WG217 802.11 a/b/g/n/ac USB WiFi Module Datasheet

Document Information		
Title	WG217 802.11 a/b/g/n/ac USB WiFi Module Datasheet	
Document type	Datasheet	
Document number	SL-18060071	
Revision and date	V2.03	20-June -2022
Disclosure restriction	Public	

Revision History

Revision	Description	Approved	Date
V1.01	Initial Release	George He	2017.07.25
V1.02	Update Performance Specification	George He	2017.11.21
V1.03	Update Performance Specification	George He	2017.12.01
V1.04	Update Performance Specification	George He	2017.12.13
V1.05	Update Top View Photo	George He	2018.01.09
V1.06	Update packaging information	George He	2018.07.20
V2.01	Update packaging information	Wendy	2022.0415
V2.02	Update Module Pinout and Pin Description	Wendy	2022.4.16
V2.03	Add 3.3V power consumption data	Wendy	2022.6.20

Contents

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

1. General Description

WG217 is a highly integrated USB Wi-Fi module which supports 433Mbps PHY rate. It is compliant with IEEE 802.11ac draft specification, offering feature-rich wireless connectivity and reliable throughput from an extended distance.

WG217 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: WG217 Top View

2. Applications

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

3. Applications

- IEEE 802.11a/b/g/n/ac WLANs
- 2.4G /5G ITIR mode
- With support of 433Mbps 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 nvironment-friendly requirement.
- FCC,CE compliance
- 36.0(L) x 15.0(W) x 3.2mm small dimension.

4. Application Block Diagram

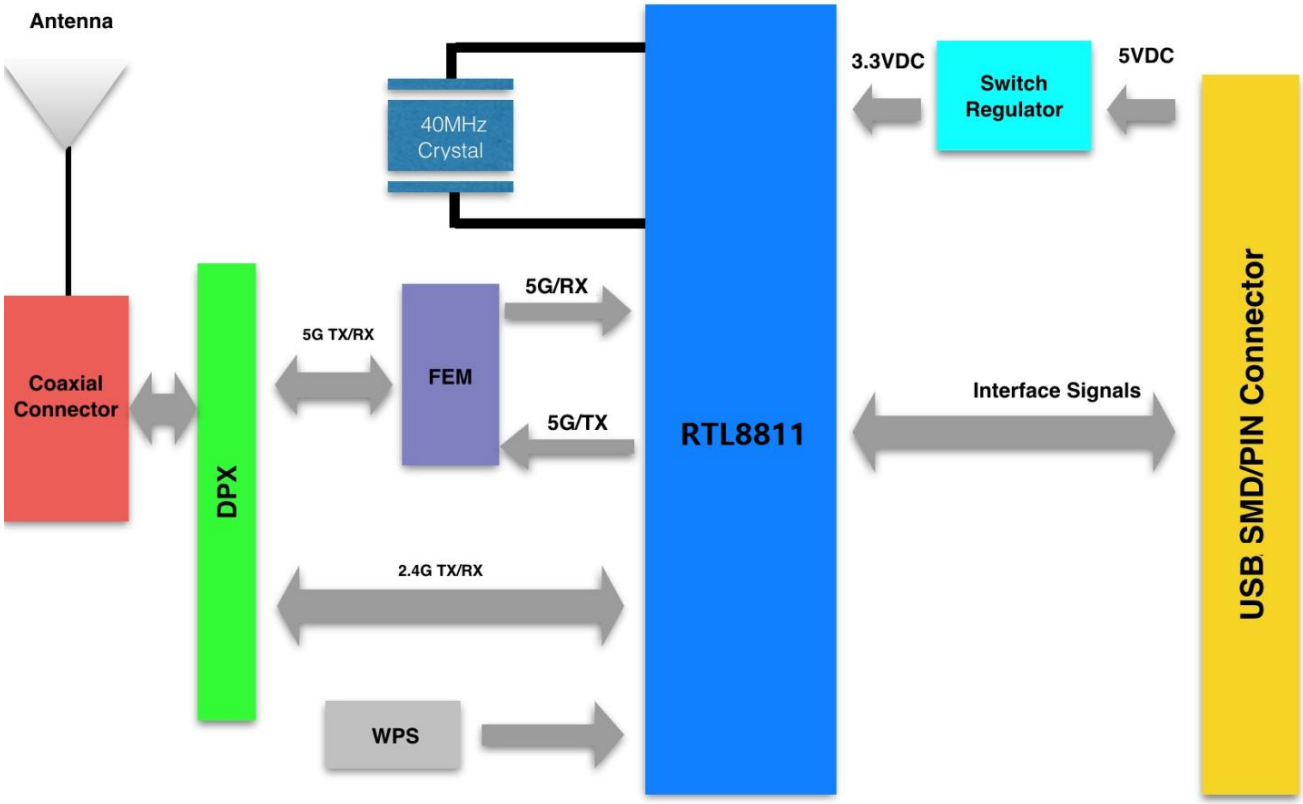
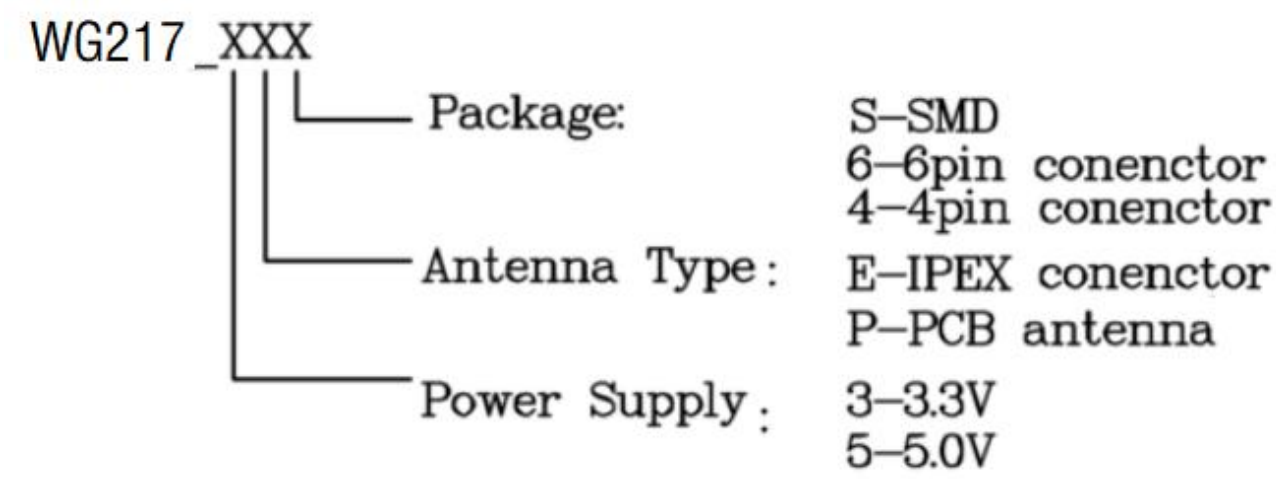


