
LSW3629Q

2.4G WIFI module

Manufacture: Wuxi Little Swan Co., Ltd.

Catalog

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1.Introduction

LSW3629Q is a wireless WIFI module dedicate to IOT with low power consumption. It supports the IEEE802.11b/g/n protocol, embedded IPV4/IPV6, HTTP, TCP/IP, DNS, FTP and other network protocol completely, make the terminal more reliable, convenient, and easy to use in IOT.

LSW3629Q uses a Qualcomm Atheros QCA4004 single chip solution. It uses low power consumption technology in hardware and software, lead to lower power consumption and more competitive. The module provides a complete serial interface function to communicate with other equipment, so that we can connect the cloud and equipment through the serial port and the mobile phone client.

- IEEE 802.1n, 2.4Ghz ,1T1R
- Built-in antenna
- Green TX Low power saving technology
- The low power consumption monitor mode
- Support 150Mbps
- Complete encryption support: WPS, WPA, WPA2, WAPI, WEP, TKIP
- Support IPV4/IPV6, TCP/IP Protocol
- Support HTTP, DNS, FTP Network protocols

1.1 Hardware block diagram

As shown in Figure 1, the LSW3629Q with QCA4004 single chip 1T1R solution, the main part of the chip highly integrated CPU, PMU, RAM, Transceiver, LNA, PA etc, which greatly reduces the overall power consumption and layout area. The Use of the built-in PCB antenna not only cost down but also reduce the space. It works with interface UART for communication, when connected peripheral equipment, example: wash machine.

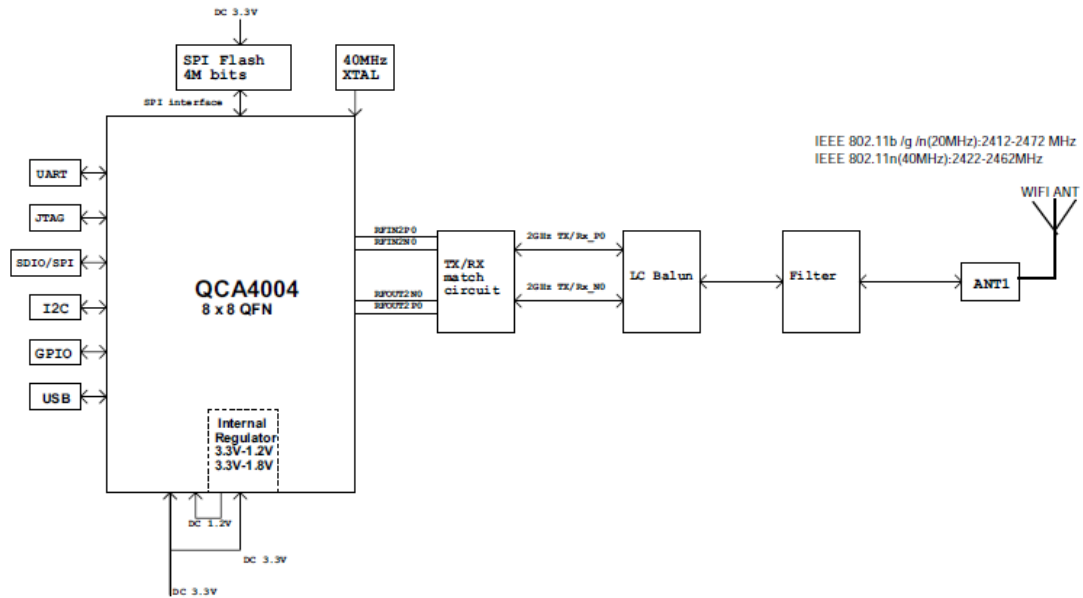


Figure1 Hardware block diagram

1.2 Technical specifications

Main chip	QCA4004
Frequency	2.40~2.4835GHz
WIFI standards	802.11b/g/n(1x1)
Modulation	802.11b(DSSS):CCK,DQPSK,DBPSK 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM
Rate	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n(20MHz):65/58.5/52/39/26/19.5/13/6.5 Mbps 802.11n(40MHz):135/121.5/108/81/54/40.5/37/13.5 Mbps
Communicate interface	UART
PCB layer structure	2
PCB sizes	36mm(L)x29mm(W)x1.2mm(H)
Antenna	PCB Built-in antenna
Working Temperature	-10℃~+40℃
storageTemperature	-10℃~+40℃
Working voltage	5V+/-5%
Hardware version	W114B V2.2
Software version	050180011735

