

Confidentiality

level: Secret

PRODUCT SPECIFICATION

specification

SKI.WB822EU.12

IEEE802.11a/b/g/n/ac 2T2R USB Wi-Fi Module

Integrated Bluetooth 2.1+EDR/4.2/5.3

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REVISION HISTORY .

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V 1.0	2025.10.17	SKI .WB822EU .12A25305	All	First Issued	Lily
V1.1	2025.11.05	SKI .WB822EU .12A25305	5-9	Electrical Characteristics	Lily
V1.2	2025.11.13	SKI .WB822EU .12A25305	5-9& 15	Electrical Characteristics& Reference Design	Juhui
V1.2	2025.11.13	SKI .WB822EU .12A25305	5-9	Electrical Characteristics	Juhui

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1. Introduction

SKI .WB822EU .The 12-module system is based on the Realtek RTL8822EU-CG solution. This highly integrated chip features a low-power 2x2 11a/b/g/n/ac dual-band Wi-Fi subsystem and Bluetooth subsystem, with the Wi-Fi subsystem supporting 802.11ac standards. The 11a/b/g/n/ac radio frequency, baseband, and MAC sub-systems are designed to meet the requirements of low-power and high-throughput applications. The Bluetooth subsystem includes Bluetooth 2.1+ EDR、 v4 .2 and v5.3. Baseband and link controller. This document describes the engineering requirements specification.

2. Features

Supported protocols	IEEE Std . 802 .11b
	IEEE Std . 802 .11g
	IEEE Std . 802 .11n
	IEEE Std . 802 .11 a
	IEEE Std . 802 .11 ac
	BT 5 . 3
chip scheme	RTL8822EU-CG
frequency range	2 .4GHz/ 5GHz
tape width	20/40/80MHz
Theoretically, the maximum negotiation rate is...	Data rate up to 173 . 3Mbps using 20MHz bandwidth , 400Mbps using 40MHz bandwidth , and 866 . 7Mbps using 80MHz bandwidth .
antenna interface	PCB Antenna
way to install	SMD
size	51.5mm*32.5mm*3.5mm
remarks	

3. Block Diagram

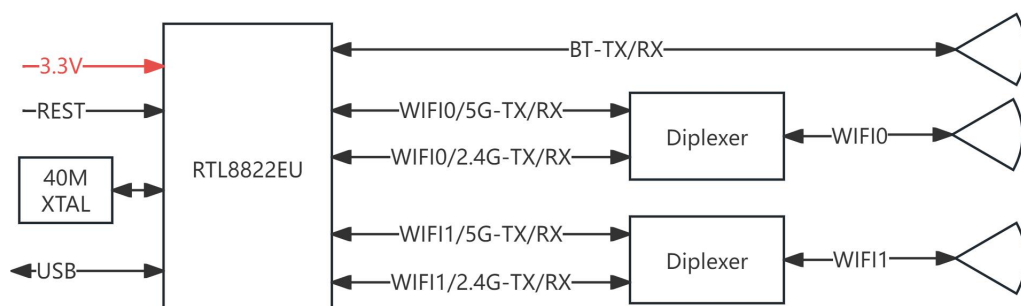
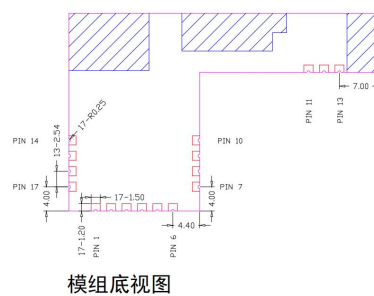
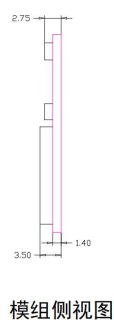
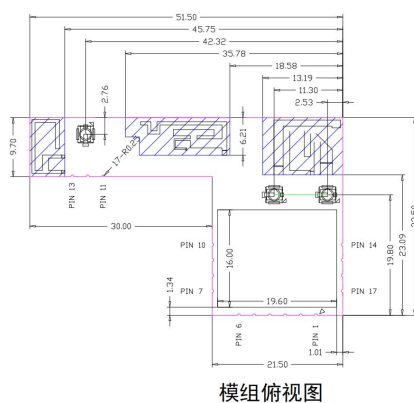


