FCC ID:2AOFDLSD4BT-K5Y

LSD4BT-K5y

K5YBLEmesh Standard Module (PCB Antenna)

K5Y series of low-power Bluetooth module is a high-performance Bluetooth module which is developed based on the Telink low-power Bluetooth SOC TLSR8250 chip. The module adopts the stamp-type and side plug-in interfaces, is exquisite and compact, is fully lead out via ports and convenient to use, and helps the users omit the complicated RF hardware design, development and production links. Therefore, the users can easily realize the development of Bluetooth application programs on that basis, shorten the R&D cycle, and seize the market opportunities. This model is a pure hardware module that excludes any software. If you need the edition with software, please notify in advance.

Product Characteristics

·Working Frequency Band

- Working frequency band: 2402-2480MHz

·Ultra-low Power Consumption

- Support 1.8V-3.6V power supply
- Emission current: ≤20mA (10dBm power configuration)
- Receiving current: ≤6.5mA (overall current)
- Sleep current: 400nA (SRAM not saving)

·High-link Budget

- Sensitivity-96dBm (1Mbps, PER<30.8%)
- Emission power: Max.10dBm

·Memory Resources

- 512K Flash (the capacity that the client can actually use is less than 512K)
- SRAM on 48kB chip, wherein 32K can sleep and save

·Compatibility

- Designed interface mode with side plug-in and stamp holes compatible

·BLE Functions

- Support BLE 5.0
- Support the Bluetooth SIG Mesh
- Support the exclusive Mesh of Telink

·Communication Interface

- Fully lead out all pins, serial ports, PWM, AD, etc. of the chip, and applicable to various application occasions

Applicable Scenes

- Smart phone and tablet peripherals;
- Bluetooth remote control;
- Sports and health tracking, health care;
- Wearables;
- Smart light control, smart home, smart city;
- Logistics transportation tracking;
- Consumer electronics;
- Building automation
- Industrial control

1 Specifications & Parameters

Table 1-1 Limit Parameters of Module

Parameters	Performance		Remarks
	Min	Max	
Supply voltage （V）	-0.3	+3.6	All AVDD and DVDD with same voltages
Max voltage of input pins	-0.3	VDD+0.3	
Storage temperature（℃）	-65	150	

Table 1-2 Working Parameters[1] of Module

Parameters		Performance			Remarks
		Min	TYP	Max	
Supply voltage（V）		1.8	3.3	3.6	
Work temperature（℃）		-40	-	85	
Initial frequency tolerance (KHz)		-30	-	+30	Below 25℃
Work frequency (GHZ)		2.402	-	2.480	Support customized frequency setting
Power consumption	Transmit (mA)	17	18	20	output power 10dBm，system timer 16MHz
	Receive (mA)	5.3	5.8	6.5	
	Sleep (uA)	-	0.4	1	Deep sleep, not save SRAM
Transmit power (dBm)		-25	10		Support customized output power setting
RSSI (dBm)		-95	-96		1Mbps，PER<30.8%
Communication protocol		BLE5/4.2/Mesh			
Interface type		stamp /side inserted			
Dimensional accuracy		GB/T1804-C level			Meet the dimensional tolerance class C

2 Dimensional Drawing and Pin Definitions

The physical diagram of LSD4BT-K5y is as shown in Fig. 2-1. There will be a label on the shield cover, and it shall be subject to the physical product.

[1] The test is conducted at the environment of 25℃

Fig. 2-1 Physical Diagram of LSD4BT-K5y

* When this product is being designed, the resistance capacitor and PCB have optional material models, so their colors of appearance may be different on the premise that the performance requirements are met, and shall be subject to the physical products; the main materials (main chip, crystal oscillator, etc.) do not have substitute models, and any change of them will be notified in advance.

