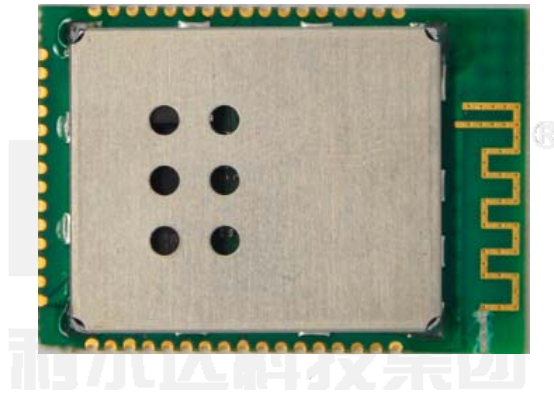

Lierda Science & Technology Ltd

LSD SCIENCE & TECHNOLOGY CO., LTD.

LSD4WF-2MD05106(XXXY) Low Power Wi-Fi Module User Manual



Model : LSD4WF-2MD05106

Name : Wi-Fi Module

Revision : v1.0

Index

1. Product overview	3
1.1 General Description.....	3
1.2 Features	3
2. Parameters	4
3. Package.....	5
4. Pin definition	6
5. Behavior of electricity.....	8
6. Typical application	8
7. Reference design	9
8. Developing tool.....	9



OEM Labeling Requirements:

NOTICE:The OEM or final integrator must ensure that FCC labeling requirements are met.This includes an additional label on the outside of the final product housing with the following contents:

Company Name:XXXX

MODEL: YYYY

Contains Model: LSD4WF-2MD05106 (XXXXY) FCC ID:N8NLSD4WF2MD05106

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.

To satisfy FCC RF Exposure requirements for this transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

1. Product overview

1.1 General Description

LSD4WF-2MD05106 is a Wi-Fi module for any electronic device to achieve networking capabilities. The module is fully in line with the 802.11b/g/n international standard specification, the internal integrated high performance Wi-Fi chip make it easy to access the serial port equipment or MCU control equipment to network, so as to realize wireless networking.

Built-in TCP/IP protocol stack, supports STA/AP/STA+AP coexistence working modes, supports 802.11b/g/n protocol, supports wireless local upgrade and OTA remote firmware upgrade.

32.8mmx23.1mmx3.2mm, using the stamp hole package, built-in board PCB antenna.

1.2 Features

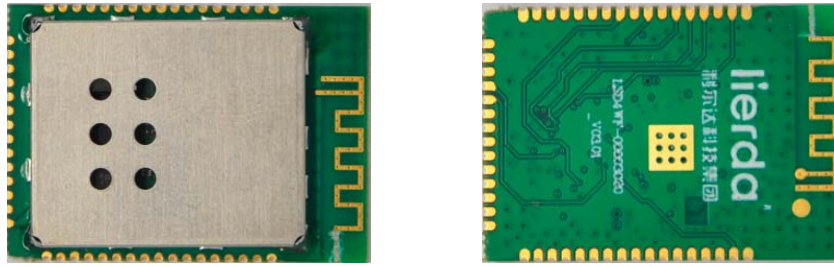
- ◆ Confirm with 802.11b/g/n protocol.
- ◆ Built-in high performance M3 core MCU, highest frequency 166MHz, high speed data processing ability.
- ◆ USART/GPIO/SPI/PWM multiple interface.
- ◆ QJoine high speed link configuration.
- ◆ Support STA/AP/STA+AP coexist work mode.
- ◆ Support WPA/WPA2/WEK encryption.
- ◆ Support wireless, Web page and OTA remote hardware upgrading.
- ◆ Support multiple net protocol communication.
- ◆ Provide abundant AT+ instruction set configuration.
- ◆ Optional built-in on board PCB antenna and external antenna interface.
- ◆ Dimension: 32.8mmx23.1mmx3.2mm, Stamp hole paste.
- ◆ 3.3V single power supply.
- ◆ CE/FCC.
- ◆ RoHS.

