MINEWSEMI

Development Board Instructions

MX16WE02

Datasheet

V 1.0.0

Version Note

Version	Details	Contributor(s)	Date	Notes
1.0.0	First edit	Vincle	2025.08.01	

Part Number

Model	Hardware Code
MX16WE02	-

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https://en.minewsemi.com/file/Development_Board_MX16WE02_Datasheet_EN.pdf

INDEX

1 GENERAL DESCRIPTION

1.1 Development Board Description

MX16WE02 development board, which integrates a serial port chip and can be powered and burned directly using Type-C. In order to facilitate the development and use of the module, the development board has some key switches and indication functions, which is more convenient for testing the module during the development process.

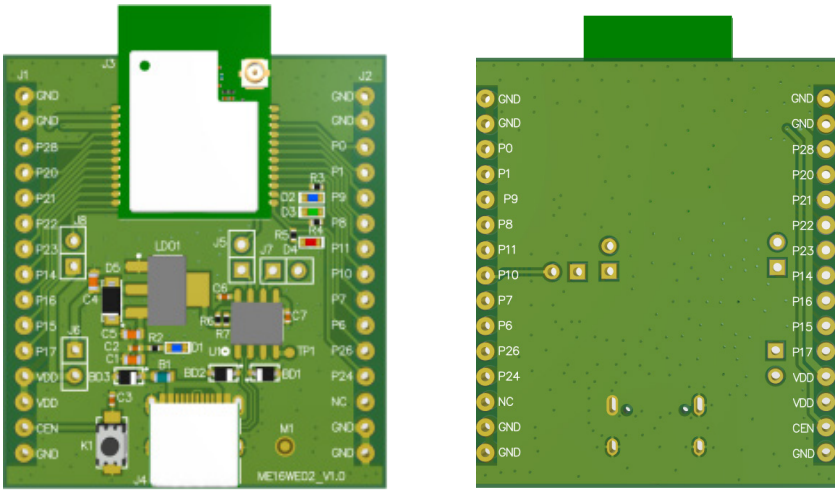
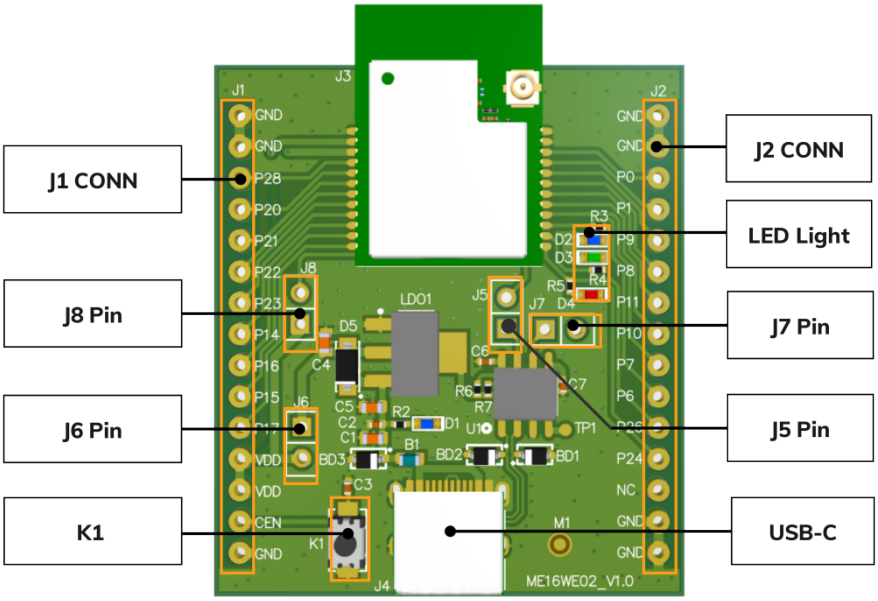


