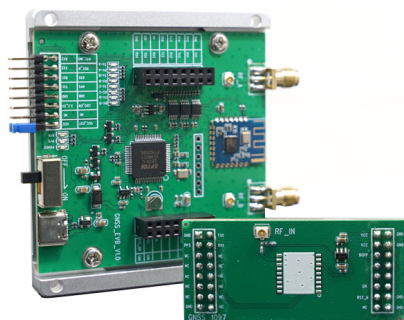


GNSS Module

GNSS-EVB-BOX



Datasheet

V 1.0.0

Version Note

Version	Details	Contributor(s)	Date	Notes
1.0.0	First edit	Michelle, Leo	2024.06.25	

Part Number

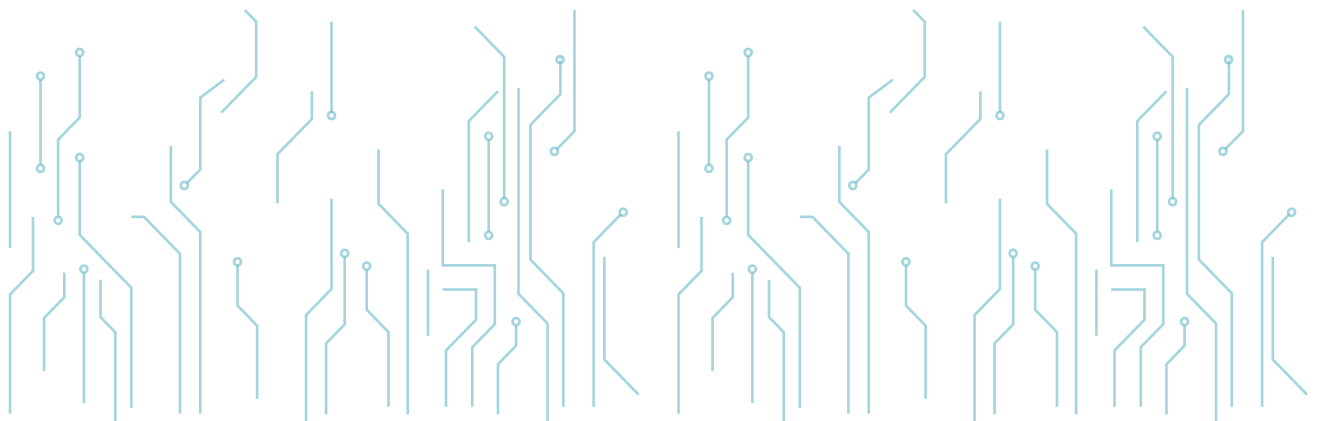
Model	Hardware Code
GNSS_EVB_MainBoard	-
CNSS_EVB_Cube*1097	-
CNSS_EVB_Cube*1612	-
CNSS_EVB_Cube*2116	-
CNSS_EVB_Cube*2217	-

Click the icon to view and download the latest product documents electronically.
https://en.minewsemi.com/file/GNSS-EVB-BOX_Datasheet_EN.pdf



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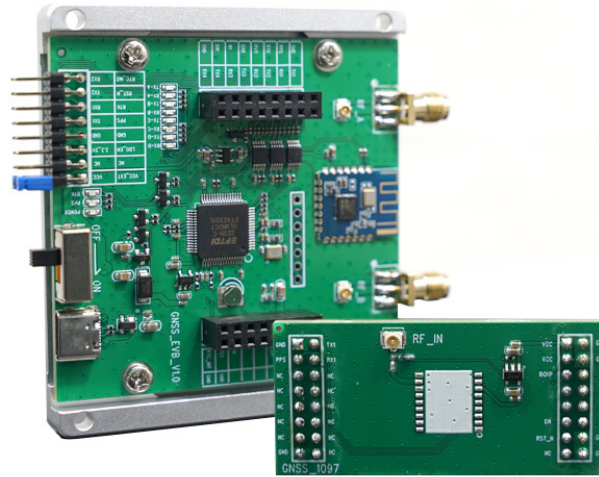




