Lierda Science & Technology Co., LTD

User Guide

Product Name：S25A series BLE module
Document version：Rev03

Contents

Chapter 1 Feature

This module is based on the Bluetooth SIG Bluetooth Low Energy standard designed BLE transparent module. The module control the BLE slave device as a master device . This product allows you to quickly develop standard BLE products without the complexity of BLE protocol research. After the connection is established, bi-directional data transfer between the master and the slave can be achieved
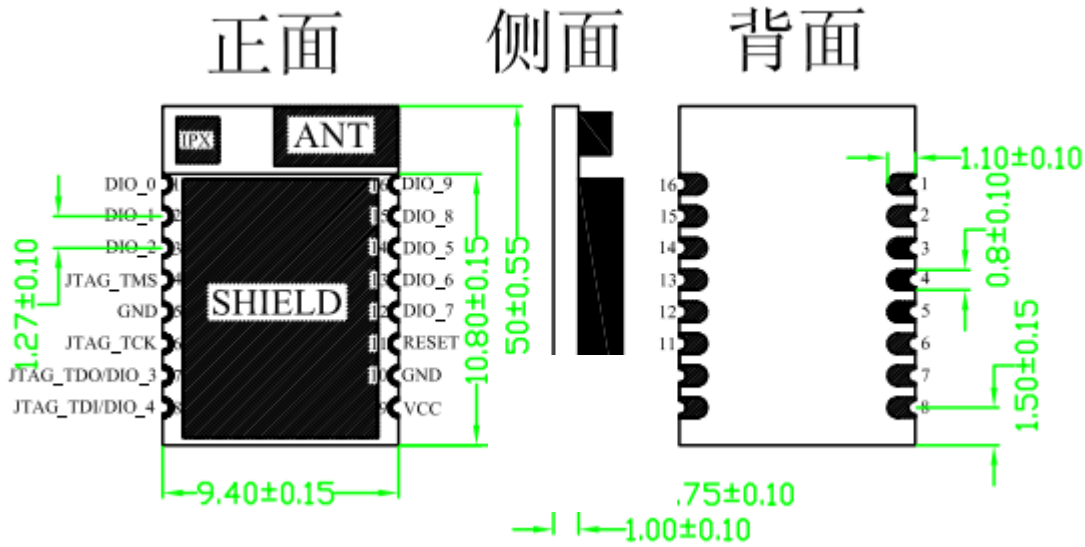
Chapter2 layout and interface

figure 2-1 module pin dimension

table 2-1 pin description

name	function	remark
VCC	Power	1.8-3.6V，typical is 3.3V
GND		Power Ground
DIO_0	UART_RX1	UART 1 receive pin
DIO_1	UART_TX1	UART 1 transmit pin
DIO_2	UART_RX2	UART 2 receive pin
DIO_3	BRE	Sleep state indication 0：Active state，module can receive UART data 1：Sleep state，module can't receive UART data
DIO_4	BTT	Data receive indication 0：The data is sent to the MCU soon or now 1：at this time there is no data sent to the MCU
DIO_5	UART_TX2	UART 2 transmit pin
DIO_6	BT_CTL	advertise control pin Low：turn on BLE and be able to be discover High：Close BLE stop to be discover or disconnected

name	function	remark
DIO_7	MODE_CTL	Must set to low
DIO_8	BRT	Sleep control pin low：wake up module high：permit module enter sleep module
DIO_9	CONN	Connection state indication： 0：The number of successfully connected slaves is below the trigger condition 1：The number of successfully connected slaves meets or exceeds the trigger condition
JTAG_TMS	TMS	
JTAG_TCK	TCK	
RESET	Reset module	

Chapter3 module control

3.1 UART communication
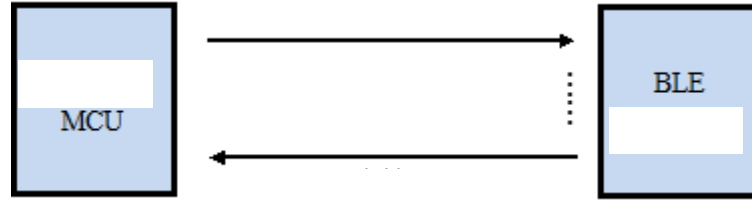
figure 3-1 communicaiton

3.1.1 UART frame structure

Input frame structure（hex）:

Head1	Head2	CommandID	len	content
01	FC	xx	xx	xx……xx

Output frame structure（hex）:

Head1	Head2	CommandID	len	content
04	FC	xx	xx	xx……xx

3.1.2 UART command ID

For the detailed description of serial commands, refer to "LSD4BT-S25A045905 command docoument"

3.2 Dual UART coexistence rules

Rule 1: from which serial port to establish a connection, the data related to the connection from which serial port return

Rule 2: from which serial port to send commands, from which serial port to return

Rule 3: The above two rules can not be applied from the serial port 1 back (Automatic Connection exception)

Rule 4: When the module is automatically connected to the peripheral device, the first connected device is bound to serial port 1, all subsequent connections are bound to port 2, and the binding is subject to rule 1.