Figure 1 Block Diagram

4. Package Outline and Mounting (External Dimensions and Mounting Specifications)

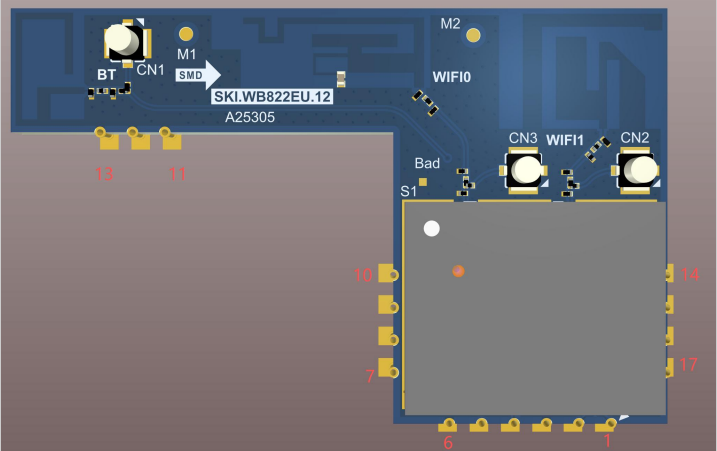
配置
Ver. 40



NOTE:

1. 除特殊说明区域,板内顶层器件最高2.1mm;
2. 模组外形尺寸公差为 $\pm 0.15\text{mm}$,板厚以及未标注公差为 $\pm 0.1\text{mm}$;
3. 斜条纹为天线净空区。

5. Pin Definition

 Module Front View			
Pin	Symbol	Description	Remark
1	USB_DM	USB2 .0 differential positive voltage signal	1
2	USB_DP	USB2 .0 differential negative voltage signal	2
3	GND	Ground\ the earth	3
4	RESET	RESET, L Active/ contains 47K pull-up resistor	4
5	WiFi_Wake_Host	The internal 10K pull-up resistor defaults to high level and is active at low level.	5
6	GND	Ground\ the earth	6
7	BT_Wake_Host	The internal 10K pull-up resistor defaults to high level and is active at low level.	7
8- 15	GND	Ground\ the earth	8- 15
16& 17	VDD_ 3 .3V	3 .3V power input	16& 17

6. Product Pictures

Module part number	front elevation	dorsal view	remarks
002.029.0001658			

Silk screen instructions:

- (1) The characters in the red box indicate the product PCB model;
- (2) The characters in the yellow box are the product cycle number;
- (3) Other non-critical characters require no control measures.

7. General Requirements

No .	Feature	Description
1	Operation Voltage: Voltage range	3.3V+/- 0.3
2	Current Consumption Maximum Current	1200mA
3	Ripple	≤ 165mV
4	Operation Temperature: The operating temperature	- 10° C to + 70° C
5	Antenna Type	PCB Antenna
6	Interface	USB2.0
7	Storage Temperature	- 40° C to + 85° C

*Ripple: The definition specifies the ripple requirements for the power supply from the motherboard to the module.

*RF Power Configuration Requirements (Radio Frequency Power Configuration Requirements)

```
##### Features #####
CONFIG_AP_MODE = y
CONFIG_P2P = y
CONFIG_MP_INCLUDED = y
CONFIG_POWER_SAVING = y
CONFIG_IPS_MODE = 0
CONFIG_LPS_MODE = 0
CONFIG_USB_AUTOSUSPEND = n
CONFIG_HW_PWRP_DETECTION = n
CONFIG_BT_COEXIST = y
CONFIG_WAPI_SUPPORT = n
CONFIG_EFUSE_CONFIG_FILE = y
CONFIG_EXT_CLK = n
CONFIG_TRAFFIC_PROTECT = n
CONFIG_LOAD_PHY_PARAMS_FROM_FILE = y
CONFIG_TXPWR_BY_RATE = y
CONFIG_TXPWR_BY_RATE_EN = y
CONFIG_TXPWR_LIMIT = y
CONFIG_TXPWR_LIMIT_EN = n
CONFIG_RTW_REGDB = rtk
```

The power after board mounting is controlled by the driver files TXPWR_BY_RATE and TXPWR_LIMIT, with specifications listed as debugging parameters for single-module operation. The driver files can be adjusted according to board testing requirements and regional shipping specifications.