Figure 1 ME16WE02 Front/Rear

1.2 Parameter Description

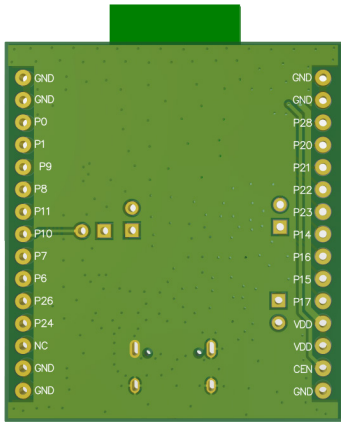
Parameter	Value	Notes
ME16WS01 Module Operating Voltage	3.0V - 3.6V	To ensure RF operation, the 3.3V power supply voltage is recommended to be no less than 3V.
ME16WS02 module dimension	20.9x15.0x3.0mm	Module dimensions: length x width x height (mm).
MX16WE02 Development Board dimension	43.0x38.0x18.0mm	Including pin header terminal and board thickness height; pin header terminal plus pin header maximum height dimensions are 43.0x38.0x18.0mm. The size of the PCB board is43.0x38.0x1.0mm.

2 MX16WE02 FUNCTIONAL ANNOTATION



Symbol	Type	Definition
K1	key	Boot key
J1	Pin	Module expansion pins
J2	Pin	Module expansion pins
J4	USB-C serial port	USB Type-C UART serial port, Power supply standard 5V
J5	Switchable pins	Type-C UART Rx and pin Rx. Jumper switch, connected by default
J6	Switchable pins	3.3V VCC interface power supply, no USB-C power supply Jumper switch, connected by default
J7	Switchable pins	Type-C UART Rx and pin Tx. Jumper switch, connected by default
J8	Switchable pins	Short circuit to enter factory mode Jumper switch, disconnected by default
D1	LED light	Power indicator
D2	LED light	P6 connected LED light
D3	LED light	P26 connected LED light
D4	LED light	P24 connected LED light

3 MX16WE02 PIN DEFINITIONS



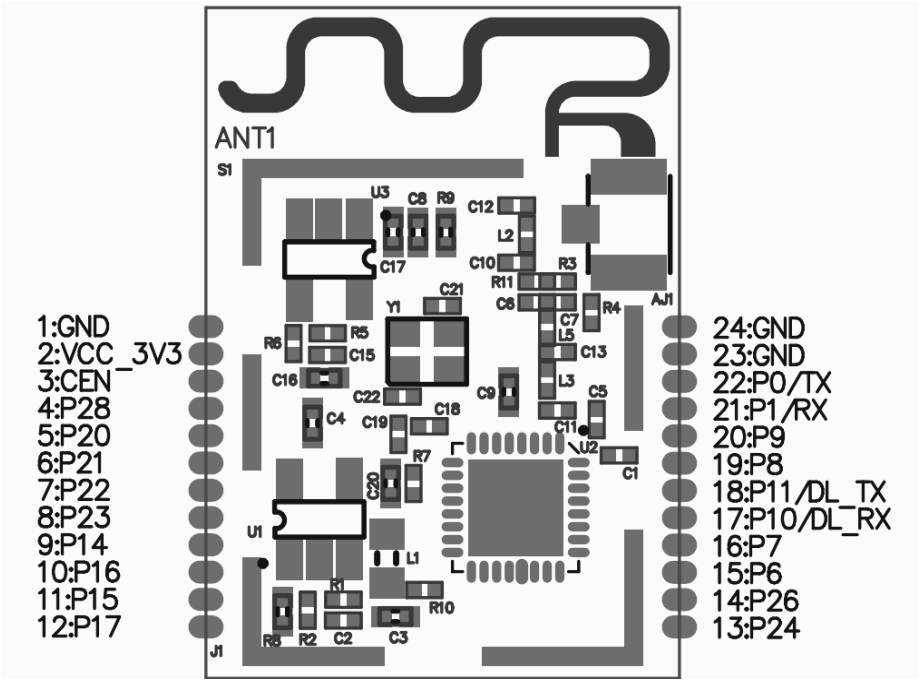
Pin Number	Symbol	Definition
J1	GND	Grounding, Power negative
J1	GND	Grounding, Power negative
J1	P28	ADC4
J1	P20	ADC3
J1	P21	General Purpose IO
J1	P22	General Purpose IO
J1	P23	General Purpose IO
J1	P14	SPI:SCK
J1	P16	SPI:MOSI
J1	P15	SPI: CSN； I2C:SCL
J1	P17	SPI: MISO； I2C:SDA
J1	VDD	Power supply pin, the 3.3V power supply voltage
J1	VDD	Power supply pin, the 3.3V power supply voltage
J1	CEN	Enable, Active high
J1	GND	Grounding, Negative pole of power supply
J2	GND	Grounding, Power negative
J2	GND	Grounding, Power negative
J2	P0	UART1, GPIO0:Serial TXD;ADC5
J2	P1	UART1, GPIO1:Serial RXD

