# Development Board Instructions

# MX25LE02

## Datasheet

V 1.0.1

# Version Note

| Version | Details | Contributor(s) | Date | Notes |
|---|---|---|---|---|
| 1.0.0 | First edit | Vincle | 2025.08.18 | |
| 1.0.1 | ADD ME25LS03 Module | Vincle | 2025.12.02 | |
| | | | | |
| | | | | |

# Part Number

| Model | Hardware Code |
|---|---|
| MX25LE02 | - |
| | |

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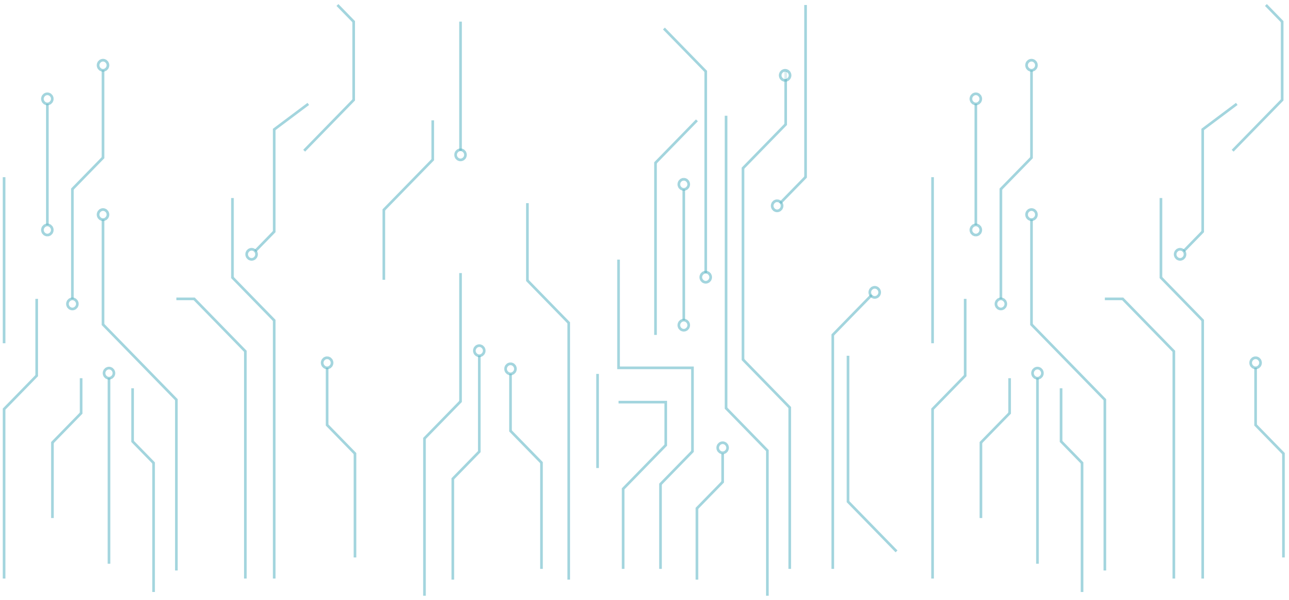
https://en.minewsemi.com/file/Development_Board_MX25LE02_Datasheet_EN.pdf

# INDEX



# 1 GENERAL DESCRIPTION

## 1.1 Development Board Description

The MX25LE02 development board integrates a CH340x serial chip, enabling direct Type-C power supply and UART communication. For easier module development, the board is equipped with several buttons, switches, and RGB indicator functions, making it more convenient to perform testing and other operations during the development process.