*The operation frequency in 5150-5350MHz of Wi-Fi 5G is restricted to indoor usage only.

8. Electrical Characteristics

Unless otherwise specified, electrical specification tests shall be conducted under the following conditions:

Environmental conditions: temperature: 25°C±5°C;

Power supply voltage: The module input voltage is 3.3V±0.3;

8.1 IEEE 802.11b Section (2.4GHz)

Items	Contents			
Specification	IEEE802.11b			
Mode	CCK			
Channel	CH1 to CH13			
Data Rate	1, 2, 5.5, 11Mbps			
TX Characteristics	Min.	Typ.	Max.	Unit
1.TargetPower (EIRP)	15	17	19	dBm
2.Constellation Error (EVM) @ target power				

1) 1Mbps	-	-	- 10	dB
2) 2Mbps	-	-	- 10	dB
3) 5.5Mbps	-	-	- 10	dB
4) 11Mbps	-	-	- 10	dB
3.Frequency Error	- 20	-	20	ppm
RX Characteristics	Min .	Typ .	Max .	Unit
1.Minimum Input Level Sensitivity				
1) 1Mbps (P ER ≤ 8%)	-	-	- 83	dBm
2) 2Mbps (P ER ≤ 8%)	-	-	- 80	dBm
3) 5.5Mbps (P ER ≤ 8%)	-	-	- 79	dBm
4) 11Mbps (P ER ≤ 8%)	-	-	- 76	dBm
2.Maximum Input Level (P ER ≤ 8%)	- 10	-	-	dBm

8.2 IEEE 802.11g Section (2.4GHz)

Items	Contents			
Specification	IEEE802.11g			
Mode	OFDM			
Channel	CH1 to CH13			
Data Rate	6 , 9 , 12 , 18 , 24 , 36 , 48 , 54Mbps			
TX Characteristics	Min .	Typ .	Max .	Unit
1.Target Power (EIRP)	15	17	19	dBm
2.Constellation Error (EVM) @ target power				
1) 6Mbps	-	-	- 5	dB
2) 9Mbps	-	-	- 8	dB
3) 12Mbps	-	-	- 10	dB
4) 18Mbps	-	-	- 13	dB
5) 24Mbps	-	-	- 16	dB
6) 36Mbps	-	-	- 19	dB
7) 48Mbps	-	-	- 22	dB
8) 54Mbps	-	-	- 25	dB
3.Frequency Error	- 20	-	20	ppm
RX Characteristics	Min .	Typ .	Max .	Unit
1.Minimum Input Level Sensitivity				
1) 6Mbps (PER ≤ 10%)	-	-	- 85	dBm
2) 9Mbps (PER ≤ 10%)	-	-	- 84	dBm
3) 12Mbps (PER ≤ 10%)	-	-	- 82	dBm
4) 18Mbps (PER ≤ 10%)	-	-	- 80	dBm
5) 24Mbps (PER ≤ 10%)	-	-	- 77	dBm
6) 36Mbps (PER ≤ 10%)	-	-	- 73	dBm

7) 48Mbps (PER $\leq$ 10%)	-	-	- 69	dBm
8) 54Mbps (PER $\leq$ 10%)	-	-	- 65	dBm
2.Maximum Input Level (PER $\leq$ 10%)	- 20	-	-	dBm

