SK8250-1812-W

Datasheet

MESH Bluetooth Low Energy (BLE) 5.0 Module

Module No.: SK8250-1812-W

Version: V1. 1

Date: 2021-9-22

Change History:

Version	Description	Prepared By	Date

目录

1. Introduction

The SK8250-1812-W is MESH Bluetooth Low Energy (BLE) solution which is fully Bluetooth 5.0 standard compliant and allows easy connectivity with Bluetooth Smart Ready devices. SK8250-1812-W supports BLE slave and master mode operation, including broadcast, encryption, connection updates, and channel map updates. It is RoHS-compliant and 100% lead (Pb)-free. With internal 512KBytes Flash are programmable for more applications, 14bits ADC with PGA, 5 channels PWM, three quadrature decoders, GPIOs.

2. Features

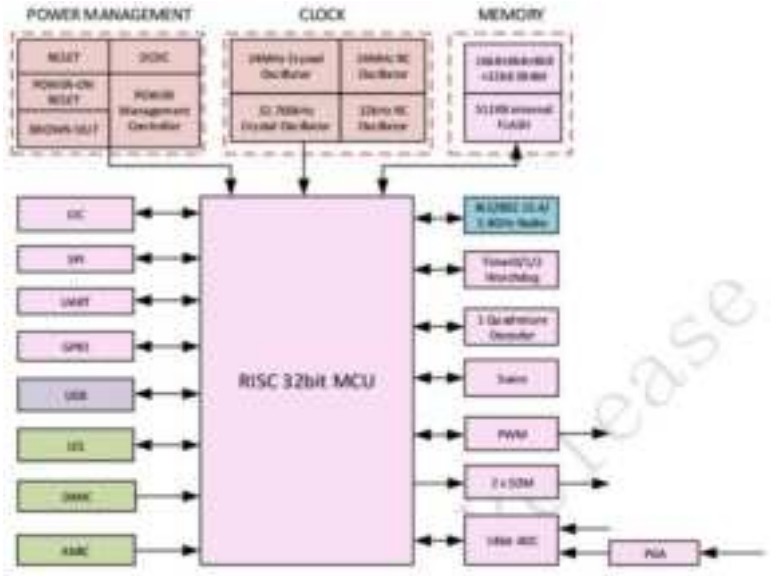
- TLSR825XF512ET system on chip
- Built-in Flash 512KBytes
- Compact size 18 x 12mm
- Up to 4 channels PWM
- Embedded Hardware AES
- Host Controller Interface (HCI) over UART
- Class 1.5 supported
- Operation Temperature:
  -40 to +85 ℃
- Bluetooth 5.0 1Mbps, Boost Mode: 2Mbps
- RSSI Monitoring
- Embedded LDO
- Battery monitoring
- Tx Power: Max Pout=10dBm
- Rx Sensitivity: -96dBm@ BLE 1Mbps

