LSD4WF0459-01D0
WiFi module data sheet
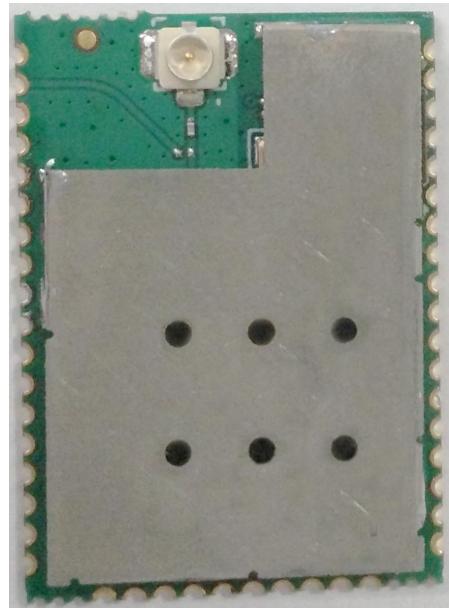
item : WiFi module
item code: LSD4WF0459-01D0
Version : V1.1

contents

Preface

Thank you for choosing the WiFi modules provided by the Lierda Technology Group co., Ltd. Please read this user's manual carefully before use, our company does not

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1 Product Introduction

1.1 Product Overview

LSD4WF0459-01D0 is a highly integrated WiFi module based on the single chip controller, Supporting the physical transmission rate of 150 Mbps. Fully comply to the IEEE 802.11 b/g standard and IEEE 802.11 n standard, In the field of high standard and the reliability of the transmission, provides a feature-rich wireless connection scheme.

Optimized radio frequency architecture and Baseband for algorithm provides excellent rf performance and low power consumption performance. Integration of MAC design can be configured to efficient DMA engine and data processing cell of hardware.

In the field of security, service quality and the international standard, LSD4WF0459-01D0 Provides standard fundamental features, In many applications environment,it provides good performance to terminal users.

1.2 Functional features

● Support IEEE802.11b/g/n client

● Integrate ARM-CM4 microprocessor

● Embed MAC, several IO interface, highly integrated RF architecture

● 1T1R model supports 150 Mbps wireless transmission rate in the physical layer

● Use the welding plate of stamps hole

● Small module size and flexible application

● Support WiFi connect directly

● Transmission power control of each packet

● RF signal output is available and external antenna needed

● Embed MCU,support fireware and custom function

1.3 Application field

● Smart home, intelligent home appliances products

● The electronic products which has the function of network: e-books, printers, electronic photo frame;

● Industrial remote sensing, telemetry communication.

● Household wireless security, monitoring, power of computer room, the wireless remote control alarm system of fan device;

● Personal navigation equipment, the set-top box GPS

● POS system,PDA and other wireless intelligent terminal、medical instruments.

