

SLT82-32B

Low-power Bluetooth module



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Industries Co., Ltd.

Product Data Sheet

V1.1

summary

The SLT82-32B is a compact, high-performance Bluetooth module with low power consumption, developed on the Telink TSLR8258 platform. It supports BLE5.0 and backward compatibility. Featuring a 32-bit RISC 48MHz core controller, this module is designed for diverse IoT and BLE Mesh applications. Its postage stamp-hole packaging ensures a compact size and easy assembly, significantly reducing RF development efforts for engineers during product development.

Key characteristics

✧ operating frequency band

BLE 2402~2480MHz

✧ master control parameter

High Performance 32-bit RISC Core

512kB Flash

64kB SRAM

✧ Power consumption parameters

DC 3.0~3.6V Power supply

Emission peak current <350mA@23dBm

Received current <14.3mA

Deep sleep current:

0.4μA (SRAM inactive & 32KB RC disabled)

1.4μA (with 32kB SRAM retained and 32KB RC disabled)

✧ radio frequency parameters

Maximum transmission power:

10dBm (EIRP)

Receiving sensitivity :

-96dBm@1Mbps (BLE mode)

-93dBm@2Mbps (BLE mode)

✧ Bluetooth version

BLE5.0 and earlier versions are compatible

✧ CI UART / SWS

✧ Module size 13.5*16.5*2.8mm

✧ working temperature -40°C ~ +85°C

✧ storage temperature -40°C ~ +150°C

✧ Packaging information

Minimum order: 1000 pieces

✧ manner of packing Package

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1. Feature Overview

1.1 Summary

The SLT82-32B is a compact, high-performance Bluetooth module with low power consumption, developed based on the Telink TSLR8258 platform. It supports BLE5.0 and backward compatibility. Featuring a 32-bit RISC 48MHz core controller, this module meets the requirements of various IoT and BLE Mesh applications. Its postage stamp-hole packaging design ensures a compact footprint and easy assembly, significantly reducing RF development efforts for engineers during product development.

1.2 Functional Parameter

The detailed functional specifications of SLT82-32B are presented in Table 1.1.

0 Table 1.1 SLT82-32B Module Functional Parameters

Function	Detailed parameters
Master control	32 bit RISC core
Flash	512kB
RAM	64kB
Service frequency	2402MHz~2480MHz
BLE version	BLE5.0 backward compatible
Transmission speed	1Mbps, 2Mbps (BLE mode)
Transmitting power	Maximum +10dBm
Receiving sensitivity	-96dBm@1Mbps (BLE mode) -93dBm@2Mbps (BLE mode)
Signal interface	UART / SWS
Working temperature	-40°C~85°C
Storage temperature	-40°C~150°C
Encapsulation form	Postage stamp hole SMD (15 pins)
Encapsulation size	13.5*16.5*2.8mm

3. Specifications

3.1 Absolute Rating

The SLT82-32B module is specified in Table 3.1.

Table 3.1 SLT82-32B Module Limit Parameters

Parameter	Least value	Crest value	Unit	Condition Remarks
Service voltage VDD	-0.3	+3.6	V	
I/O port voltage	-0.3	VDD+0.3	V	VDD voltage $\leq$ 3.6V
Working temperature (°C)	-40	+85	°C	
Storage temperature (°C)	-40	+150	°C	
Welding temperature	*	+260	°C	

3.2 Rated Working Parameters

The recommended operating conditions for the SLT82-32B module are shown in Table 3.2.

Table 3.2 Recommended Operating Conditions for SLT82-32B Module

Parameter	Least value	Representative value	Crest value	Unit
Module supply voltage VDD	+3.0	+3.3	+3.6	V
Operating temperature T Opr	*	+25	*	°C
Storage temperature T Sto	*	+25	*	°C

3.3 Reference Power Consumption

The power consumption parameters of the SLT82-32B module are shown in Table 3.3.

Table 3.3 Power Consumption Parameters of the SLT82-32B Module

Parameter	Representative value	Unit	Remarks
Peak emission current	350	mA	@+10 dBm
Receive current	14.3	mA	LDO pattern
Deep Sleep Mode	0.4	μA	SRAM is running, 32K RC is off
Deep Sleep Mode	1.4	μA	Keep 32kB SRAM running & 32kB RC off

[Note]: The above power consumption parameters are based on VDD=3.3V at room temperature of 25°C.