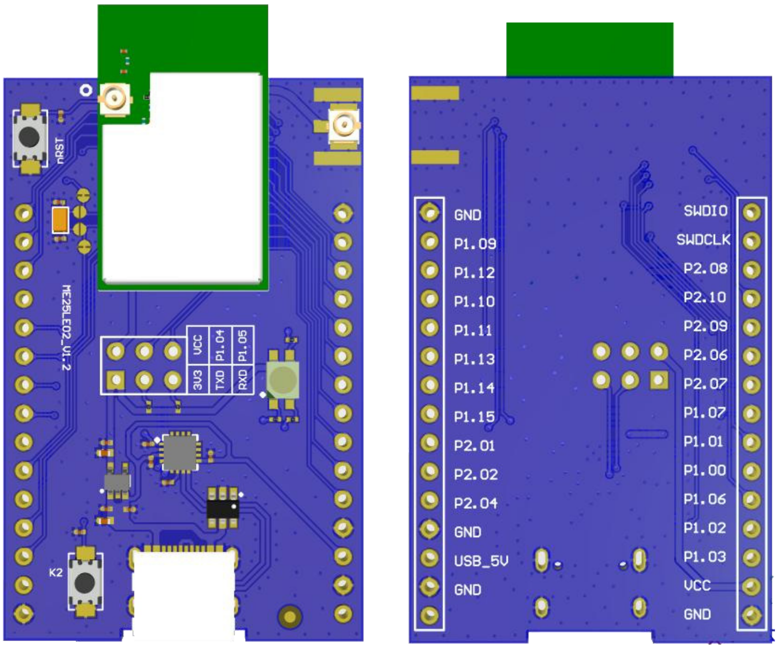
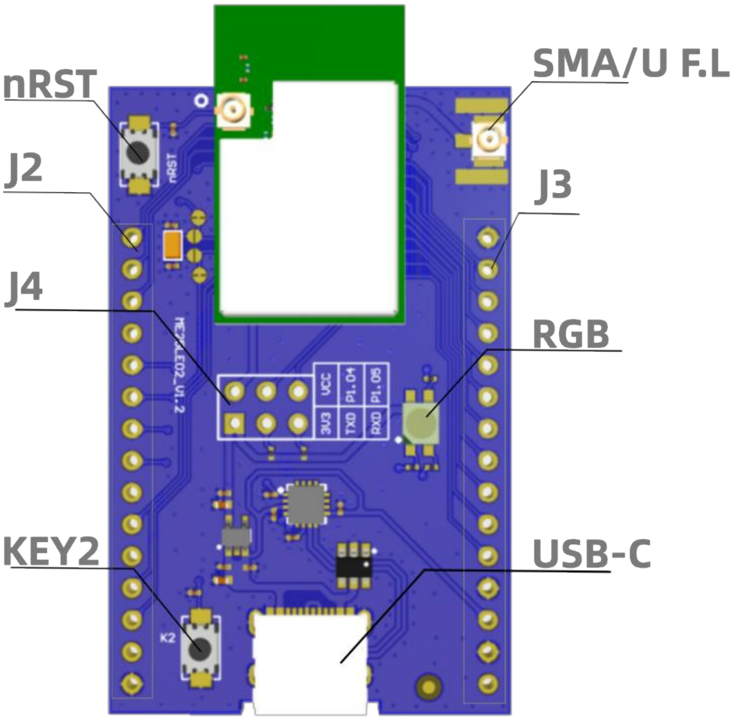


Figure 1 ME25LE02 Front/Rear

## 1.2 Parameter Description

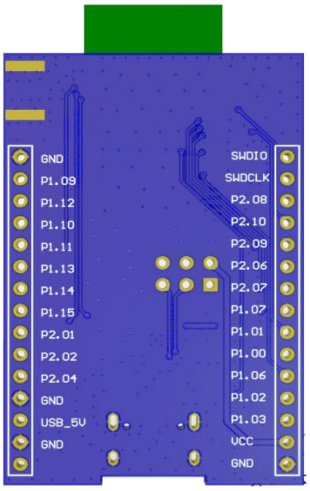
| Parameter | Value | Notes |
|---|---|---|
| ME25LS02 Module Operating Voltage | 1.7V - 3.6V | To ensure RF operation, a 3.3V power supply voltage is recommended, and the voltage should not be lower than 3V. |
| ME25LS02/ME25LS03 Module Dimensions | 25.0x15.0x3.2mm | Module dimensions: length x width x height (mm). |
| MX25LE02 Development Board Dimensions | 56.6x42.0x19.1mm (Includes SMA) | Including pin header terminal and board thickness height; pin header terminal plus pin header maximum height dimensions are 56.6x42.0x19.1m(Includes SMA)<br>The size of the PCB board is 50.0x32.0x1.6mm. |