● The electronic stop, intelligent transportation scheduling system；

1.4 Structure diagram
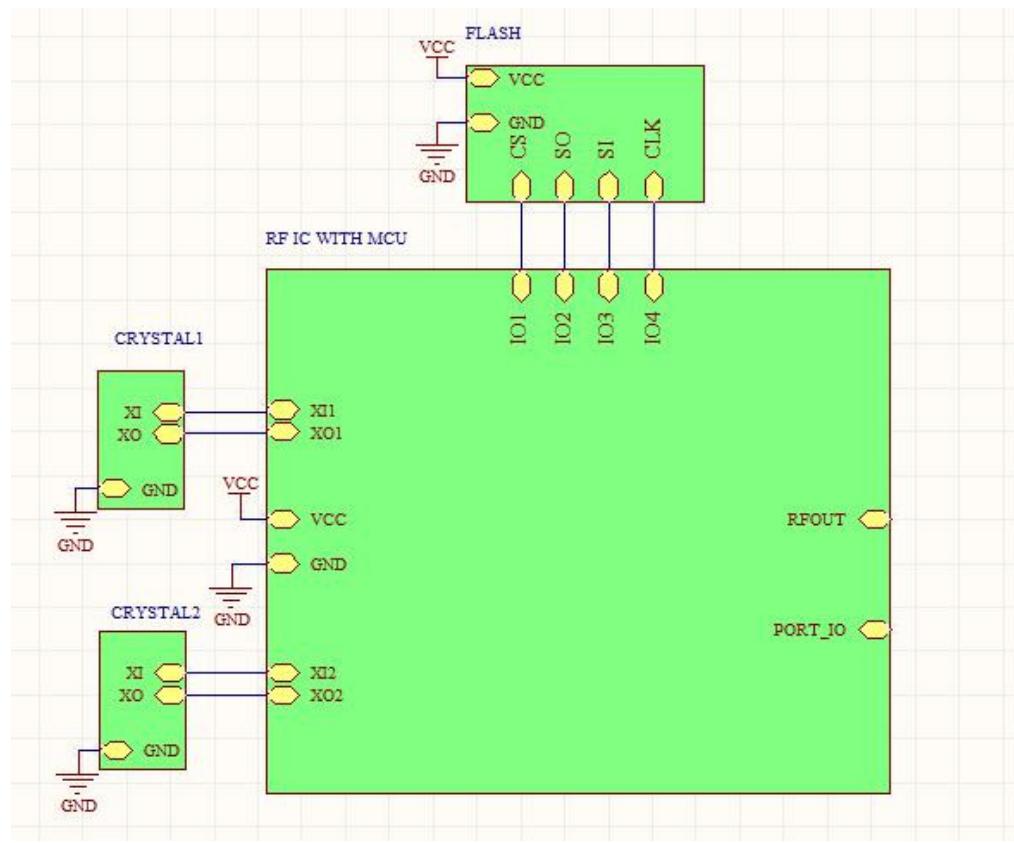
Figure1 Structure Diagram

2 Module parameters

2.1 WiFi Characteristics

T_A=25℃， V_{CC}=3.3V

Parameter	Specifications
inetrface	IO interface
Wireless LAN standard	Accord with the standard of IEEE 802.11b/g/n
Data rate	11b/g:54,48,36,24,18,12,9,6,11,5.5,2,1 Mbps 11n:20MHz
Modulation mode	802.11g/n---OFDM(BPSK,QPSK,16QAM,64QAM) 802.11b---CCK 11Mbps,5.5Mbp， QPSK 2Mbps ， BPSK 1Mbps
Frequency range	2.4GHz WiFi frequency band
Operating frequency	2.4GHz 11b/g/n:2412-2462MHz
Operation channel	11b：1-11 2.4GHz 11g/n:1-11
Deviation index	±20ppm

	(15±2)dBm (802.11 CCK,11Mbps) (11±2)dBm(802.11 OFDM,54Mbps) (10±2)dBm(802.11 HT20 MCS7)
antenna	RF signal output is available,need external antenna.
Receiving sensitivity	-83dBm @ 11M(802.11b CCK,8% PER) -68dBm @ 54M(802.11g OFDM,10% PER) -65dBm @ MCS7(802.11n OFDM with 20MHz ,10% PER)
humidity	20%-90% no condensation
size(standard)	（W）25×（L）18×（H）3.0mm

2.2 Electrical characteristics

parameter	min	typical	max	unit
Working voltage	2.7	3.3	3.6	V
Sleep current		1		mA
quiescent current		5		mA
TX current		300		mA
RX current		70		mA

2.3 Temperature characteristic

parameter	min	typical	max	unit
Working temperature	-40	25	85	℃
Storage temperature	-40	25	105	℃

3 Hardware structure

3.1 Product size

unit：mm　　tolerance standard：GB/T 1804-m
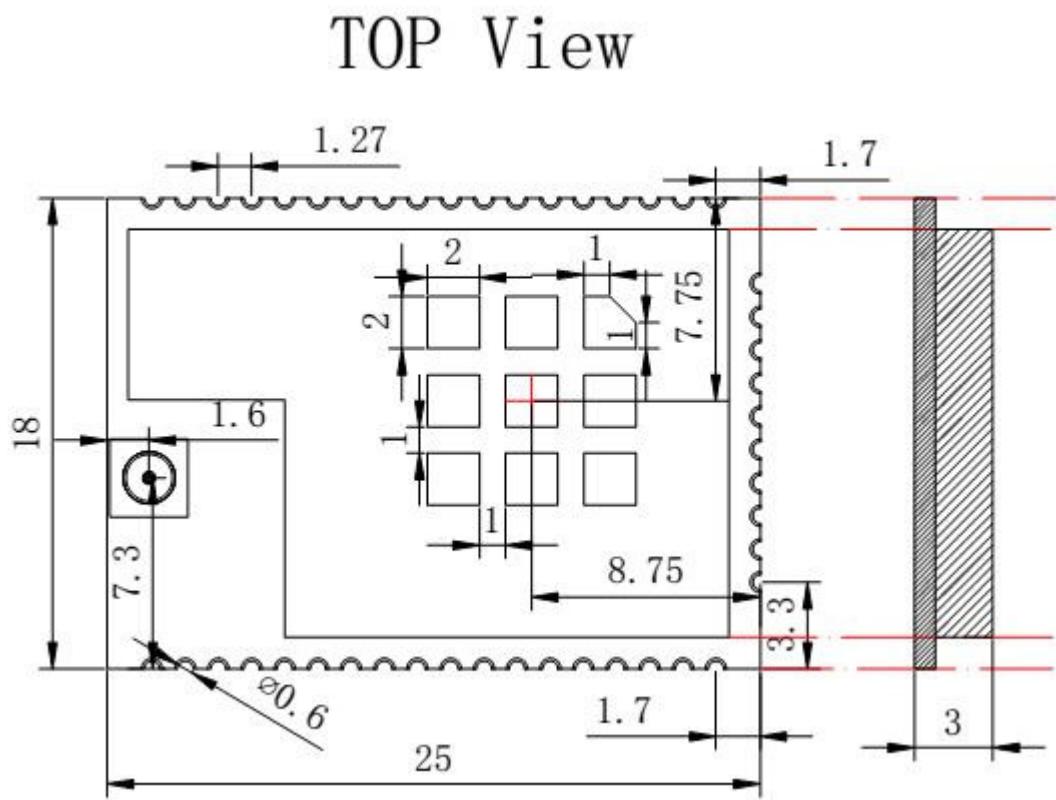
Figure 2　Module Size Figure