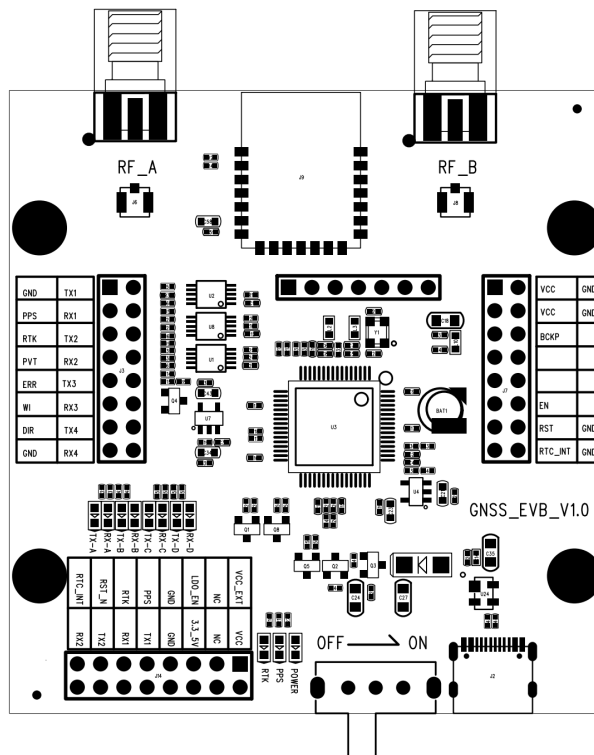
1 OVERVIEW

1.1 Product Introduction

GNSS-EVB-BOX is a development kit for evaluating GNSS modules. The product consists of an EVB power protocol main board (GNSS_EVB_MainBoard), a module gusset, a magnetic base, and a housing. The EVB_Cube supports mainstream GNSS module packages, such as 16*12mm LCC-24, 10.1*9.7mm LCC-18, 22*17mm LGA-54 and so on.



1.2 Introduction to GNSS_EVB_MainBoard





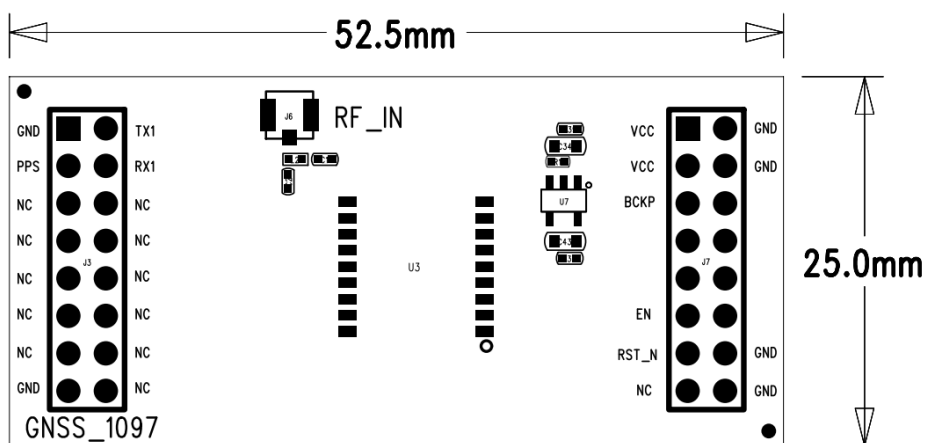
EVB Power Protocol MainBoard, GNSS_EVB_MainBoard integrates a SILICON LABS (CoreTech)] USB-Uart protocol bridge chip, which can virtualize 4 UART serial ports, facilitating the evaluation of multi-channel serial data communication of GNSS.

Note: It is not possible to have both USB power and power from the pin (don't plug in USB if you have an external pin).

The power supply to the motherboard can be either USB-C or from the header on the connector, both VCC_EXT & VCC jumper caps need to be shorted. When using the VCC_EXT power supply on the pin header, the current tested is the current of the GNSS module small board; when using the VCC power supply on the pin header, the current is the current of the EVB base board. If the GNSS module needs to be configured via Bluetooth, it cannot be powered by USB-C, but only by VCC_EXT & VCC on the pin header.