# 2 MX25LE02 FUNCTIONAL ANNOTATION



| Symbol | Type | Definition |
|---|---|---|
| NRST | Key | Boot key |
| J2 | Pin | Module expansion pins |
| J3 | Pin | Module expansion pins |
| KEY2 | Key | P1.08 pin control |
| J4 | Switchable pins | 3.3V VCC interface power supply, no USB-C power supply<br>Jumper switch, connected by default |
|  | Switchable pins | Type-C UART TX and pin TX(P1.04)<br>Jumper switch, connected by default |
|  | Switchable pins | Type-C UART RX and pin RX.(P1.05)<br>Jumper switch, connected by default |
| USB-C | USB-C serial port | USB Type-c UART port, Power supply standard 5V |
| RGB | RGB light | RGB indicator light connections：<br>R: P0.02 B: P0.03 G: P0.04 |
| SMA/U F.L | Antenna interface | LoRa antenna interface |

# 3 MX25LE02 PIN DEFINITION



| Pin Number | Symbol | Definition |
|---|---|---|
| J2 | SWDIO | Programming data pin |
| J2 | SWCLK | Programming clock pin |
| J2 | P2.08 | General-Purpose I/O |
| J2 | P2.10 | General-Purpose I/O |
| J2 | P2.09 | General-Purpose I/O |
| J2 | P2.06 | General-Purpose I/O |
| J2 | P2.07 | General-Purpose I/O |
| J2 | P1.07 | General-Purpose I/O |
| J2 | P1.00 | General-Purpose I/O |
| J2 | P1.06 | General-Purpose I/O |
| J2 | P1.02 | General-Purpose I/O |
| J2 | P1.03 | General-Purpose I/O |
| J2 | GND | Grounding, Negative pole of power supply |
| J2 | VCC | Power supply, 1.7V–3.6V, use this pin to supply 3.3V |
| J2 | GND | Grounding, Negative pole of power supply |
| J2 | GND | Grounding, Negative pole of power supply |
| J2 | P1.09 | General-Purpose I/O |
| J2 | P1.12 | General-Purpose I/O |
| J2 | P1.10 | General-Purpose I/O |

| Pin Number | Symbol | Definition |
|---|---|---|
| J2 | P1.11 | General-Purpose I/O |
| J2 | P1.13 | General-Purpose I/O |
| J2 | P1.14 | General-Purpose I/O |
| J2 | P1.15 | General-Purpose I/O |
| J2 | P2.01 | General-Purpose I/O |
| J2 | P2.02 | General-Purpose I/O |
| J2 | P2.04 | General-Purpose I/O |
| J2 | GND | Grounding, Negative pole of power supply |
| J2 | USB_5V | USB_5V Power supply |
| J2 | GND | Grounding, Negative pole of power supply |
| J2 | NC | Empty pin |

Note: The pin definitions in the above table are based on the general-purpose passthrough firmware for module applications. Actual pin functions may vary depending on the specific module. Please refer to the module's datasheet for accurate information.