8.3 IEEE 802 . 11n Section (2 . 4GHz)

Items	Contents						
Specification	IEEE802 .11n HT20/ HT40@ 2 . 4GHz						
Mode	OFDM						
Channel	HT20: CH1 to CH13 HT40: CH3 to CH11						
Data R ate	MCS0/ 1/ 2/ 3/ 4/ 5/ 6/ 7						
TX Characteristics	Min .		Typ .		Max .		Unit
	HT20	HT40	HT20	HT40	HT20	HT40	
1 .Target Power (EIRP)	1 5	1 5	1 7	1 7	1 9	1 9	dBm
2 .Constellation Error (EVM) @ target power							
1) MCS0	-		-		- 5		dB
2) MCS1	-		-		- 10		dB
3) MCS2	-		-		- 13		dB
4) MCS3	-		-		- 16		dB
5) MCS4	-		-		- 19		dB
6) MCS5	-		-		- 22		dB
7) MCS6	-		-		- 25		dB
8) MCS7	-		-		- 28		dB
3 .Frequency Error	- 20		-		20		ppm
RX Characteristics	Min .		Typ .		Max .		Unit
1 .Minimum Input Level Sensitivity	-		-		HT20	HT40	
1) MCS0 (PER ≦ 10%)	-		-		- 82	- 79	dBm
2) MCS1 (PER ≦ 10%)	-		-		- 79	- 76	dBm
3) MCS2 (PER ≦ 10%)	-		-		- 77	- 74	dBm
4) MCS3 (PER ≦ 10%)	-		-		- 74	- 71	dBm
5) MCS4 (PER ≦ 10%)	-		-		- 70	- 67	dBm
6) MCS5 (PER ≦ 10%)	-		-		- 66	- 63	dBm
7) MCS6 (PER ≦ 10%)	-		-		- 65	- 62	dBm
8) MCS7 (PER ≦ 10%)	-		-		- 64	- 61	dBm
2.Maximum Input Level (PE ≦ 10%)	- 20		-		-		dBm

8.4 IEEE 802 . 11 a Section (5GHz)

Items	Contents			
Specification	IEEE802 .11a			
Mode	OFDM			
Channel	CH36 to CH165			
Data R ate	6 , 9 , 12 , 18 , 24 , 36 , 48 , 54Mbps			
TX Characteristics	Min .	Typ .	Max .	Unit
1 .Target Power (EIRP)	1 5	1 7	1 9	dBm
2 .Constellation Error (EVM)@ target power				
1) 6Mbps	-	-	- 5	dB
2) 9Mbps	-	-	- 8	dB
3) 12Mbps	-	-	- 10	dB
4) 18Mbps	-	-	- 13	dB
5) 24Mbps	-	-	- 16	dB
6) 36Mbps	-	-	- 19	dB
7) 48Mbps	-	-	- 22	dB
8) 54Mbps	-	-	- 25	dB
3.Frequency Error	- 20	-	20	ppm
RX Characteristics	Min .	Typ .	Max .	Unit
1.Minimum Input Level Sensitivity				
1) 6Mbps (PER $\leq$ 10%)	-	-	- 82	dBm
2) 9Mbps (PER $\leq$ 10%)	-	-	- 81	dBm
3) 12Mbps (PER $\leq$ 10%)	-	-	- 79	dBm
4) 18Mbps (PER $\leq$ 10%)	-	-	- 77	dBm
5) 24Mbps (PER $\leq$ 10%)	-	-	- 74	dBm
6) 36Mbps (PER $\leq$ 10%)	-	-	- 70	dBm
7) 48Mbps (PER $\leq$ 10%)	-	-	- 66	dBm
8) 54Mbps (PER $\leq$ 10%)	-	-	- 65	dBm
6 . Maximum Input Level (PER $\leq$ 10%)	- 30	-	-	dBm

8.5 IEEE 802 . 11n Section (5GHz)

Items	Contents			
Specification	IEEE802 .11n HT20/ HT40 @ 5GHz			
Mode	OFDM			
Channel	HT20: CH36 to CH165 HT40: CH38 to CH163			
Data R ate	MCS0/ 1/ 2/ 3/ 4/ 5/ 6/ 7			
TX Characteristics	Min .	Typ .	Max .	Unit