2. Parameters

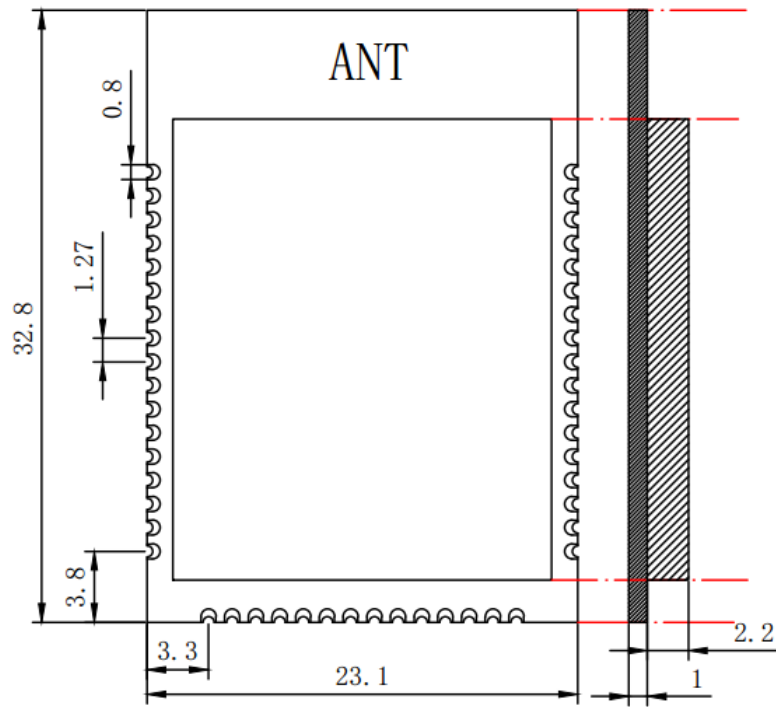
	Parameters	
Wireless Parameters	Standard	802.11 b/g/n
	Frequency	2.412GHz-2.462GHz
	Emitting power	802.11b:+17.0±0.5dBm(@11Mbps)
		802.11g:+15.5±0.5dBm(@54Mbps)
		802.11n:+15.5±0.5dBm(@HT20,MCS7)
	Receiving Sensitivity	802.11b: -83 dBm (@1Mbps ,CCK)
		802.11g: -74dBm (@54Mbps, OFDM)
		802.11n: -61dBm (@HT20, MCS7)
	Type of Modulation	802.11g/n OFDM(BPSK,QPSK,16QAM,64QAM) 802.11bCCK11Mbps,5.5Mbps,QPSK2Mbps,BPSK 1Mbps
	Antenna	Built-in: On board PCB antenna 2dBi
Hardware Parameters	Working Voltage	3.3V (3.0V~3.6V)
	Working Current	Quiescent Current: ~20mA Emitting peak Current: ~200mA
	Working Temperature	-20℃~85℃
	Hardware Interface	USART/GPIO/SPI/PWM
	Dimension	32.8mmx23.1mmx3.2mm
Software parameters	Wireless network type	STA/AP/STA+AP
	Security Mechanism	WEP/WPA-PSK/WPA2-PSK
	Encryption	WEP/AES/TKIP
	Hardware upgrading	Local wireless upgrading/ Web page upgrading/ Remote upgrading
	Network Protocol	IPv4, TCP/UDP/FTP/HTTP
	User Configuration	QJoine Configuration, AT+instruction, Web page