Figure 2: WG217 Block Diagram

5. Module Pinout and Pin Description



6. Performance Specification

Hardware Features	
Model	WG217
ANTENNA TYPE	IPEX connector or PCB antenna
DIMENTIONS(W×D)	36.0(L) x 15.0(W) x 3.2(H)mm
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: 130Mbps @ HT20
	150Mbps @ HT40 IEEE 802.11ac Standard Mode: 433Mbps @VHT80
2.4G RECEIVE SENSITIVITY	HT40 MCS15: -69dBm@10% PER(MCS7)
	HT20 MCS15 : -72dBm@10% PER(MCS7)
	54M: -74dBm@10% PER
	11M: -89dBm@ 8% PER
5G RECEIVE SENSITIVITY	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: 11-14dBm @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 15	3.3V	210	213
		5.0V	150	160
	Receiving HT40/MCS15	3.3V	87	87
		5.0V	90	90
SYSTEM REQUIREMENTS	Windows 7(32/64bits), Windows Vista(32/64bits), Windows XP(32/64bits), Windows 2000,Linux,Android			
ENVIRONMENT	Operating Temperature: -10℃~70℃			
	Storage Temperature: -40℃~125℃			
	Operating Humidity: 10%~90% non-condensing			
	Storage Humidity: 5%~90% non-condensing			

7. Module Pinout

Figure 3: WG217 Pin Name

Pin No.	Pin name	I/O	Description	Remark
1	LED	O	LED pin	
2	GND	G	Ground	
3	D+	I/O	USB Interface DP	
4	D-	I/O	USB Interface DM	
5	VCC	P	Module Power Supply	
6	WPS	I	WPS pin	
7	NC			
8	NC			