Pin Number	Symbol	Definition
J2	P9	PWM3
J2	P8	PWM2
J2	P11	UART0, GPIO11:Serial port TXD (Firmware programming & Log)
J2	P10	UART0, GPIO10:Serial port RXD(Firmware programming & Log)
J2	P7	PWM1
J2	P6	PWM0
J2	P26	PWM5；I2C:SDA；ADC1
J2	P24	PWM4；I2C:SCL；ADC2
J2	NC	Empty pin
J2	GND	Grounding, Power negative
J2	GND	Grounding, Power negative

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.

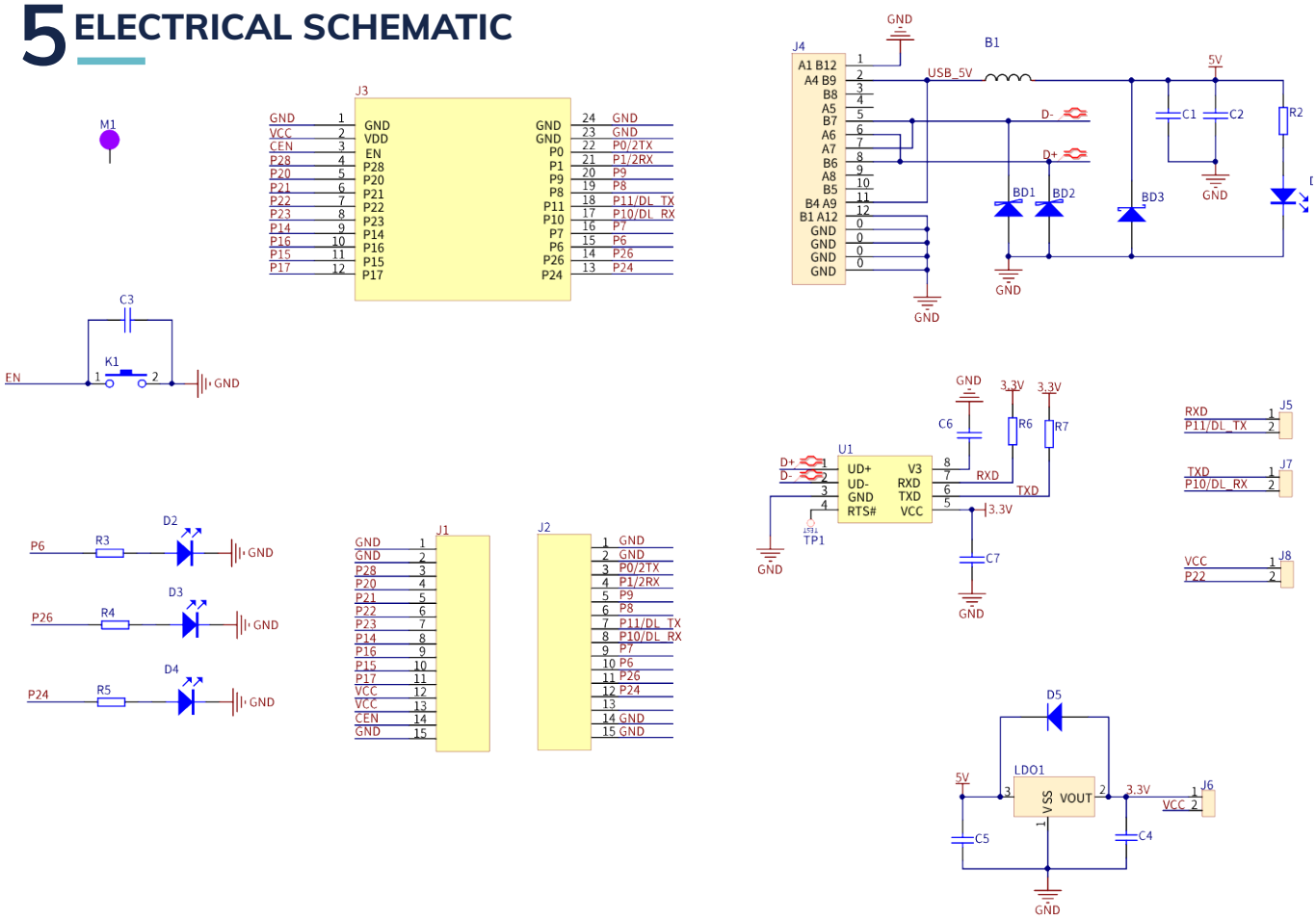
4 APPLICABLE MODULE PIN DEFINITION

4.1 ME16WS02 Pin Definition

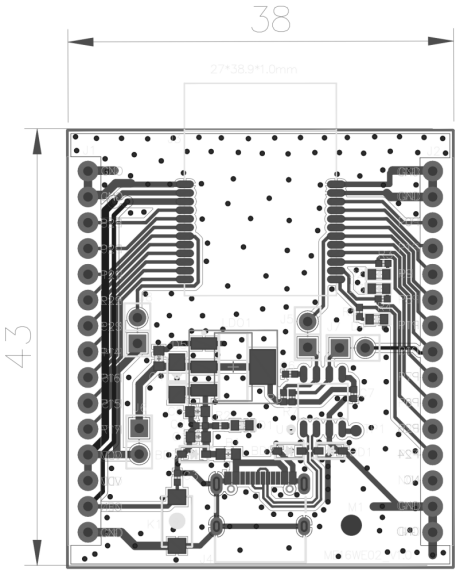


Symbol	Type	Definition
GND	Grounded	Power negative
VCC	Supply Power	Power Supply, 3.0V-3.6V, use this pin to supply 3.3V
CEN	Enable	High level: Chip enable Low level: Chip in disable
P6 - P9 P14 - P17 P20 - P24 P26，P28	I/O	General-purpose IO (GPIO):P21 -P23 P6 -P9:PWM0-PWM3 P14:SPI: SCK P15:SPI: CSN；I2C:SCL P16:SPI: MOSI P17:SPI: MISO；I2C:SDA P20:ADC3 P24:PWM4；I2C:SCL；ADC2 P26:PWM5；I2C:SDA；ADC1 P28:ADC4
P11	Serial port 0 TX	GPIO11:Serial port TXD (Firmware programming & Log)
P10	Serial port 0 RX	GPIO10:Serial port RXD (Firmware programming & Log)
P0	Serial port 1 TX	GPIO0: Serial port TXD;ADC5
P1	Serial port 1 RX	GPIO1: Serial port TXD

5 ELECTRICAL SCHEMATIC



6 MECHANICAL DRAWING



7 APPLICABLE PRODUCT MODELS

Order Model	Antenna Type	Module Model
ME16WS02-002	PCB/u.FL	ME16WS02-BK7238

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

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.

11 COPYRIGHT STATEMENT

12 RELATED DOCUMENTS

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

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MINEWSEMI

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