Pic1-1 LSD4WF-2MD05106 Basic Parameters

3. Package



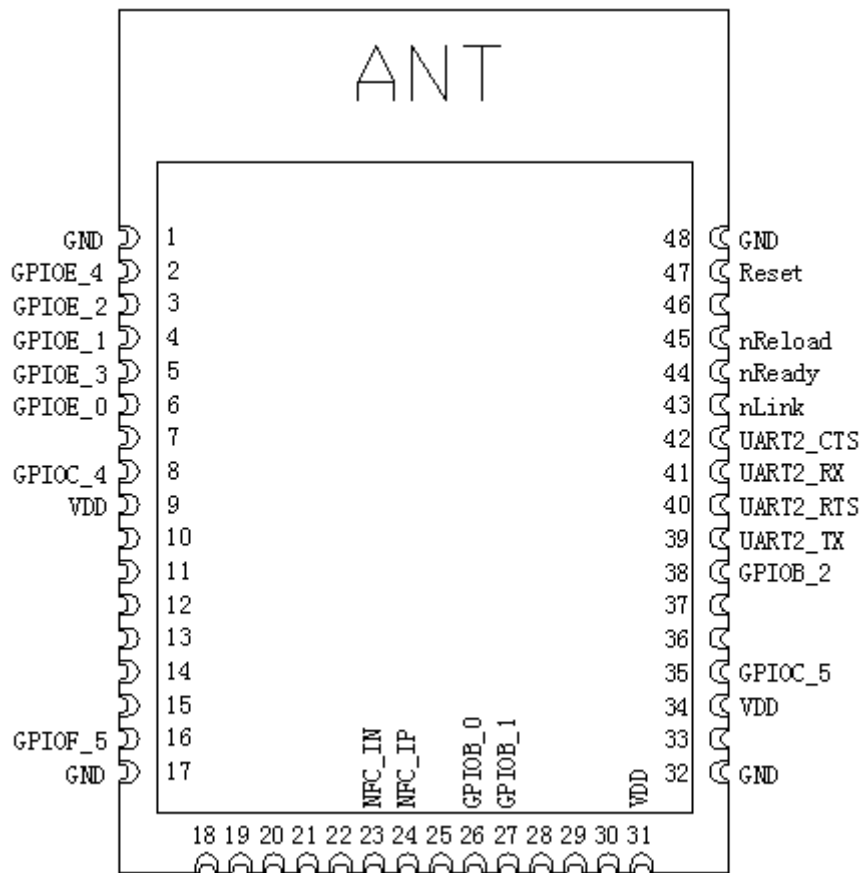
Pic 1-2 LSD4WF-2MD05106 Front and back



Unit: mm

Pic 1-3 LSD4WF-2MD05106 module package dimension

4. Pin definition



Pic 1-4 LSD4WF-2MD05106 Module pin layout

PIN	Pin Definition	Function
1	GND	Ground pin
2	JTAG_CLK/GPIOE_4	Program download port
3	JTAG_TDO/PWM2/SPI0_MOSI/GPIOE_2	Program download port
4	JTAG_TDI/PWM1/SPI0_CLK/GPIOE_1	Program download port
5	JTAG_TMS/PWM3/SPI0_MISO/GPIOE_3	Program download port
6	PWM0/SPI0_CS0/GPIOE_1	Multiplex pin
7	NC	NC
8	GPIOC_4	GPIO
9	VDD	VCC (DC_3.3V)
10	NC	NC
11	NC	NC
12	NC	NC
13	NC	NC
14	NC	NC
15	NC	NC

16	GPIOF_5	EEPROM_SEL 0:Internal NV memory select 1:External EEPROM select Define: pull-down
17	GND	Ground pin
18	NC	NC
19	NC	NC
20	NC	NC
21	NC	NC
22	NC	NC
23	NFC_IN	NFC+
24	NFC_IP	NFC-
25	NC	NC
26	GPIOB_0	BOOT_SCENARIO 0:booting from internal memory 1:booting flash Define: pull-down
27	GPIOB_1	GPIO
28	NC	NC
29	NC	NC
30	NC	NC
31	VDD	VCC (DC_3.3V)
32	GND	Ground pin
33	NC	NC
34	VDD	VCC (DC_3.3V)
35	GPIOC_5	GPIO
36	NC	NC
37	NC	NC
38	GPIOB_2	NORMAL_MODE_SEL 0:Normal operation mode 1:Enter into debug mode Define: pull-down
39	UART2_TX/GPIOA_4	UART2/IO PIN
40	UART2_RTS/GPIOA_2	UART2/IO PIN
41	UART2_RX/GPIOA_0	UART2/IO PIN
42	UART2_CTS/GPIOA_1	UART2/IO PIN
43	GPIOA_5 (nLink)	WIFI LED "0" WIFI no Connection "1"WIFI Connection
44	GPIOA_3 (nReady)	Module startup instructions "0: start "1"no start
45	GPIOB_3 (nReload)	Restore factory settings

46	NC	NC
47	Reset	Reset pin
48	GND	Ground pin

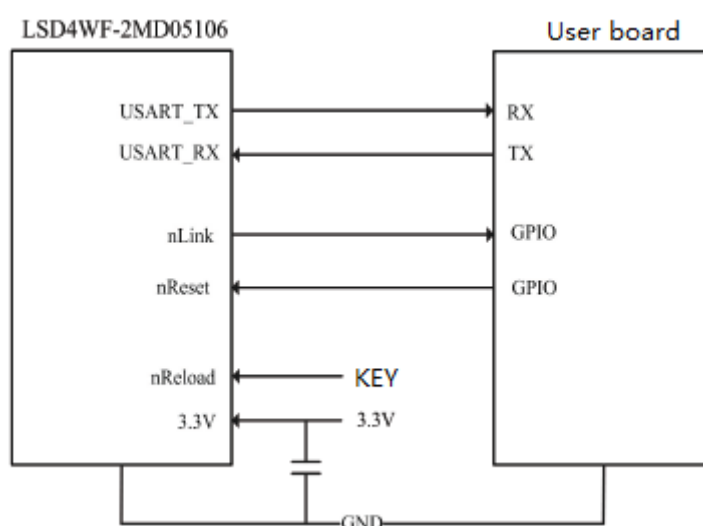
Table 1-1 LSD4WF-2MD05106 Module pin definition

5. Behavior of electricity

Parameters	Minimum	Typical value	Maximum	Unit
Working voltage	3.0	3.3	3.6	V
Standby current		15		mA
Static current		26		mA
TX current		160		mA
RX current		65		mA