8. Electrical Characteristics

a) Absolute Maximum Ratings

Table8-1: Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Units
Supply Voltage	VCC_3V3	0.3	4	V
Supply Voltage	VCC_5.0V	0.3	7	V
RF input (reference to 50 Ω)	RFin		10	dBm
Storage Temperature	Tstore	-40	125	°C
Junction Temperature	Tjunction		125	°C
Electrostatic Discharge Tolerance	ESD		2000	V

b) Recommended Operation Ratings

Table8-2: Operating Conditions

Parameter	Symbol	Min	Type	Max	Units
Supply Voltage	VCC_3V3	3	3.3	3.6	V
Supply Voltage	VCC_5.0V	3.6	5.0	7.0	V
RF input (reference to 50 Ω)	RFin		10	dBm	dBm
Operation temperature	Toperation	-10	25	70	°C
Thermal Parameter	PsiJT			3.23	°C/W

ESD precautions

The WG217 series modules contain highly sensitive electronic circuitry and are Electrostatic Sensitive Devices (ESD). Handling the WG217 series modules without proper ESD protection may destroy or damage them permanently.

The WG217 series modules are electrostatic sensitive devices (ESD) and require special ESD precautions typically applied to ESD sensitive components. Proper ESD handling and packaging procedures must be applied throughout the processing, handling, transportation and operation of any application that incorporates the WG217 series module. Don’t touch the module by hand or solder with non-anti-static soldering iron to avoid damage to the module.