3.4 Radio Frequency Parameters

The RF parameters of the SLT82-32B module are shown in Table 3.4.

Table 3.4 RF Parameters of SLT82-32B Module

Parameter	Representative value	Unit	Remarks
Frequency range	2402~2480	MHz	BLE mode, step 1MHz
Maximum output	+10	dBm	
Receiving sensitivity	-96	dBm	1MbpsBLE pattern
Receiving sensitivity	-93	dBm	2MbpsBLE pattern

4. Size Parameters

4.1 Module Size

Figure 4.1 shows the dimensions of the SLT82-32B module.

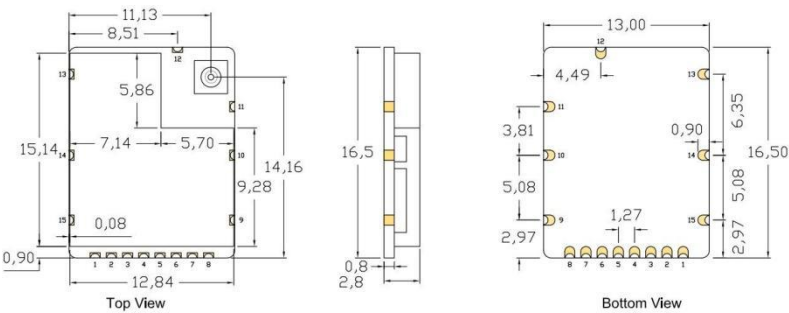


Figure 4.1 Top View of SLT82-32B Module Dimensions

The specific size parameters of the module are shown in Table 4.1 below.

Module model	Wide	Long	Gao	Module PCB thickness	Pad spacing
SLT82-32B	13.5mm	16.5mm	2.8mm	0.8mm	1.27mm

