Android			
ENVIRONMENT	Operating Temperature: -10°C~70°C			
	Storage Temperature: -40°C~125°C			
	Operating Humidity: 10%~90% non-condensing			
	Storage Humidity: 5%~90% non-condensing			

7. Module Pinout

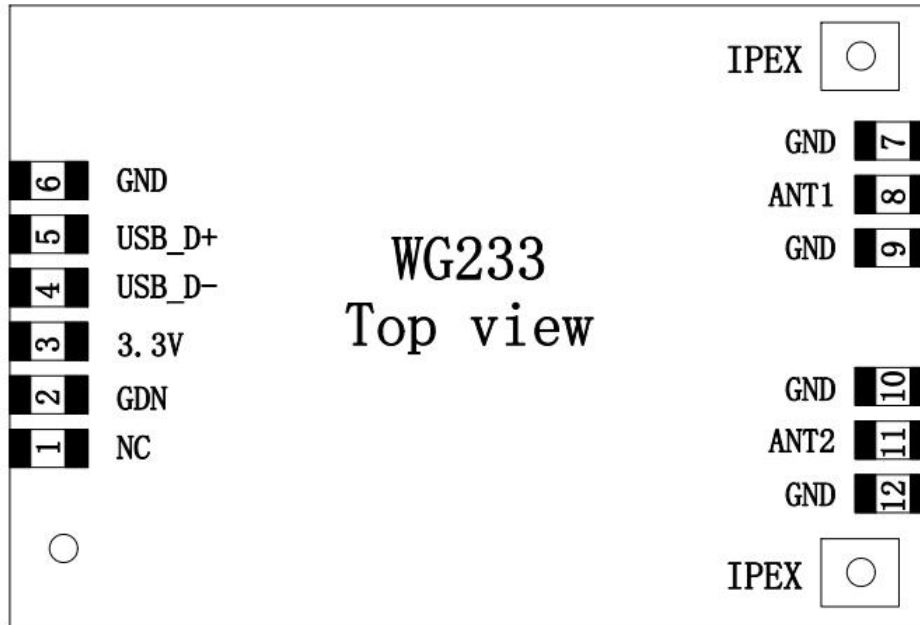


Figure 3: WG233 Pin Name

8. Electrical Characteristics

Pin No.	Pin name	I/O	Description	Remark
1	NC		NC	
2	GND	G	Ground	
3	3.3V	P	Module Power Supply	
4	USB_D-	I/O	USB Interface DM	
5	USB_D+	I/O	USB Interface DP	
6	GND	G	Ground	
7	GND	G	Ground	
8	ANT1	RF	Antenna1	50 OHM
9	GND	G	Ground	
10	GND	G	Ground	
11	ANT2	RF	Antenna2	50 OHM
12	GND	G	Ground	