3.3 other instructions

Block diagram
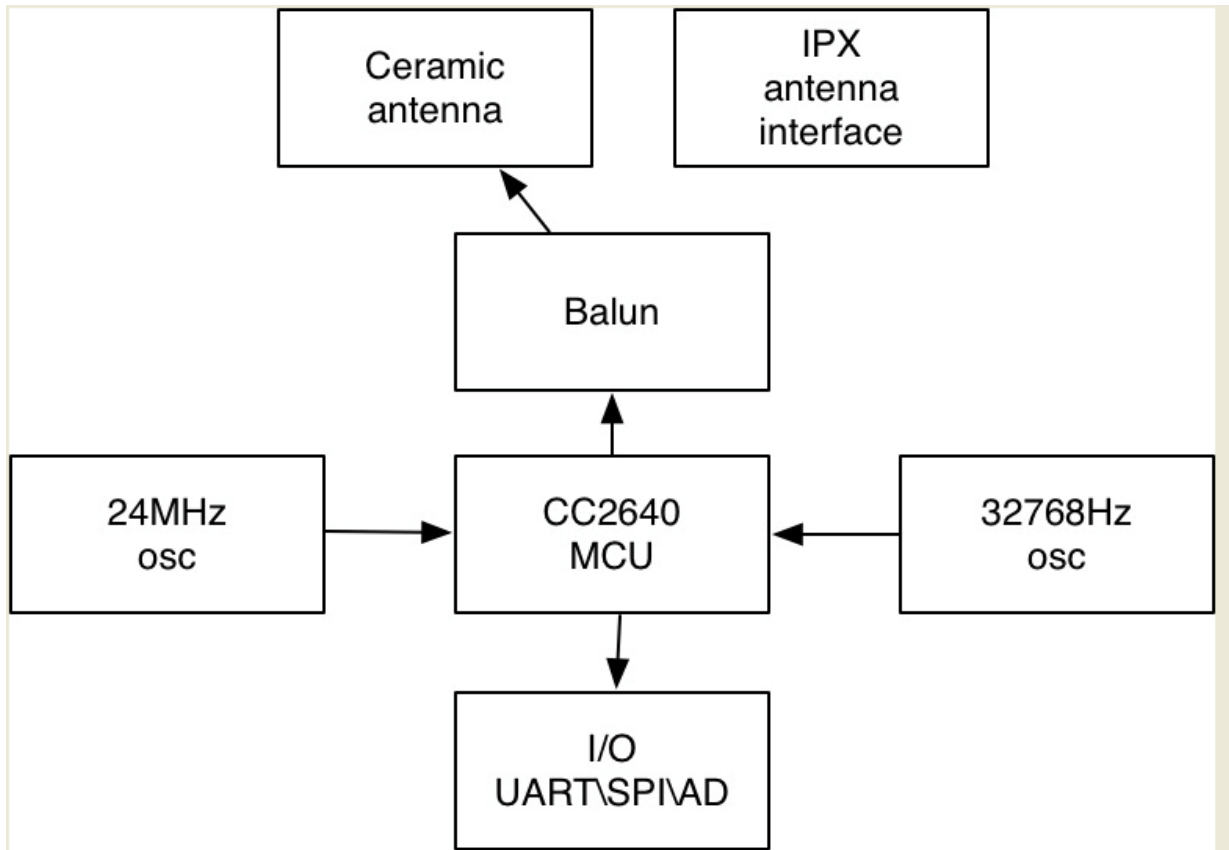
Chapter4 Notices

1. Please choose the right supply voltage

2. When using the module, pay attention to the correct pin order

Chapter5 To user

1, Thanks for using Lierda Technology Co., Ltd. products, before using our products, please read this notice; If you have already started using instructions you have read and accepted this notice.

2, Lierda reserves the right to interpret and modify all the information on this tool, if any changes without notice.

The device has been evaluated to meet general RF exposure requirement, The device can be used in portable exposure condition without restriction.

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.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme avec Industrie Canada RSS exemptes de licence standard(s).

Son fonctionnement est soumis aux deux conditions suivantes:

(1) cet appareil ne peut pas provoquer d'interférences, et

(2) cet appareil doit accepter toute interférence, y compris celles pouvant causer un mauvais fonctionnement de l'appareil.

A certified modular has the option to use a permanently affixed label, or an electronic label. For a permanently affixed label, the module must be labelled with an FCC ID: N8NLSD4BTS25A and IC: 21461-LSD4BTS25A.

The OEM manual must provide clear instructions explaining to the OEM the labelling requirements, options and OEM user manual instructions that are required

For a host using a this FCC certified modular with a standard fixed label, if (1) the module's FCC ID is notvisible when installed in the host, or (2) if the host is marketed so that end users do not have straightforward commonly used methods for access to remove the module so that the FCC ID of the module is visible; then an additional permanent label referring to the enclosed module:

"Contains Transmitter Module FCC ID: N8NLSD4BTS25A and IC: 21461-LSD4BTS25A or

"Contains FCC ID: N8NLSD4BTS25A and IC: 21461-LSD4BTS25A " must be used. The host OEM user manual must also contain clear instructions on how end users can find and/or access the module and the FCC ID.

Host product is required to comply with all applicable FCC equipment authorizations regulations, requirements and equipment functions not associated with the transmitter module portion. compliance must be demonstrated to regulations for other transmitter components within the host product; to requirements for unintentional radiators (Part 15B). To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. If a host was previously authorized as an unintentional radiator under the Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with

the host, we suggest the host device to recertify part 15B to ensure complete compliance with FCC requirement: Part 2 Subpart J Equipment Authorization Procedures , KDB784748 D01 v07, and KDB 997198 about importation of radio frequency devices into the United States.