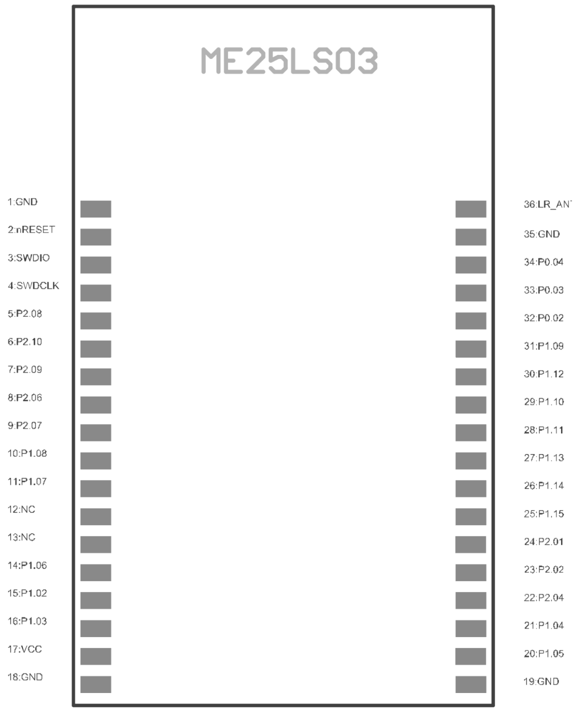
# 4 APPLICABLE MODULE PIN DEFINITION

## 4.1 ME25LS02 Pin Definition

ME25LS02 Module Pin Diagram(TOP View)

| Symbol | Type | Definition |
|---|---|---|
| VCC | Supply Power | Power supply, 3.0V-3.6V, use this pin to supply 3.3V |
| GND | Grounded | Negative pole of power supply |
| SWCLK/SWDIO | Burning /Debug interface | Used for firmware programming and debugging pins. |
| P0.02 - P0.04<br>P0.13 -P0.14<br>P1.00 - P1.15<br>P2.01 - P2.02<br>P2.04<br>P2.06 - P2.10 | IO | General-Purpose I/O:<br>P2.01：LoRa_SCK<br>P2.02：LoRa_MOSI<br>P2.04：LoRa_MISO |
| LR_ANT | Antenna pin | LoRa antenna pin |
| nRESET | RESET | Reset, MCU reset pin |