9. PCB Footprint and Dimensions

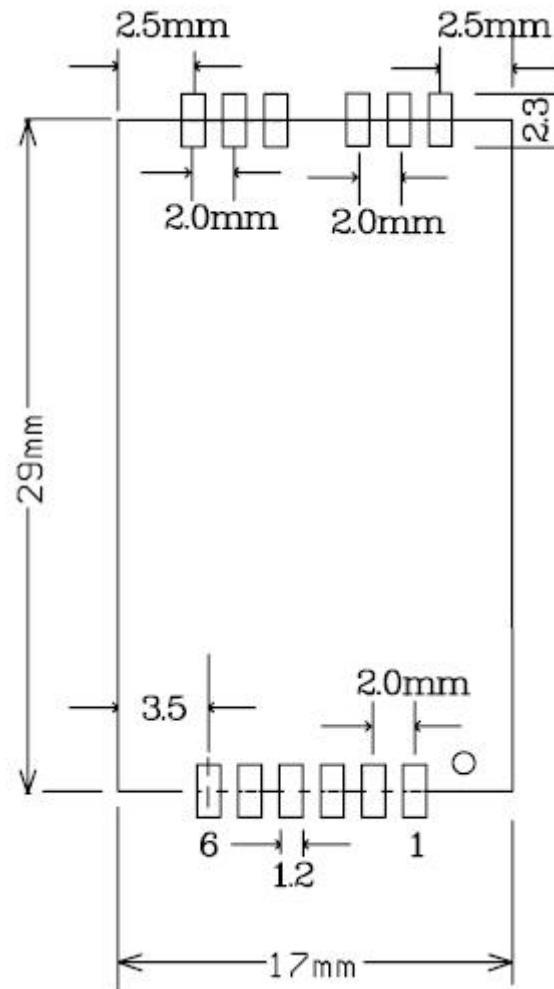


Figure 4: WG233 Dimensions

10. Manufacturing Process Recommendations

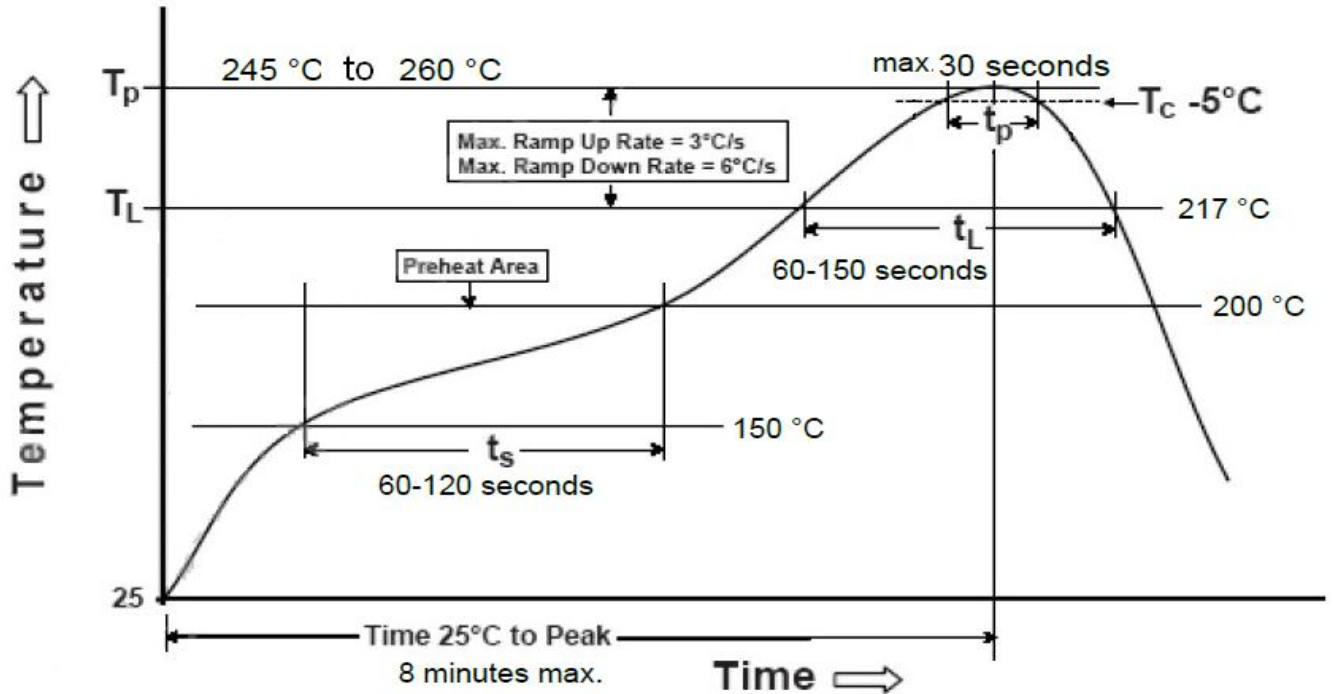


Figure 5: WG233 Typical Lead-free Soldering Profile

Note: The final soldering temperature chosen at the factory depends on additional external factors like choice of soldering paste, size, thickness and properties of the baseboard, etc. Exceeding the maximum soldering temperature in the recommended soldering profile may permanently damage the module.