2. Structural specification

2.1 Structural dimension

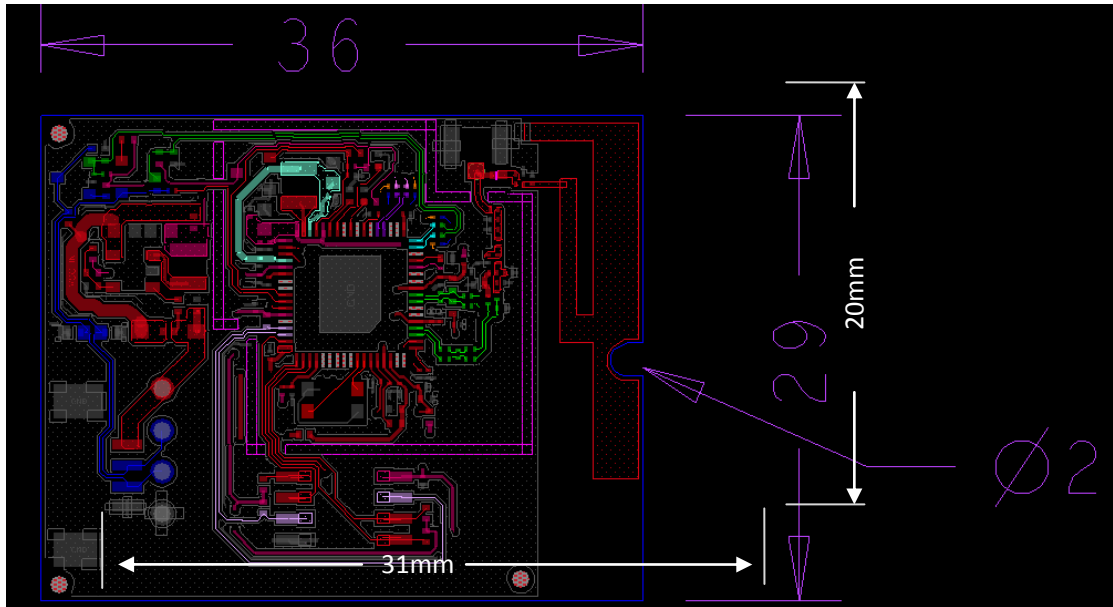


Figure 2. 36mm long , 29mm width , 1.2mm thickness(delta +/-0.15mm)

2.2 Interface

pin	name		Function description
1	VCC	Power	VCC 5V
2	UART_RX	IN	UART Receive, voltage level 5V
3	UART_TX	OUT	UART Transmit, voltage level 5V
4	GND	Ground	GND

3. RF specification

3.1 802.11b mode

Item	Content
Standard	IEEE802.11b
Mode	CCK,DQPSK,DBPSK
Channel	CH1-CH13

Data Rate	1,2,5,5,11Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Level(Calibrated)					
17dBm Target		17		dBm	
3.Spectrum Mask @target Power					
Fc +/-11MHz to +/-22MHz	-	-	-30	dBr	
Fc> +/- 22MHz	-	-	-50	dBr	
4.Frequency Error	-20	0	20	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5.Minmum Input Level Sensitivity					
1) 1Mbps(FER≤8%)			-83	dBm	
2) 2Mbps(FER≤8%)			-80	dBm	
3) 5.5Mbps(FER≤8%)			-79	dBm	
4) 11Mbps(FER≤8%)		-85	-76	dBm	
6 Maximum Input Level(FER≤8%)	-20	-10	-	dBm	

3.2 802.11g mode

Item	Content				
Standard	IEEE802.11g				
Mode	BPSK,QPSK,16-QAM,64-QAM				
Channel	CH1-CH13				
Data Rate	6,9,12,18,24,36,48,54Mbps				
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Level(Calibrated)					
17dBm Target		17		dBm	
3.Spectrum Mask @target Power					
at fc +/-11MHz to +/-22MHz	-	-	-20	dBr	
at fc> +/- 22MHz	-	-	-28	dBr	
at fc> +/-30MHz			-40	dBr	
4.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		-30	-25	dB	