## 4.2 ME25LS03 Pin Definition

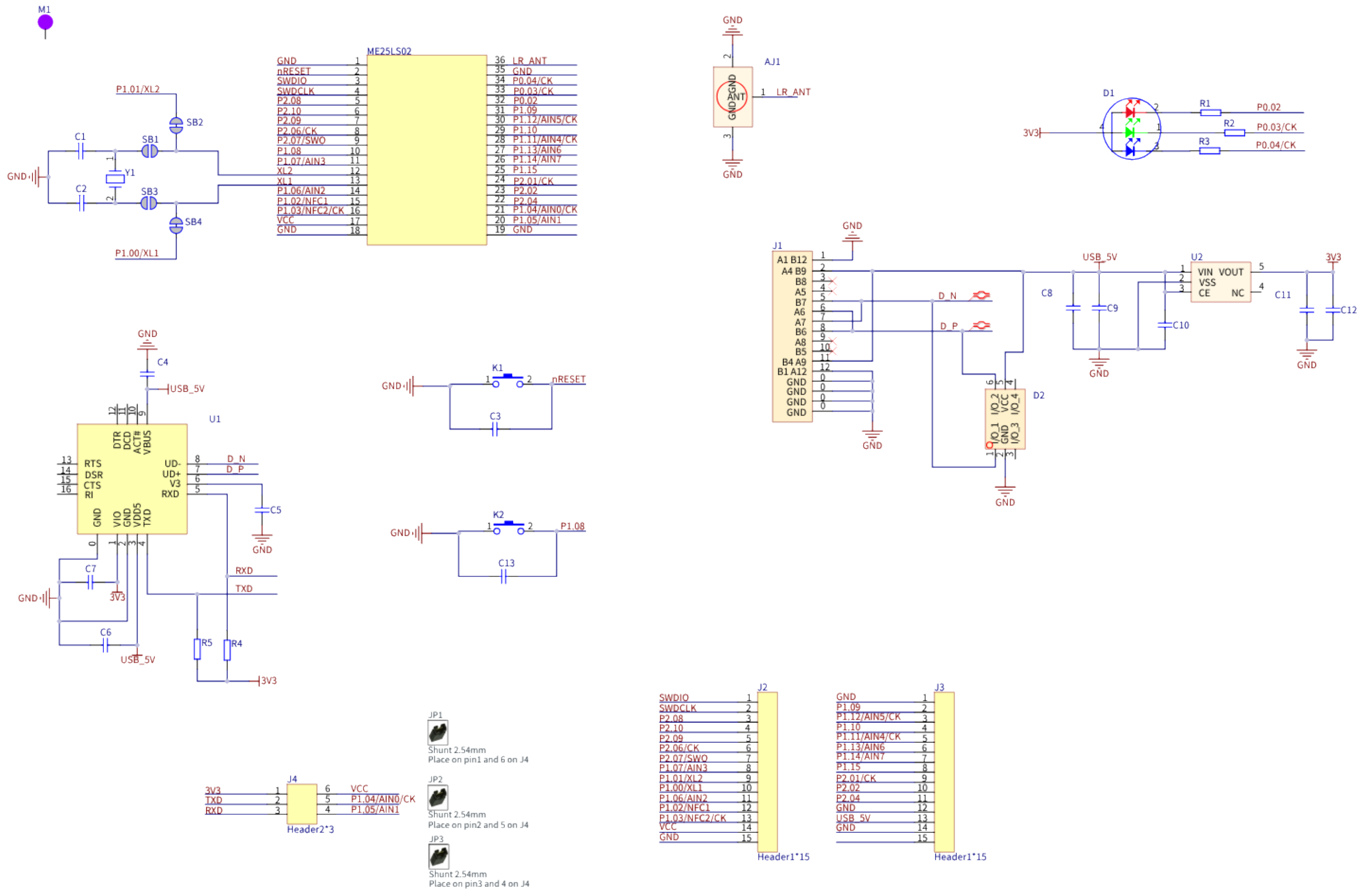


ME25LS03 Module Pin Diagram(TOP View)