	HT20	HT40	HT20	HT40	HT20	HT40	
1.Target Power (EIRP)	15	15	17	17	19	19	dBm
2.Constellation Error (EVM) @ target power							
1) MCS0	-		-		- 5		dB
2) MCS1	-		-		- 10		dB
3) MCS2	-		-		- 13		dB
4) MCS3	-		-		- 16		dB
5) MCS4	-		-		- 19		dB
6) MCS5	-		-		- 22		dB
7) MCS6	-		-		- 25		dB
8) MCS7	-		-		- 28		dB
3.Frequency Error	- 20		-		20		ppm
RX Characteristics	Min .		Typ .		Max .		Unit
5. Minimum Input Level Sensitivity					HT20	HT40	
1) MCS0 (PER $\leq$ 10%)			-		- 82	- 79	dBm
2) MCS1 (PER $\leq$ 10%)			-		- 79	- 76	dBm
3) MCS2 (PER $\leq$ 10%)			-		- 77	- 74	dBm
4) MCS3 (PER $\leq$ 10%)			-		- 74	- 71	dBm
5) MCS4 (PER $\leq$ 10%)			-		- 70	- 67	dBm
6) MCS5 (PER $\leq$ 10%)			-		- 66	- 63	dBm
7) MCS6 (PER $\leq$ 10%)			-		- 65	- 62	dBm
8) MCS7 (PER $\leq$ 10%)			-		- 64	- 61	dBm
6 . Maximum Input Level (PER $\leq$ 10%)	- 30		-		-		dBm

8.6 IEEE 802 . 11 ac Section (5GHz)

Items	Contents									
Specification	IEEE802 .11ac									
Mode	OFDM									
Channel	VHT20: CH36 to CH165 VHT40: CH38 to CH163 VHT80: CH42 to CH155									
Data Rate	MCS0/ 1/ 2/ 3/ 4/ 5/ 6/ 7/ 8/ 9									
TX Characteristics	Min .			Typ .			Max .			Unit
	VHT	VHT	VHT	VHT	VHT	VHT	VHT	VHT	VHT	
	20	40	80	20	40	80	20	40	80	
1.Target Power (EIRP)	13	13	13	15	15	15	17	17	17	dBm
2.Constellation Error (EVM) @ target power										

1) MCS0	-	-	- 5			dB
2) MCS1	-	-	- 10			dB
3) MCS2	-	-	- -			-
- 13	dB	4) MCS3	-			-
- 16	dB	5) MCS4	-			-
- 19	dB	6) MCS5	-			-
- 22	dB	7) MCS6	-			-
- 25	dB	8) MCS7	-			-
- 27	dB	9) MCS 8	-			-
- 30	dB	10) MCS 9	-			-
- 32dB	3 .	Frequency Error	- 20			-
20	ppm	RX Characteristics	Min .			Typ .
Max .Unit			1 . Mini mum Input Level Sens itivity	VHT 20	VHT 40	
VHT		80	1) MCS 0 (PE R ≦ 10%)	-	- 82	- 79
- 76		dBm	2) MCS 1 (PE R ≦ 10%)	-	- 79	- 76
- 74		dBm	3) MCS 2 (PE R ≦ 10%)	-	- 77	- 74
- 71		dBm	4) MCS	-	- 74	- 71

			3 (PE R $\leq$ 10%)			
- 67		dBm	5) MCS 4 (PE R $\leq$ 10%)	-	- 70	- 67
- 63		dBm	6) MCS 5 (PE R $\leq$ 10%)	-	- 66	- 63
- 62		dBm	7) MCS 6 (PE R $\leq$ 10%)	-	- 65	- 62
- 61		dBm	8) MCS 7 (PE R $\leq$ 10%)	-	- 64	- 61
- 57		dBm	9) MCS 8 (PE R $\leq$ 10%)	-	- 59	- 57
- 53		dBm	10) MCS 9	-	- 56	- 53

			(PER ≤ 10%)			
- 50dBm	2 .	Maximum Input Level (PER ≤ 10%)	- 3 0			-

-dBm

8 .7 Bluetooth Section8 .

7.	1 BR Specification			
Items	Contents			
Specification	BR			
Channel	CH0 to CH78			
	Modulation	GFSK	Min .	Typ .
Max .Output Average Power (EIRP)	-	7	-	dBm
2 .Modulation Characteristics				
1)Δ f1avg	140	-	175	kHz
2)Δ f2max	115	-	-	kHz
3)Δ f2/Δ f1	0 .8	-	-	kHz
3 .Initial Carrier Frequency Tolerance	- 75	-	75	kHz
4 .Carrier Frequency Drift				
1) One Slot packet drift (DH1)	- 25	-	25	kHz
2) Three Slot packet drift (DH3)	- 40	-	40	kHz
3) Five Slot packet drift (DH5)	- 40	-	40	kHz
4) Max Drift Rate	- 15	-	15	kHz/ 50us
RX Characteristics				
1 .Receiver Sensitivity (BER< 0 . 1%)	-	-	- 70	dBm
2 .Maximum usable signal (BER< 0 . 1%)	- 5	-	-	dBm