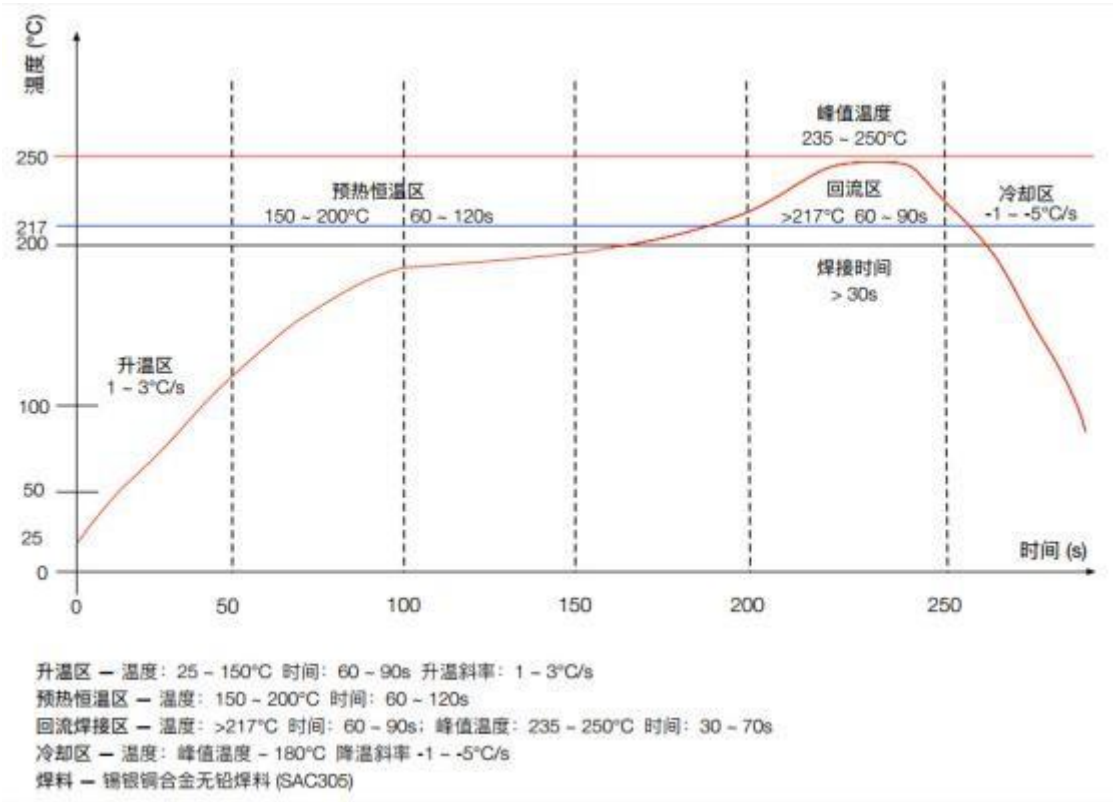
Table 4.1 SLT82-32B Module Dimensions

5. Temperature Curve of Furnace

5.1 Temperature Curve of Furnace

Figure 5.1 shows the reference SMT furnace temperature curve of the SLT82-32B module.

Figure 5.1 Furnace temperature curve



Regulatory Compliance:

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.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Please notice that 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 FCC ID: 2AABZ-SLT8232B" any similar wording that expresses the same meaning may be used.

A separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and difference antenna configurations.

There is requirement that the host manufacturer for compliance with Part 15B/ICES requirements.

The module complies with FCC Part 15.247 and applies for Single module approval.

Dedicated antennas, change antennas with higher gain or different type is strictly prohibited without filing the C2PC application.

RF Exposure Compliance:

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

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Antenna Placement Within the Host Platform

The module is tested for standalone mobile RF exposure use condition.

- (1) The antenna must be installed such that 20 cm is maintained between the antenna and users,
- (2) The transmitter module may not be co-located with any other transmitter or antenna.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

List of applicable FCC/IC rules

This module has been tested and found to comply with FCC part 15.247/RSS-247 requirements for Modular Approval.

Antenna Placement Within the Host Platform

The module is tested for standalone mobile RF exposure use condition.

- (1) The antenna must be installed such that 20 cm is maintained between the antenna and users,
- (2) The transmitter module may not be co-located with any other transmitter or antenna.

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Antenna Type and Gain

The following antennas have been certified for use with this module.

Only antennas of the same type with equal or lower gain may also be used with this module.

Other types of antennas and/or higher gain antennas may require the additional authorization for operation.

Antenna Specification list below:

There are two antennas as below:

Model(P/N)	Type	Max Gain
ANT1: KPS-PR-307-L3-2.4Ghz	PIFA Antenna	3.32 dBi
ANT2: YG-PR-339-L2-2.4Ghz	PIFA Antenna	1.32 dBi

End Product Labeling

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID: 2AABZ-SLT8232B". The FCC ID can be used only when all FCC compliance requirements are met.

The end product shall bear the following 15.19 statement: This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference, and

This device must accept any interference received, including interference that may cause undesired operation.

Information on test modes and additional testing requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) class II permissive change re-evaluation

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The host integrator must follow the integration instructions provided in this document and ensure that the composite-system end product complies with the requirements by a technical assessment or evaluation to the rules and to KDB Publication 996369.

The host integrator installing this module into their product must ensure that the final composite product complies with the requirements by a technical assessment or evaluation to the rules, including the transmitter operation and should refer to guidance in KDB 996369.

OEM/Host manufacturer responsibilities

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment

IC Regulatory Compliance

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage;

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition au rayonnement du CI établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps.

Please notice that if the ISED certification 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 IC: 28850-SLT8232B" any similar wording that expresses the same meaning may be used.

l'appareil hôte doit porter une étiquette donnant le numéro de certification du module d'Industrie Canada, précédé des mots « Contient un module d'émission », du mot 28850-SLT8232B ou d'une formulation similaire exprimant le même sens, comme suit

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

Cet équipement est conforme aux limites d'exposition aux rayonnements établies par l'ISED pour un environnement non contrôlé. Cet équipement doit être installé et fonctionné avec une distance minimale de 20 cm entre le radiateur et votre corps. Ce transmetteur ne doit pas être placé côte à côte ou fonctionner en combinaison avec toute autre antenne ou émetteur.

6. Version History

Version number	Date	Revision note	Maintainer
V1.1	2025.11.27	Correct sleep current & packaging method	H.C.H