3. Applications

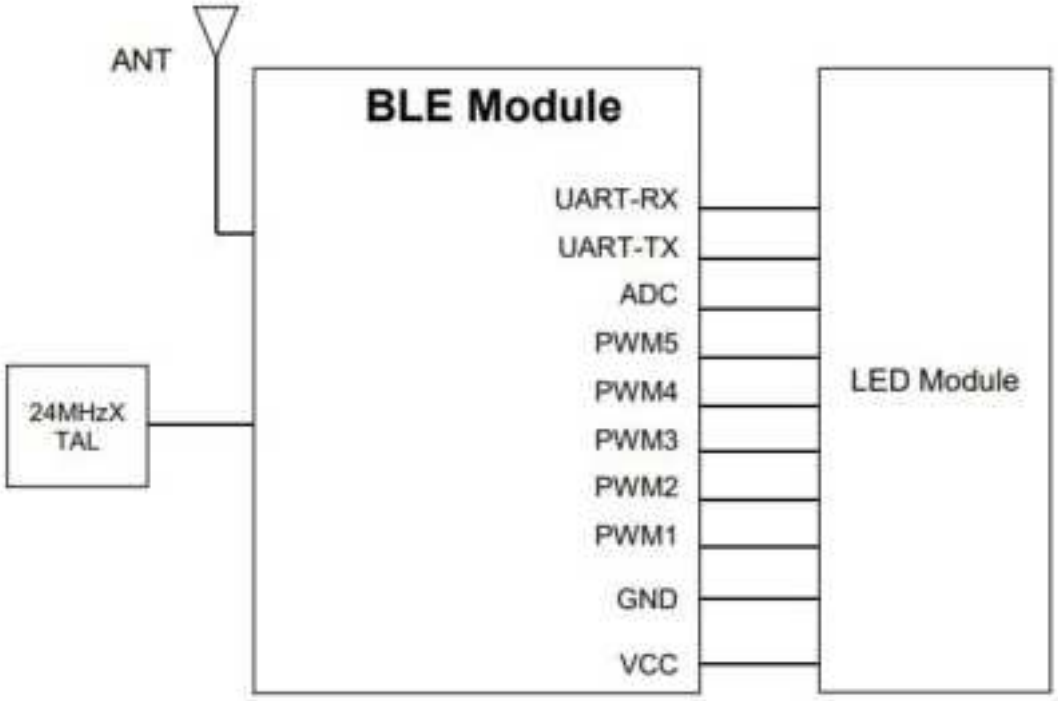
Long Rang BLE application

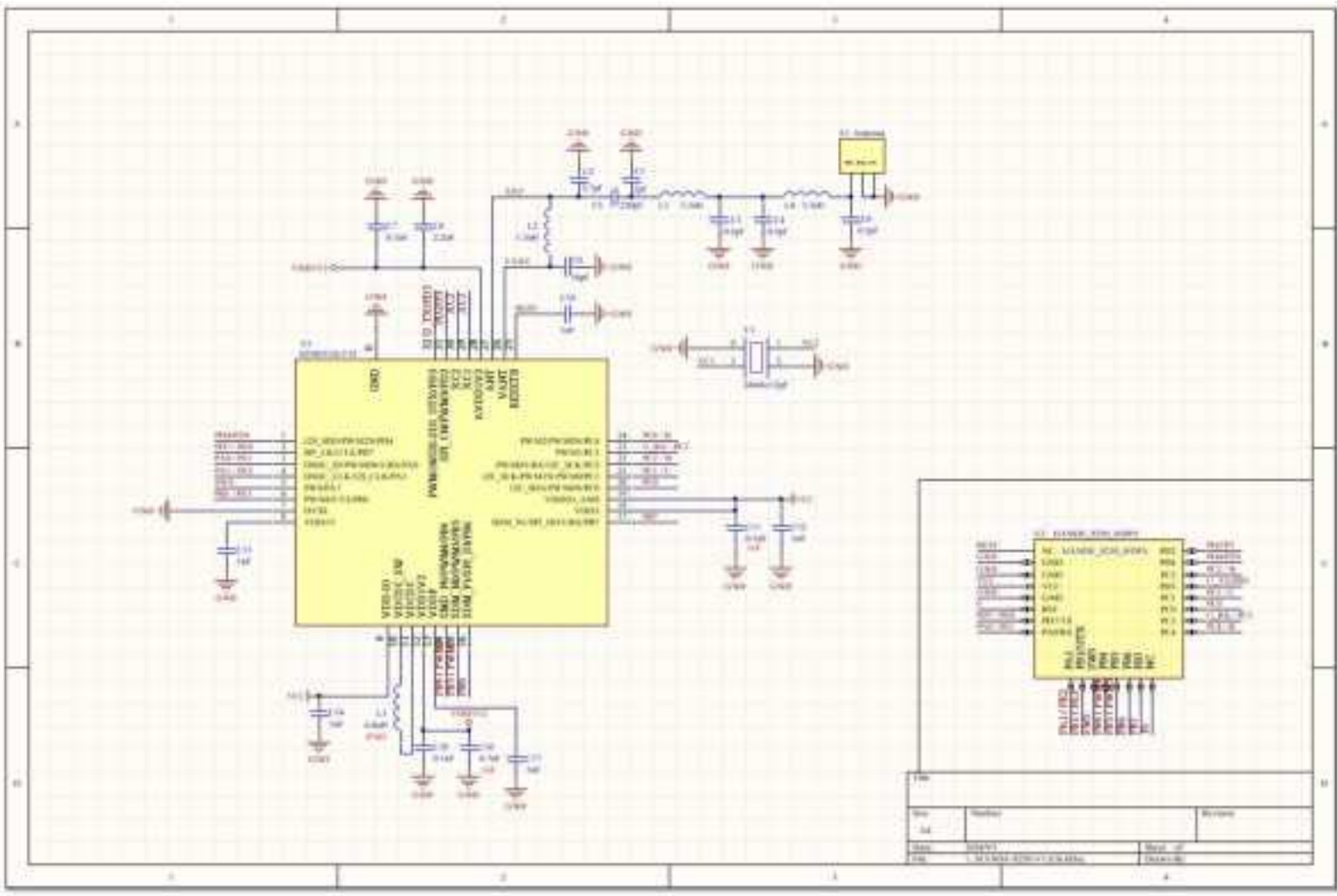
4. Module Diagram

1) TLS825X SoC Diagram

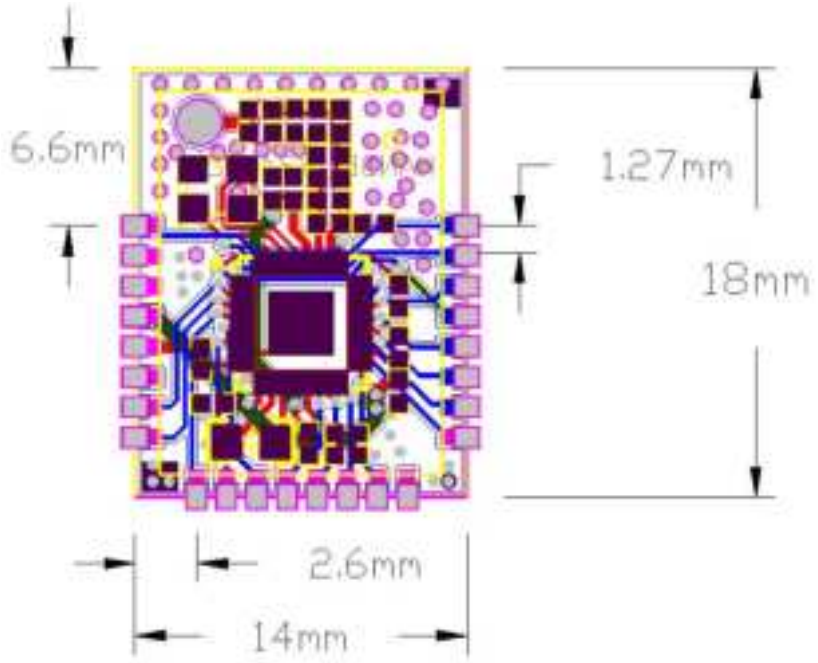


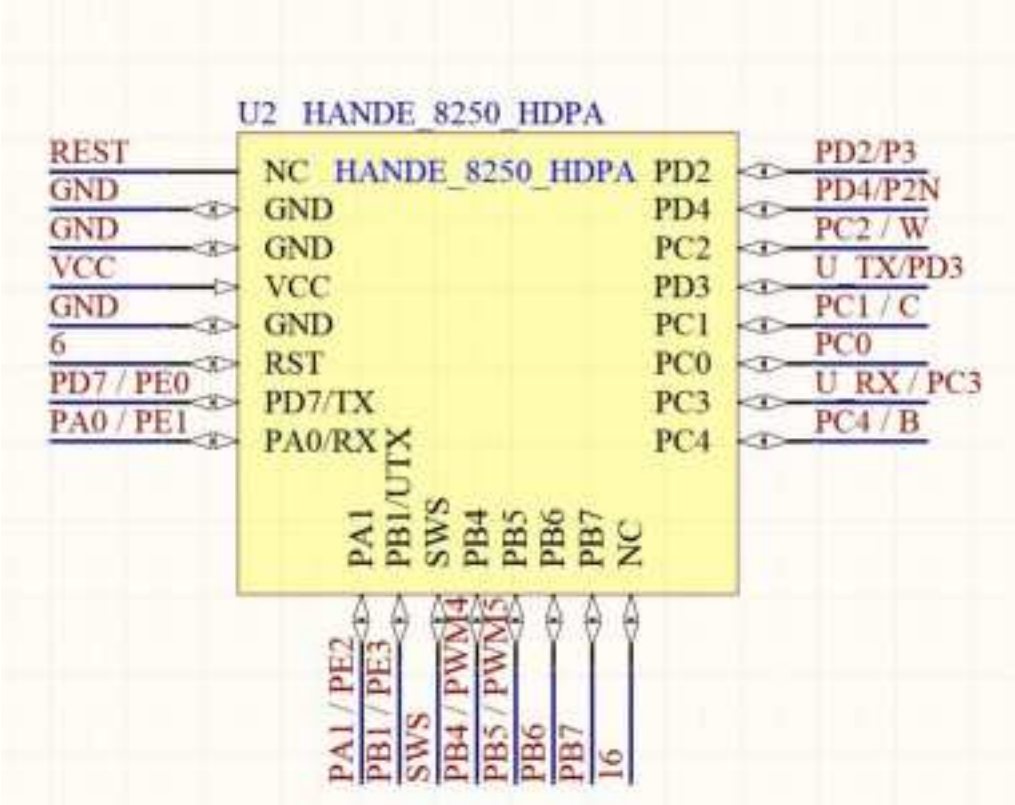
2） BLE Module Diagram





3) Module Pins Assignments





4) Module Pins Description

Pin	NAME	I/O	Description	IC Pin
1	RESET	P	Reset PIN--NC	
2	GND	P	GND	
3	GND	P	GND	
4	VCC	P	3.3V Power	
5	GND	P	GND	
6	NC	P	NC	
7	PD7	I/O	SPI clock (I2C_SCK) / UART_TX / GPIO PD[7]-----NC	
8	PA0	I/O	PWM0 inverting output / UART_RX / GPIO PA[0] ----NC	
The Left-hand Pins				
1	PA1	I/O	RELAY signal output	
2	PB1	I/O	Log output	
3	SWS	I/O	SWS	
4	PB4	I/O	Sensitivity PWM output	
5	PB5	I/O	Brightness PWM output	
6	PB6	I/O	ALS signal input	
7	PB7	I/O	NC	
8	NC	P	NC	
The bottom-hand Pins				
1	PD2	I/O	Sensor signal input	
2	PD4	I/O	LED PWM output	
3	PC2	I/O	CCT PWM output	
4	PD3	I/O	PWM1 inverting output / UART_TX / GPIO PD[3] --NC	
5	PC1	I/O	I2C serial clock / PWM1 inverting output / PWM0 output / GPIO PC[1] -NC	
6	PC0	I/O	Rese signal input	