8 .7.2 ED R Specification

Items	Contents			
Specification	EDR			
Channel	CH0 to CH78			
Modulation	π/ 4- DQPSK、 8DPSK			
	Min .	Typ .	Max .	Unit
1 .Output Average Power (EIRP)	0	7	10	dBm

1) $\pi/4$ - DQPSK	0	7	10	dBm
2) 8DPSK	0	7	10	dBm
2 . Frequency Stability				
1) Omega- i	- 75	-	75	kHz
2) Omega- 0	- 10	-	10	kHz
3) Omega- 0 + Omega- i	- 75	-	75	kHz
3 . Modulation Accuracy				
1) RMS DEVM				
$\pi/4$ - DQPSK	-	-	20	%
8DPSK	-	-	13	%
2) Peak DEVM				
$\pi/4$ - DQPSK	-	-	35	%
8DPSK	-	-	25	%
3) 99% DEVM				
$\pi/4$ - DQPSK	-	-	30	%
8DPSK	-	-	20	%
RX Characteristics				
1 . Receiver Sensitivity (BER< 0 . 01%)				
1) $\pi/4$ - DQPSK	-	-	- 70	dBm
2) 8DPSK	-	-	- 66	dBm
2 . Maximum usable signal (BER< 0 . 1%)				
1) $\pi/4$ - DQPSK	- 5	-	-	dBm
2) 8DPSK	- 5	-	-	dBm

8.7.3 BLE Specification

Items	Contents			
Specification	BLE			
Channel	CH0 to CH39			
Modulation	GFSK			
	Min .	Typ .	Max .	Unit
1 . Output Average Power (EIRP)	0	5	10	dBm
2 . Modulation Characteristics				
1) Δf_{1avg}	225	-	275	kHz
2) Δf_{2max}	185	-	-	kHz
3) $\Delta f_2/\Delta f_1$	0.8	-	-	Hz/ Hz
3 . Carrier frequency offset and drift				
1) Frequency Offset	- 150	-	150	kHz
2) Frequency Drift	- 50	-	50	kHz
3) Max Drift Rate	- 20	-	20	Hz/ us

RX Characteristics				
1. Receiver Sensitivity (BER< 30 . 8%)				
1) 1M	-	-	- 70	dBm
2) 2M	-	-	- 66	dBm
2 . Maximum usable signal (BER< 30 . 8%)	- 5	-	-	dBm

9. Reference Design

9.1 Timing Specification

1、 USB Bus during Power on Sequence

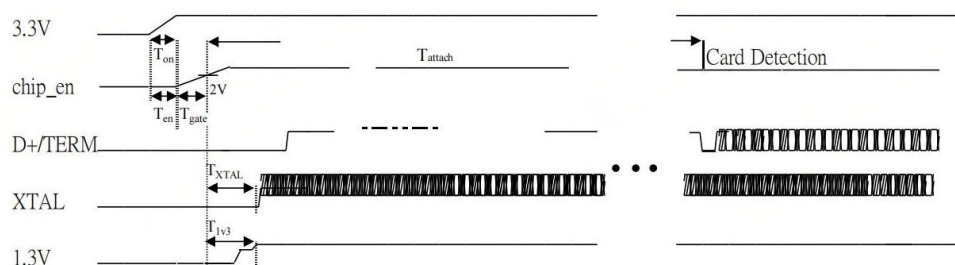


Figure 2. RTL8822EU USB Bus Power on Sequence

T_{on}: The main power ramp up duration

T_{en}: Interval between the rising point of 3.3V and chip_en

T_{gate}: Interval of 3.3V to be gated when chip_en voltage level < 2V

T_{attach}: USB attach state. The duration from resistor attached to USB host starting card detection procedure

T_{xtal}: XTAL starts

T_{lv3}: 1.3V ramp up duration

Power on Flow Description

After the main 3.3V ramp up, the internal power on reset is released by the power ready detection circuit and the power management unit is enabled. The power management unit enables the internal regulator and clock circuits.

The power management unit also enables the USB circuits.