11. Reference Design Schematic

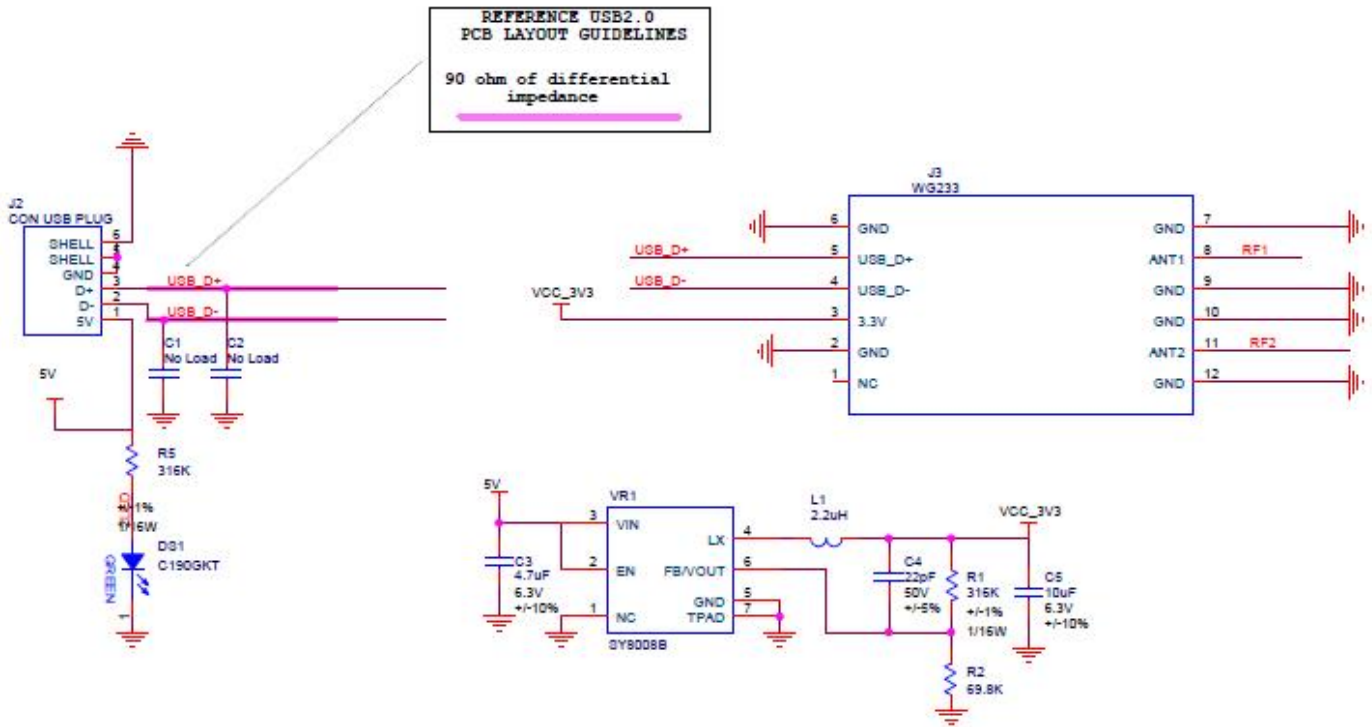


Figure 6: WG233 schematic application

12. Packaging Specification

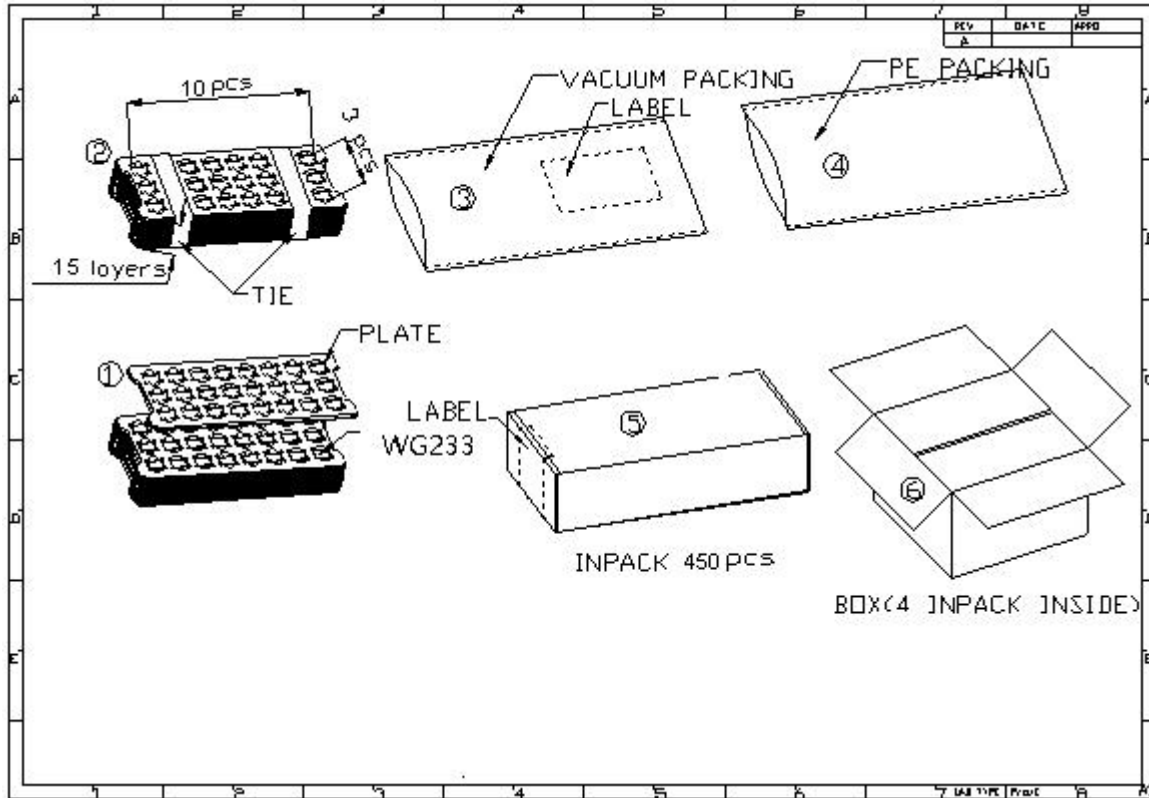


Figure 7: WG233 Packaging Specification

13. Contact Information

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