9. PCB Footprint and Dimensions

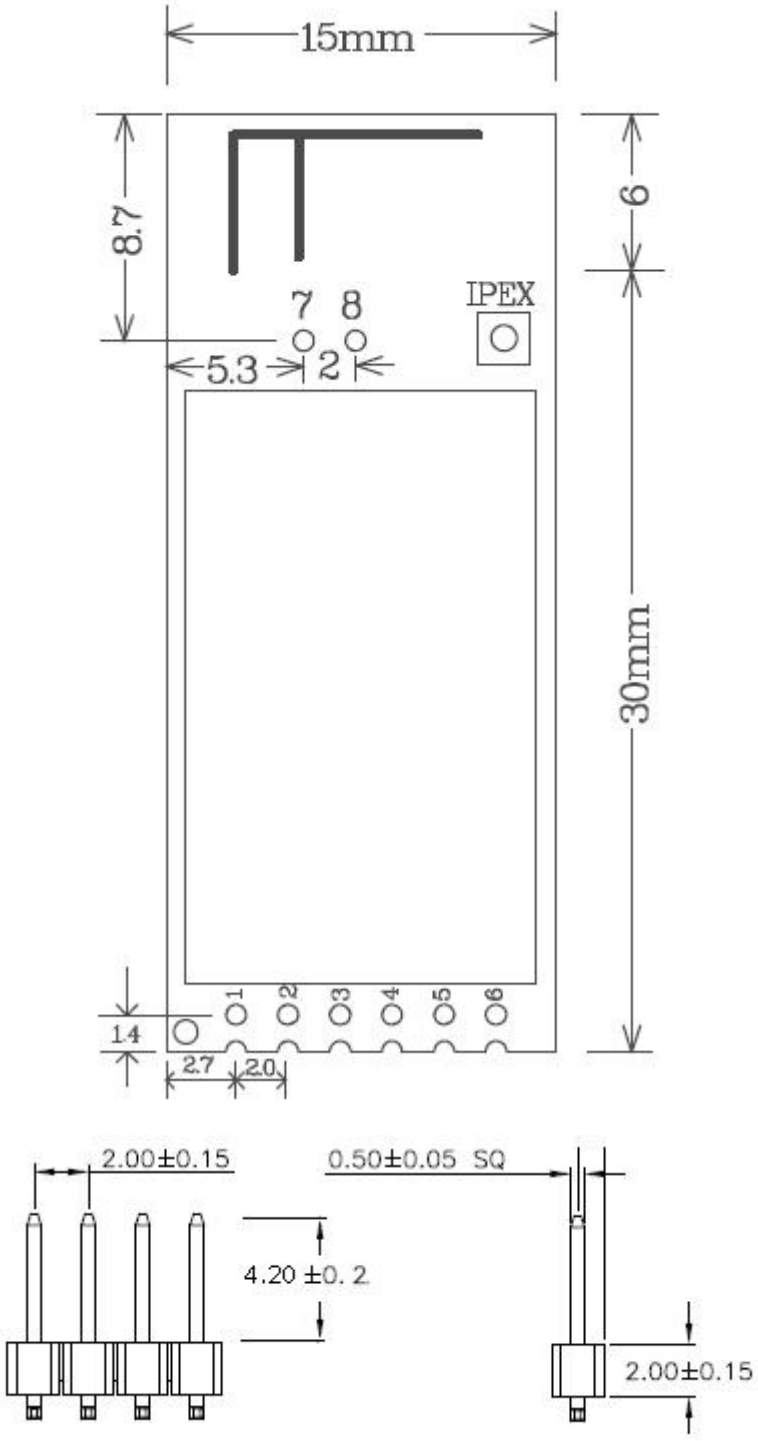


Figure 4: WG217 Dimensions

10. Manufacturing Process Recommendations

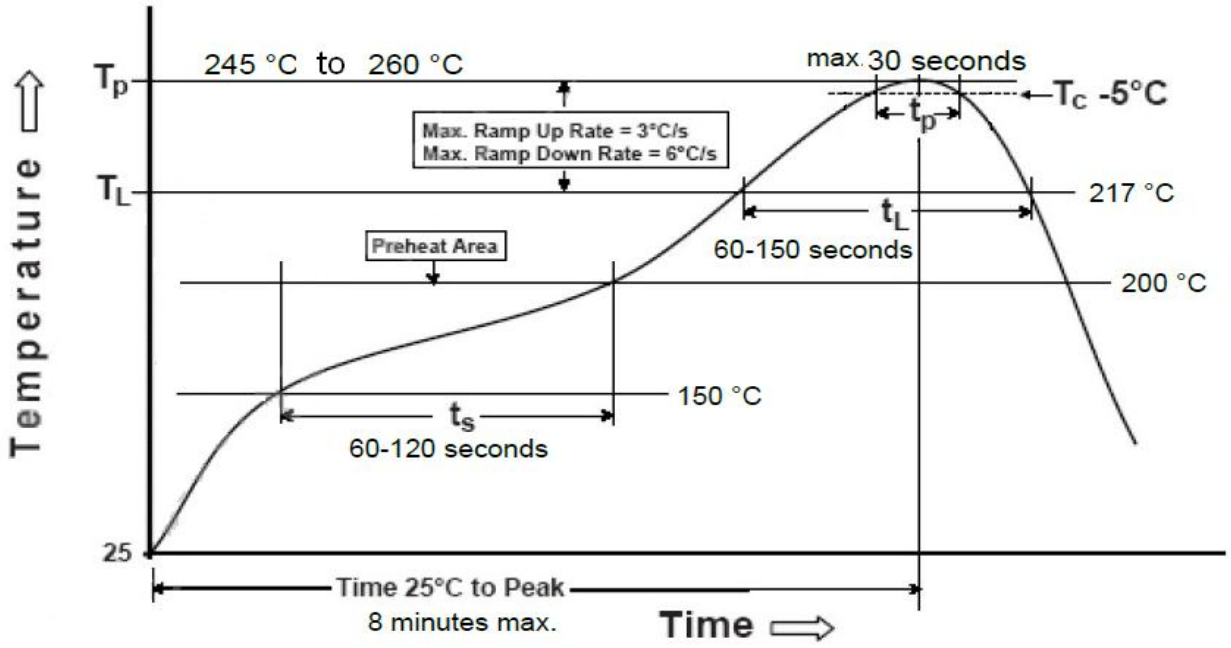


Figure 5: WG217 Typical Lead-free Soldering Profile

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

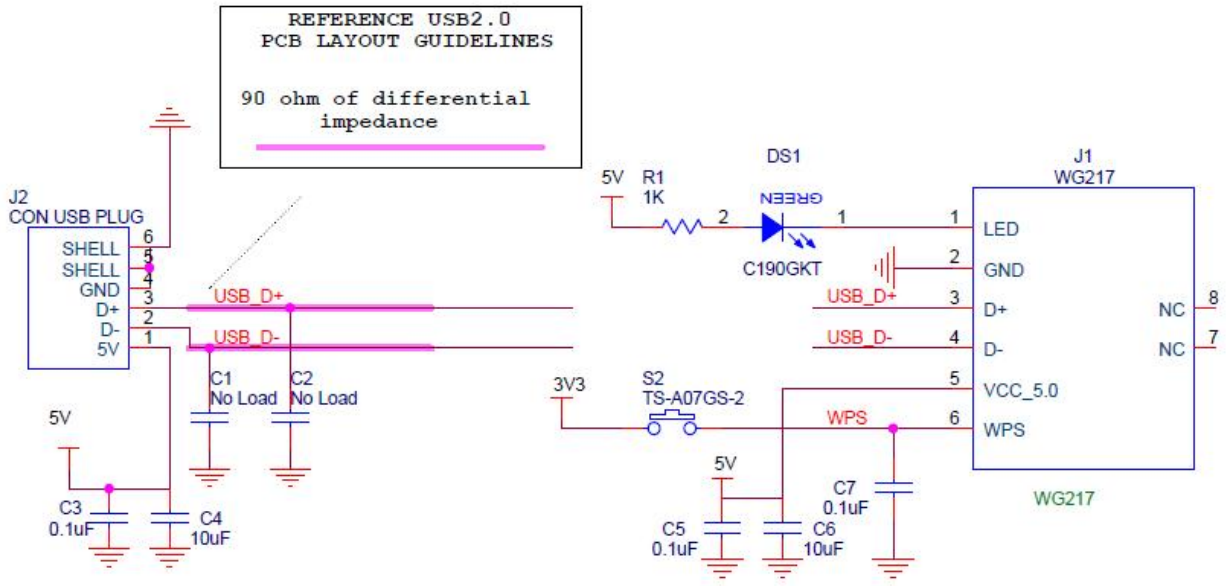
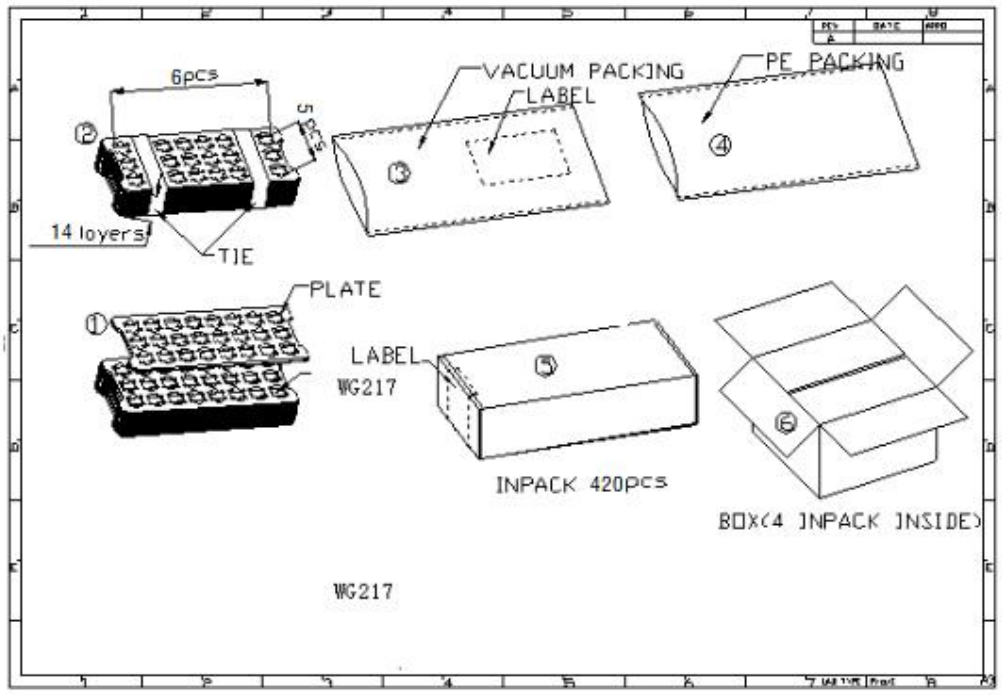


Figure 6: WG217 schematic application

12. Packaging Specification



Note：The figure above shows a module that does not weld the 4/6pin header.

Model	2pin header	4/6pin header	MOQ
WG217	NO	NO	420PCS
	NO	YES	1200PCS
	YES	YES	600PCS

Figure 7: WG217 Packaging Specification

12. Contact Information

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