USB analog circuits attach resistors to indicate the insertion of the USB device.

Table 14. Typical Timing Range

	Unit	Min.	Typical	Max.
T _{on}	ms	-	1.5	5
T _{en}	ms	0	0	5
T _{gate}	ms	0	1.5	8
T _{attach}	ms	100	250	-
T _{xtal}	ms	-	1.5	8
T _{lv3}	ms	-	3	11
T _{trap}	ms	400	500	-

2、RTL8822EU-CG Power off Sequence

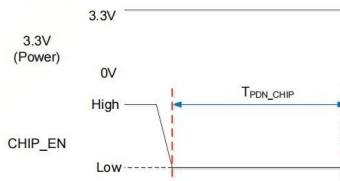


Figure 3. RTL8822EU-CG Power off Sequence

Table 13. RTL8822EU-CG Power off Timing Parameters

	Min.	Typical	Max.	Unit	Description
T _{PDN_CHIP}	10	100	X	ms	CHIP_EN keep low duration

CHIP_EN can externally shutdown the RTL8822EU-CG when CHIP_EN is pulled low. The keeping low duration must be more than T_{PDN_CHIP}

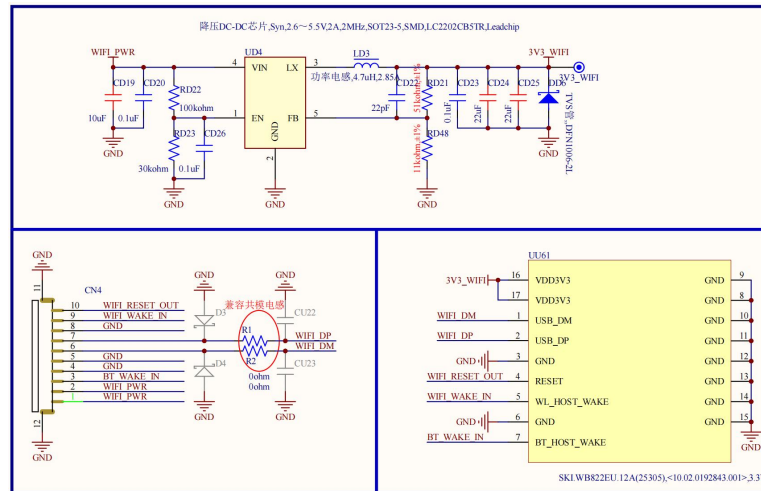
3、Platform state transitions

3.3V Power range	3.3V Ripple	3.3V Noise	Rise time	
			Min.	Max.
+/-0.3V	300mVpp @ switching frequency > 400KHz		1ms	5ms

9.2 Digital IO Pin DC Characteristics

Symbol	Parameter	Minimum	Normal	Maximum	Normal
V _{IH}	Input high voltage	2.0	3.3	3.6	V
V _{IL}	Input low voltage	--	0	0.9	V
V _{OH}	Output high voltage	2.97	--	3.6	V
V _{OL}	Output low voltage	0	--	0.33	V

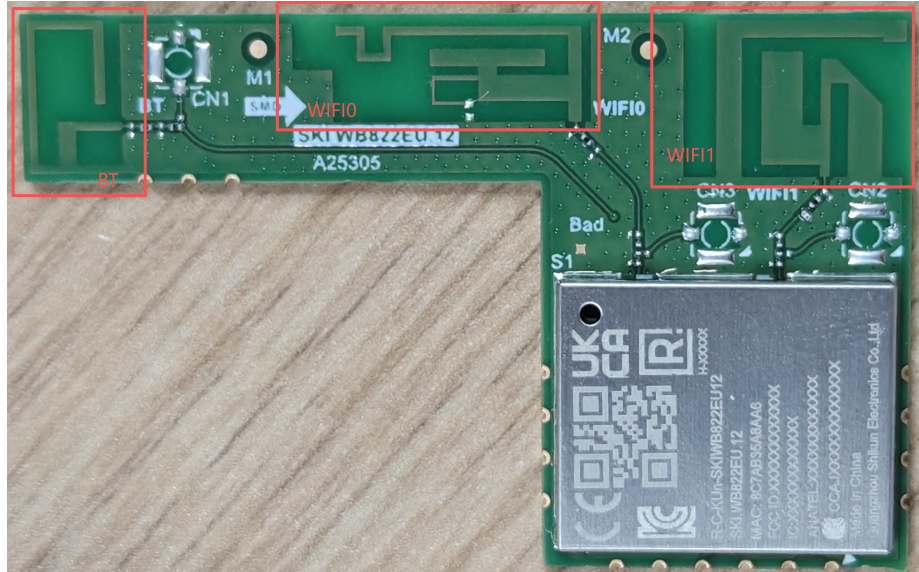
9.3 Reference schematic (Reference schematic)