3.2 Pin definition

Top View
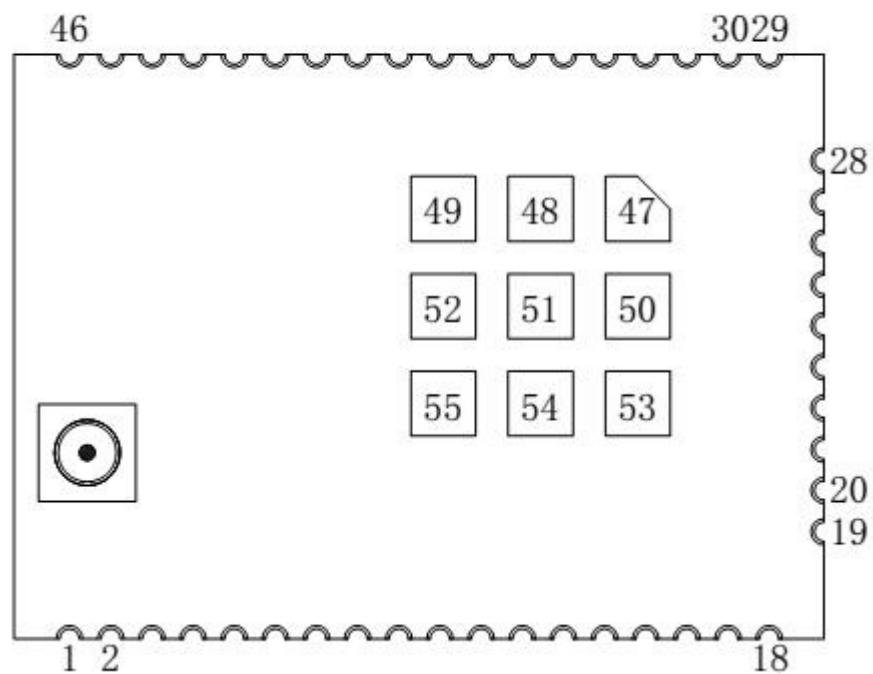
Figure 3　Figure of Pin Function

| Pin	Pin definition	Functional description
1	GND	GND
2	RF_BG	2.4GHz RF interface
3	GND	GND
4	NC（connect PIN23 by resister and crytals）	NC(dangling)
5	NC（Set aside other models IC 5G in use，dangling，not connected to any PIN）	NC(dangling)
6	SOP2	Function mode：2.7K Pulldown resistor；start UART load model from falsh.(module has a drop-down）
7	GPIO28	IO interface（100 k pull-down resistor in module）
8	NC(PIN45)	NC
9	SOP0	With SWD mode，the pin need 10K Pull-up resistors。（100K pull-down resistors in module）
10	nRESET	Reset pin
11	VBAT_DCDC_ANA	VDD（DC_3.3V）
12	VBAT_DCDC_PA	VDD（DC_3.3V）
13	VBAT_DCDC_DIG_IO	VDD（DC_3.3V）
14	VDD_FLASH	VDD（DC_3.3V）
15	GPIO30	IO interface
16	NC(PIN48)	NC
17	GPIO0	IO interface
18	NC（connect PIN51 by resister and crytals）	NC(dangling)
19	GND	GND
20	GPIO1	IO interface（100K pull-down resisteor in module ）
21	GPIO2	IO interface
22	GPIO3	IO interface
23	GPIO4	IO interface
24	GPIO5	IO interface
25	GPIO6	IO interface
26	GPIO7	IO interface
27	GPIO8	IO interface
28	GPIO9	IO interface
29	GND	GND
30	GPIO10	IO inetrface