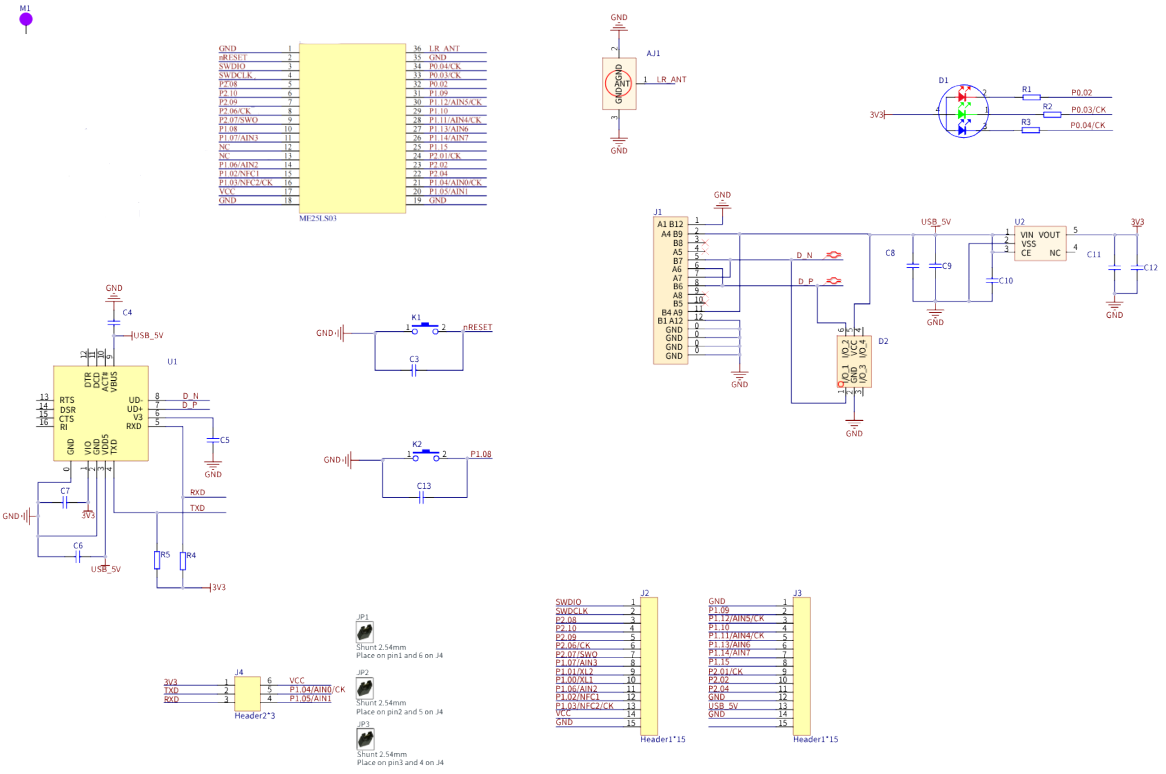
| Symbol | Type | Definition | Notes |
|---|---|---|---|
| VCC | Positive power supply | Power supply, 1.7V-3.6V, with this pin | Normal 3.3V |
| GNS | Negative power supply | Grounded | |
| LR_ANT | External antenna pin | LoRa antenna RF pin | |
| SWCLK/SWDIO | I/O, Debug pin | I/O pin multiplexing, debug pin.<br>During debugging, only connect this pin with the power and ground pins: | |
| P0.02 - P0.04 | | | P2.01：LoRa_SCK |
| P1.02 - P1.15 | | | P2.02：LoRa_MOSI |
| P2.01 - P2.02 | GPIO | General IO port | P2.04：LoRa_MISO |
| P2.04 | | | P1.00/32K_XL1 |
| P2.06 - P2.10 | | | P1.01/32K_XL2 |
| nRESET | Reset | Reset | MCU reset pin |

# 5 ELECTRICAL SCHEMATIC

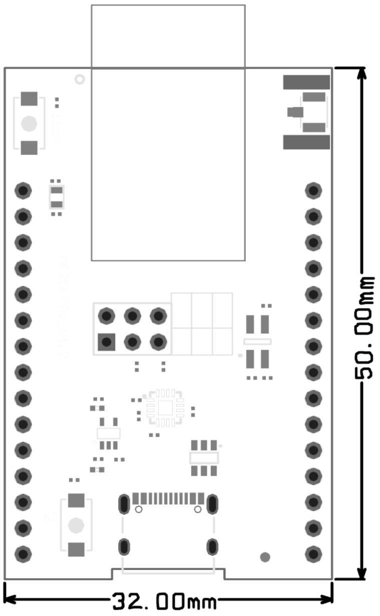
## 5.1ME25LS02 Module



## 5.2 ME25LS03 Module



# 6 MECHANICAL DRAWING



Dimension: 50x32x19.1(Height including pin header )

# 7 APPLICABLE PRODUCT MODELS

| Order Model | Antenna Type | Module Model |
|---|---|---|
| MX25LE02-001 | PCB and SMA | ME25LS02-LLCC68 |
| MX25LE02-002 | PCB and SMA | ME25LS 02-SX1262 |
| MX25LE02-003 | PCB and SMA | ME25LS 03-SX1262 |

# 8 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 (Cl2, 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.

# 9 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.

# 10 QUALITY

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# 12 RELATED DOCUMENTS

- MinewSemi_Product_Naming_Reference_Manual
  https://en.minewsemi.com/file/MinewSemi_Product_Naming_Reference_Manual_EN.pdf
- MinewSemi_Connectivity_Module_Catalogue
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