MINEWSEMI

LoRaWAN Module

ME25LS02

Datasheet

V 1.0.1

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ME25LS02-LLCC68+nRF54L15

High-Performance, Ultra-Long-Range, Small-Size, Ultra-Low-Power LoRaWAN Module with Multi-protocol Support

The ME25LS02 is a high-performance, ultra-low-power LoRaWAN module supporting BLE 6.0 and LoRaWAN protocols. It features a dual-core MCU (ARM Cortex M33 & RISC-V), 256KB RAM, and 1.5MB Flash, making it ideal for long-range, low-power IoT applications.

With excellent reception sensitivity (BLE: -104dBm, LoRa: -126dBm) and high transmission power (BLE: +8dBm, LoRa: 22dBm), the module ensures reliable communication over extended distances. It operates at 3.3V, offers 27 GPIOs, and supports interfaces like USB, UART, and I2C. The open-source development platform enables easy customization and secondary development.

FEATURES

- Dual-Core MCU: ARM Cortex M33 & RISC-V architecture for high performance and efficiency.
- Ultra-Low Power Consumption: with dual low-power chip combination.
- Multi-Protocol Support: BLE 6.0 (including long-range mode) and LoRaWAN.
- Rich I/O Interfaces: 27 GPIOs, USB, UART, I2C, and more.
- Open-Source Development Platform: Enables easy customization and secondary development.
- High Sensitivity and Power Output: Ensures long-range communication with low power consumption.

KEY PARAMETERS

ME25LS02			
Chip Model	LLCC68+nRF54L15	**Antenna**	2.4G:PCB/U.FL LoRa:ANT PIN
Module size	25x15x3.2mm	**GPIO**	27
Flash	1.5MB	**RAM**	256KB
Receiving Sensitivity	BLE: -96dBm, 1Mbps -104dBm, 125Kbps LoRa:-125dBm	**Transmission Power**	BLE:-40-+8dBm LoRa: +15-+22dBm
Current(TX)	156mA	**Current(RX)**	15mA

APPLICATION

Agricultural Automation

Asset Tracking

Inventory Management

Livestock Tracking

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STORAGE CONDITIONS

- **Please use this product within 6 months after signing the receipt.**
  - This product should be stored without opening the package at an ambient temperature of 5~35°C and a humidity of 20~70%RH.
  - This product should be left for more than 6 months after receipt and should be confirmed before use.
  - The product must be stored in a non-corrosive gas (CI2, NH3, SO2, NOx, etc.).
  - To avoid damaging the packaging material, do not apply any excessive mechanical shocks, including but not limited to sharp objects adhering to the packaging material and product dropping.

- **This product is suitable for MSL2 (based on JEDEC standard J-STD-020).**
  - After opening the package, the product must be stored at ≤30°C/<60%RH. It is recommended to use the product within 3-6 months after opening the package.
  - When the color of the indicator in the package changes, the product should be baked before welding.

- **Baking is not required for one year if exposure is limited to <30°C and 60%RH. Refer to MSL2 for exposure criteria for moisture sensitivity level. If exposed to (≥168h@85°C/60%RH) conditions or stored for more than one year, recommended baking conditions.**
  1. 120 +5/-5°C, 8 hours, 1 time
  Products must be baked individually on heat-resistant trays because the materials (base tape, reel tape, and cover tape) are not heat-resistant, and the packaging material may be deformed at temperatures of 120℃;
  2、90℃ +8/-0℃, 24hours, 1times
  The base tape can be baked together with the product at this temperature. Please pay attention to the uniformity of heat.

HANDLING CONDITIONS

• Be careful in handling or transporting products because excessive stress or mechanical shock may break products.
• Handle with care if products may have cracks or damages on their terminals. If there is any such damage, the characteristics of products may change. Do not touch products with bare hands that may result in poor solder ability and destroy by static electrical charge.

QUALITY

Cognizant of our commitment to quality, we operate our own factory equipped with state-of-the-art production facilities and a meticulous quality management system. We hold certifications for ISO9001, ISO14001, ISO27001, OHSA18001, BSCI.

Every product undergoes stringent testing, including transmit power, sensitivity, power consumption, stability, and aging tests. Our fully automated module production line is now in full operation, boasting a production capacity in the millions, capable of meeting high-volume production demands.

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RELATED DOCUMENTS

- MinewSemi_Product_Naming_Reference_Manual_V1.0
  https://en.minewsemi.com/file/MinewSemi_Product_Naming_Reference_Manual_EN.pdf
- MinewSemi_Connectivity_Module_Catalogue_V2.0
  https://en.minewsemi.com/file/MinewSemi_Connectivity_Module_Catalogue_EN.pdf

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Innovative IoT Module Expert

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