7	PC3	I/O	PWM1 output / UART_RX / I2C serial clock / (optional)32kHz crystal input / GPIO PC[3]-NC	
8	PC4	I/O	ALS 2 signal input	
The right-hand Pins				

5. Electronic Specification

Item	Specification
RF Transmitting Power Level	21 dBm MAX
RF Receiver Sensitivity	-98dBm@ BLE 1Mbps
Antenna	External Antenna
Data Rate	250 kbps, 500 kbps, 1 Mbps, 2 Mbps
Operation Voltage	3.0V to 3.6V
Operation Temperature	-40 to +85 ℃

6. Power Consumption

Operation Mode	Consumption
Operation (TX/RX) 0dBm	5.4mA
Standby (Deep Sleep) depend on firmware	0.4uA (optional by firmware)

7.UART Transmission Protocol

Band rate: 115200

The module is managed through ASCII commands via the UART and/or PIO signals. A microcontroller unit (MCU) or host processor sends commands to configure module features, read status, and manage Bluetooth data connections. The UART TX and RX are required to communicate with module, and transfer data across Bluetooth BLE connection. Connecting the hardware flow control lines CTS and RTS is highly recommended for applications that transmits a continuous stream of data. The module can be configured locally via the UART or over-the-air.

8.FCC STATEMENT

FCC Compliance Statements

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: 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.

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

FCC Radiation Exposure 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 5mm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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.

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:2AVMOGE01 Or Contains FCC ID: 2AVMOGE01"

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.

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.

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 limit modular approval should perform the test of radiated & conducted emission and spurious emission,etc. according to FCC part 15C : 15.247 and 15.209 & 15.207 ,15B Class B requirement, Only if the test result comply with FCC part 15C : 15.247 and 15.209& 15.207 ,15B Class B requirement, then the host can be sold legally.