Table1-2 LSD4WF-2MD05106 behavior of electricity

6. Typical application



Pic1-5 LSD4WF-2MD05106 Typical circuit connection

Pin	State	Remark
nlink	Output (connected to LED)	Check the network state of module or indication for batch upgrade or configuration
nReload	Input, valid in low level	Connect button to chip pin for factory setting restoring
nReset	Input, valid in low level	Reset pin
USART_TX/USART_RX	Serial port transceiver port	Serial port transceiver port

Table 1-3 Connection introduction of cardinal pin

7. Reference design

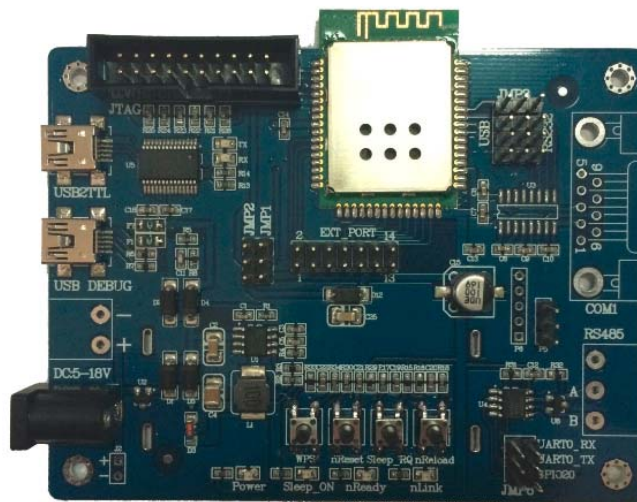
PCB onboard antenna is built in LSD4WF-2MD05106 module, users should using onboard antenna design need to be cautious that:

- 1, No components or GND on antenna area of user board
- 2, Keep antenna away from metal, stay over 10mm away from surrounding higher components.
- 3, Antenna can't be covered by metal case and it should be over 10mm away from plastic casing.

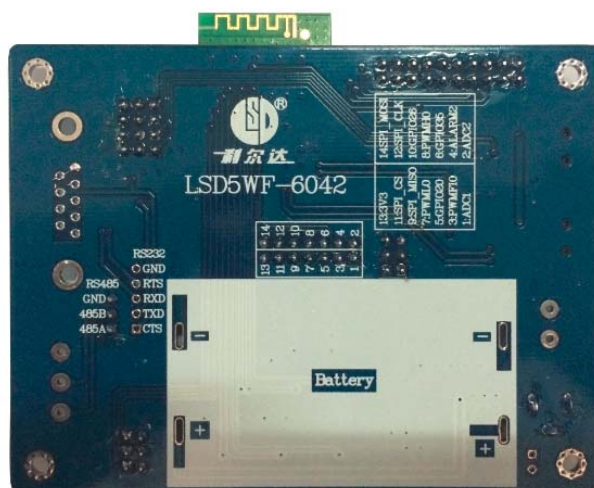
During specific design, users can consult the Lierda technical engineer to assist in the place of the module and related Layout.

8. Developing tool

Lierda would provide a complete set of LSD4WF-2MD05106 development kit for customers to get familiar with the application and development of the module. Users can configure and debug the parameters of the LSD4WF-2MD05106 module through the USB interface and the function test. This development board can directly get power from the USB interface, it also support lithium battery and DC 5~18V DC current supply, convenient for the user.



Pic 1-6 Developing board (front)



Pic 1-7 Developing board (back)

External interface introduction, table: 1-4

Function	Item	Description
External interface	USB2TTL	UART to USB debugging port, can be used for power supply
	USB DEBUG	USB2.0 debugging interface(reserved)
	DC5-18V	5~18V DC input
	COM1	RS232 interface
	RS485	RS485 interface
	JMP1	Preserve
	JMP2	Preserve
	JMP3	4Pin USB and RS232 debugging choosing port, left choose USB
	JPM6	3Pin RS485 and RS232 debugging choosing port, no wire jumper choose RS232
	EXT_PORT	LSD4WF-2MD05106 GPIO interface expand
	JTAG	JTAG data debugging interface
	Battery	Lithium battery supply interface
LED indication light	Power	3.3V power indication
	Sleep_ON	Module standby indication On: Module is in standby mode Off: Module is working
	nReady	Module start or updating ready indication On: Module started up Off: Module not started Blink: Remote updating, blink frequency in proportion to download speed

	nLink	Module connection indication On: Wi-Fi connected; Off: Wi-Fi unconnected;
Button	WPS	Function reserve
	nReset	Reset
	Sleep_RQ	Function reserve
	nReload	Press button for over 4 seconds to restore to factory settings.

Table 1-4 External interface introduction of LSD4WF-2MD05106developing board