reference schematic

9.4 Antenna Characteristics

WiFi0			WiFi1			BT		
Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
2400	0.96	35.32	2400	1.21	35.02	2400	1.03	31.92
2410	0.68	37.39	2410	1.34	34.10	2410	1.16	35.31
2420	0.85	39.83	2420	0.89	33.35	2420	0.87	36.90
2430	0.83	32.03	2430	0.97	33.84	2430	0.51	31.94
2440	1.06	33.28	2440	1.35	34.77	2440	0.62	34.26
2450	1.18	33.37	2450	1.45	35.75	2450	1.06	35.89
2460	1.20	32.92	2460	1.74	37.32	2460	1.44	37.18
2470	1.32	31.37	2470	1.29	39.33	2470	1.70	37.37
2480	1.56	38.97	2480	1.12	30.83	2480	1.71	36.45
2490	1.61	38.07	2490	1.67	32.14	2490	1.78	36.36
2500	1.48	38.57	2500	1.45	33.62	2500	2.00	36.88
5150	1.94	52.47	5150	1.78	52.49			
5250	1.72	50.50	5250	1.63	55.47			
5350	1.89	51.81	5350	0.85	51.54			
5450	2.35	51.45	5450	0.33	54.18			
5550	2.42	50.72	5550	0.77	54.92			
5650	2.21	58.66	5650	1.03	57.91			
5750	2.50	50.99	5750	1.04	55.32			
5850	2.41	53.44	5850	1.50	52.22			



Antenna position schematic diagram

10.Storage and Production (Storage, Production)

10.1 Storage requirements

This product has a moisture sensitivity rating of Level 4 (MSL4) and is shipped in vacuum-sealed packaging. Handling, storage, and processing must comply with IPC/JEDEC J-STD-033 standards. When stored under vacuum packaging at temperatures below 40°C and humidity below 90%, the product remains stable for 12 months. During the shelf life, if any of the following conditions occur: vacuum leakage, discoloration of moisture-sensitive cards exceeding baking criteria, or exposure time after opening exceeding 72 hours, the product must be baked before use.

10.2 Production parameters

The maximum temperature of furnace should not exceed 250 °C , and the recommended temperature is 24 0°C.

The recommended SMT furnace temperature curve is shown in the figure below.

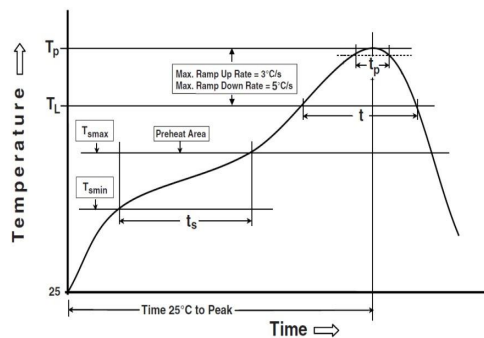


Figure 10-2: Recommended furnace temperature curve

Table 10-2 Parameters of furnace temperature curve

furnace temperature parameter	least value	representative value	crest value	unit
Minimum temperature in the preheating zone (T _{min})	150			°C
The maximum temperature in the preheating zone is T _{max} .			200	°C
Preheating rise time t _s	80		120	s
Temperature rise rate of reflow soldering zone (from T _L to T _p)			3	°C/ s
Low Temperature T _L in the Reflow Soldering Area		220		°C
The peak temperature T _p in the reflow soldering zone	235	240	250	°C
Reflow soldering peak temperature time t _p (T _p fluctuation within 5°C range)			30	s
Cooling rate of reflow soldering zone (T _p to T _L)	- 5	- 3	- 1	°C/ s
return time t	40		60	s