5. Frequency Error	-20	0	20	Ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity					
1) 6Mbps(PER ≤ 10%)			-82	dBm	
2) 9Mbps(PER ≤ 10%)			-81	dBm	
3) 12Mbps(PER ≤ 10%)			-79	dBm	
4) 18Mbps(PER ≤ 10%)			-77	dBm	
5) 24Mbps(PER ≤ 10%)			-74	dBm	
6) 36Mbps(PER ≤ 10%)			-70	dBm	
7) 48Mbps(PER ≤ 10%)			-66	dBm	
8) 54Mbps(PER ≤ 10%)		-72	-65	dBm	
7. Maximum Input Level (PER ≤ 10%)	-20	-10	-	dBm	

3.3 802.11n HT20 mode

Item	Content				
Standard	IEEE802.11n HT20 @2.4Ghz				
Mode	BPSK,QPSK,16-QAM,64-QAM				
Channel	CH1-CH13				
Data Rate(MCS Index)	MCS0/1/2/3/4/5/6/7				
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Level					
1) 16dBm Target@MCS0		16		dBm	
2) 13dBm Target@MCS7		13		dBm	
3.Spectrum Mask @target Power					
at fc +/-11MHz	-	-	-20	dBr	
at fc> +/- 20MHz	-	-	-28	dBr	
at fc> +/-30MHz			-45	dBr	
4.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		-30	-28	dB	
5. Frequency Error	-25	0	25	Ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity					
1) MCS0(PER ≤ 10%)			-82	dBm	

2) MCS1 (PER ≤ 10%)			-79	dBm	
3) MCS2 (PER ≤ 10%)			-77	dBm	
4) MCS3 (PER ≤ 10%)			-74	dBm	
5) MCS4 (PER ≤ 10%)			-70	dBm	
6) MCS5Mbps (PER ≤ 10%)			-66	dBm	
7) MCS6Mbps (PER ≤ 10%)			-65	dBm	
8) MCS7Mbps (PER ≤ 10%)		-70	-64	dBm	
7. Maximum Input Level (PER ≤ 10%)	-20	-10	-	dBm	

3.4 802.11n HT40 mode

Item	Content				
Standard	IEEE802.11n HT20 @2.4Ghz				
Mode	BPSK,QPSK,16-QAM,64-QAM				
Channel	CH3-CH11				
Data Rate(MCS Index)	MCS0/1/2/3/4/5/6/7				
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Level					
1) 16dBm Target		16		dBm	
2) 12dBm Target		12		dBm	
3. Spectrum Mask @target Power					
at fc +/- 11MHz	-	-	-20	dBr	
at fc > +/- 20MHz	-	-	-28	dBr	
at fc > +/- 30MHz			-45	dBr	
4. 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		-30	-28	dB	
5. Frequency Error	-20	0	20	Ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity					
1) MCS0 (PER ≤ 10%)			-79	dBm	
2) MCS1 (PER ≤ 10%)			-76	dBm	
3) MCS2 (PER ≤ 10%)			-74	dBm	
4) MCS3 (PER ≤ 10%)			-71	dBm	
5) MCS4 (PER ≤ 10%)			-67	dBm	

6) MCS5Mbps(PER≤10%)			-63	dBm	
7) MCS6Mbps(PER≤10%)			-62	dBm	
8) MCS7Mbps(PER≤10%)		-66	-61	dBm	
7. Maximum Input Level (PER≤10%)	-20	-10	-	dBm	

FCC Statement

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The modular can be installed or integrated in mobile or fix devices only. This modular cannot be installed in any portable device.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This modular must be installed and operated with a minimum distance of 20 cm between the radiator and user body.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:

“Contains Transmitter Module FCC ID: 2AOVQLSW3629Q Or Contains FCC ID: 2AOVQLSW3629Q”

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1. 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.

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

Any company of the host device which install this modular with Single modular approval should perform the test of radiated emission and spurious emission according to FCC part 15C : 15.247 and 15.209 requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.209 requirement, then the host can be sold legally.