31	GPIO11	IO interface
32	GPIO14	IO interface
33	GPIO15	IO interface
34	GPIO16	IO interface（100K pull-down resistor in module）
35	GPIO17	IO interface
36	GPIO12	IO interface
37	GPIO13	IO interface
38	GPIO22	IO interface
39	JTAG_TDI	JTAG interface/IO interface
40	NC(connect PIN13 by flash DO)	NC(use in external flash extension)
41	NC(connect PIN14 by flash CS)	NC(use in external flash extension))
42	NC(connect PIN11 by resistor and flash CLK)	NC(use in external flash extension))
43	NC(connect PIN12 by flash DI)	NC(use in external flash extension))
44	JTAG_TDO	JTAG interface/IO interface)
45	JTAG_TCK	JTAG (100K pull-down resistor in module)
46	JTAG_TMS	JTAG,dangling if don't use
47~55	GND	GND

Figure4　Pin Description

4 Application reference

4.1 Reference design
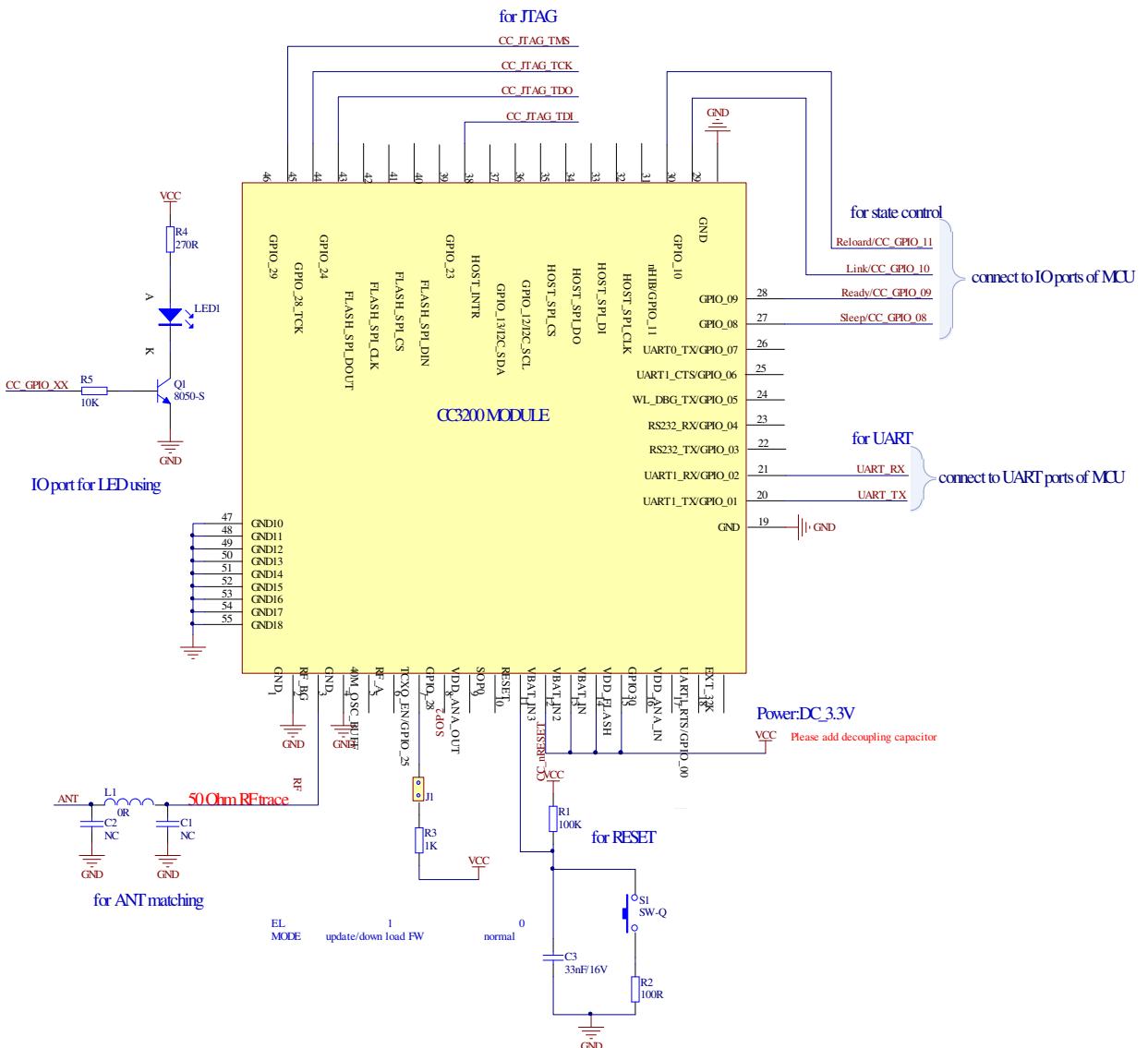
Figure 5   Reference design

4.2 Module secondary welding reference temperature curve

Welding furnace set	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Z10
Temperature set (up)	150	150	180	180	180	195	210	240	250	240
Temperature set (down)	150	150	180	180	180	195	210	240	250	240
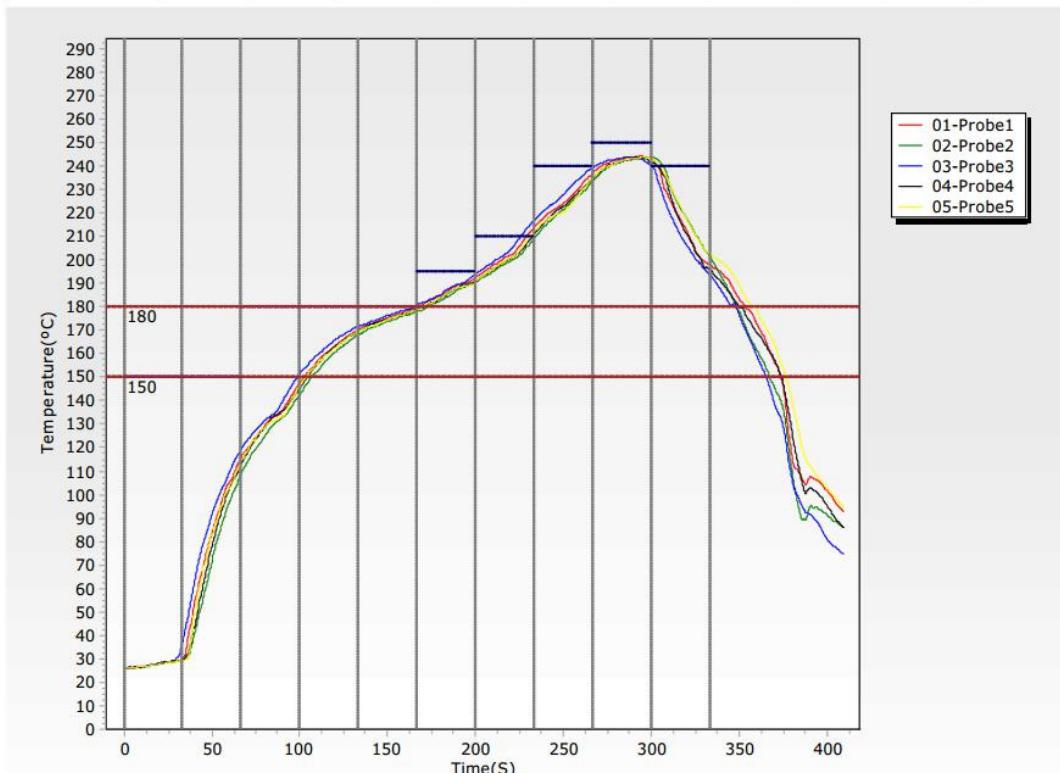
5 Packaging information

5.1 Carton packaging

Module USES 354 * 250 * 362 mm carton packaging, contain inside the box.

Figure 7　Carton assembly figure

5.2 Inner carton packing

Internal size is 352*348*56mm,each contain a set of vacuum reel packaged by electrostatic bag, It contains 600 PCS modules.

Figure 8　appearance figure Inside the box

Figure 9   vacuum reel

5.3 Tape and Reel Packaging

A single module adopts the take-up package，each contains 500PCS module.

Figure 10   rewinding roller

Version number	Revised scope	Date
V1.0	Create a document	2016-01-18
V1.1	Increase the test environment and deviation requirements	2016-4-3

Contact information of the LSD WiFi

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WiFi business division

2016.4

5.4 FCC Warning

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

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 20cm 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. The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying its FCC identification number：

(A) If using a permanently affixed label, the modular transmitter must be labeled with its own FCC identification number, and, 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:N8NLSD4WF0459." Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.