2.1 Dimensional Drawing

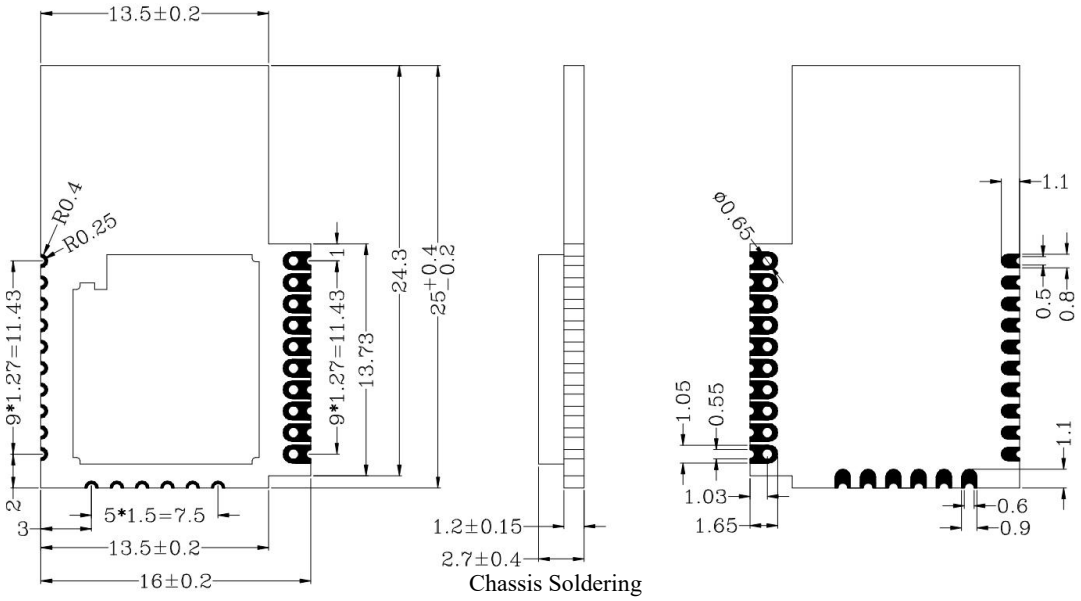

Fig. 2-2 Dimensional Drawing of LSD4BT-K5y

2.2 Pin Definitions

Table 2-1 Pin Definitions[2]

PIN	接口名	功能
P1	GND	Ground

2 For the specific functions of the multiplex pin, please refer to the *Datasheet for TLSR8258F512*

单位：mm

P2	ANT	RF signal/ANT
P3	GND	Ground
P4	RST	Reset ,low active
P5	NC	
P6	P1N/I2S_SDI/7816_TRX/D[3]	GPIO is PD3
P7	SWM/I2S_SD0/P2N/D[4]	GPIO is PD4
P8	CK/I2S_BCK/7816_TRX/D[7]	GPIO is PD7
P9	DMIC_CLK/7816_CLK/I2S_CLK/A[1]	GPIO is PA1
P10	P0/7816_TRX/I2C_SDA/32KIN/C[2]	GPIO is PC2
P11	I2C_SCK/P1N/P0/C[1]	GPIO is PC1
P12	I2C_SDA/P4N/URTS/C[0]	GPIO is PC0
P13	SDMN1/DO/URX/B[7]	GPIO is PB7
P14	SWS	Download interface
P15	GND	Ground
P16	VCC	Power supply
P17	VCC	Power supply
P18	GND	Ground
P19	PWM4_PB4	PWM pin，GPIO is PB4
P20	PWM5_PB5	PWM pin，GPIO is PB5
P21	PWM1_PC3	PWM pin，GPIO is PC3
P22	PWM2_PC4	PWM pin，GPIO is PC4
P23	PWM3_PD2	PWM pin，GPIO is PD2
P24	ADC_PB6	AD pin，GPIO is PB6
P25	UTX	UART interface TX
P26	URX	UART interface RX

7 Notice

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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.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help
- This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure Information and Statement :

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

ORIGINAL EQUIPMENT MANUFACTURER (OEM) NOTES

This module has been granted modular approval for mobile applications. OEM integrators for host products may use the module in their final products without additional FCC/ISED (Innovation, Science and Economic Development Canada) certification if they meet the following conditions. Otherwise, Additional FCC/IC approvals must be obtained.
The OEM must comply with the FCC labeling requirements. If the module's label is not visible when installed, then an additional permanent label must be applied on the outside of the finished product which states: "Contains transmitter module FCC ID: 2AOFDLSD4BT-K5". Additionally, the following statement should be included on the label and in the final product's user manual:
"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 interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation."
The user's manual for the host product must clearly indicate the operating requirements and conditions that must be observed to ensure compliance with current FCC / IC RF exposure guidelines.
The final host / module combination may also need to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device.
This Module is full modular approval, it is limited to OEM installation ONLY.
The module is limited to installation in mobile application.
A separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and difference antenna configurations.
The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.
The Grantee will provide guidance to the Host Manufacturer for compliance with the Part 15B requirements if requested.

文件修订历史

版本	日期	作者	变更描述
1.0	2019-02-06	刘建	初始版本