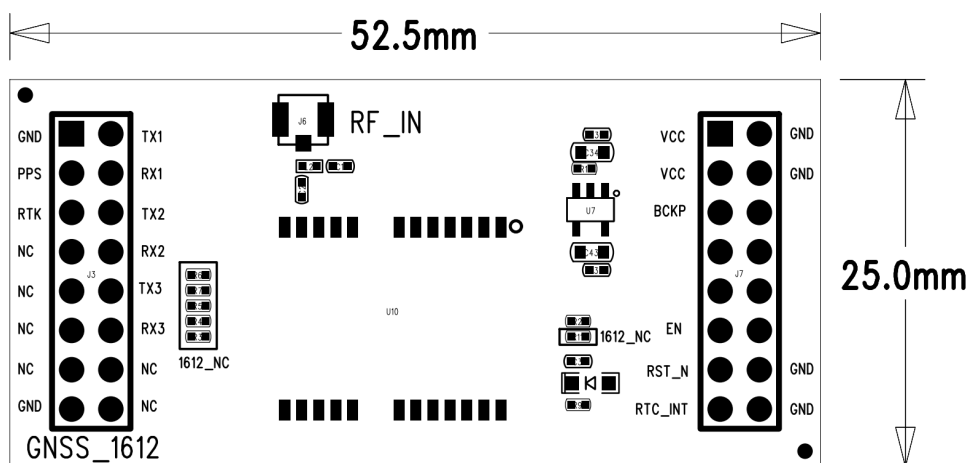
When the module to be evaluated is a positioning and directional module, two external GNSS antennas need to be connected at the same time, if the module is a single antenna application, it only needs to be connected to RF_A, i.e., antenna #1.

1.3 GNSS_EVB_Cube*1097 Bitmap



The module grommet GNSS_EVB_Cube*1097 is connected to the motherboard using rows of pins on both sides, and the RF signals are connected via IPEX coaxial cable to RF_A, the No. 1 antenna port on the motherboard.

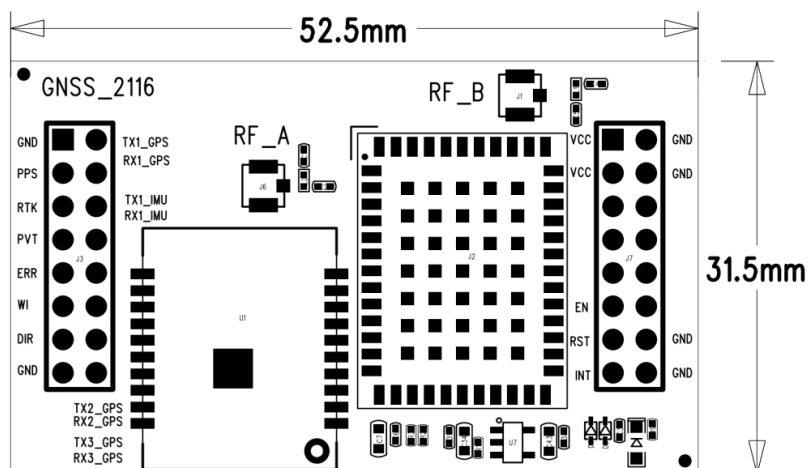
1.4 GNSS_EVB_Cube*1612 Bitmap



The module gusset GNSS_EVB_Cube*1612 is connected to the motherboard using rows of pins on both sides, and the RF signals are connected to the RF_A, or antenna port 1, of the motherboard via IPEX coaxial cable.



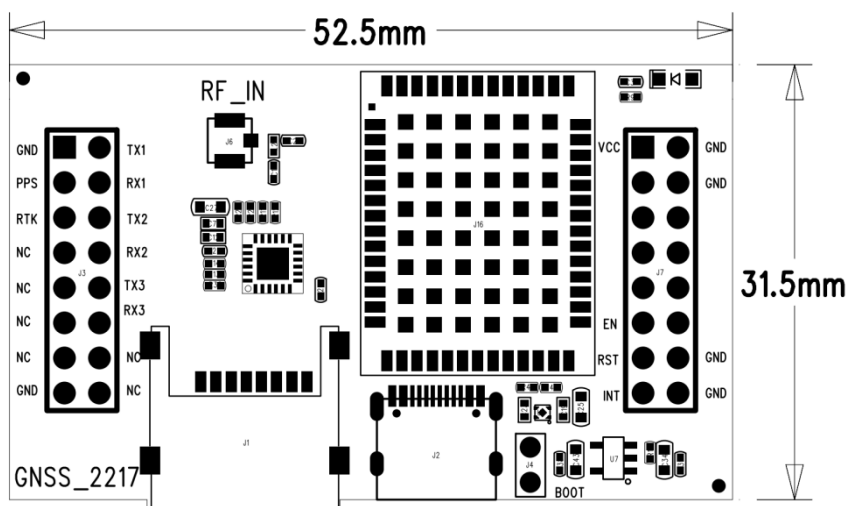
1.5 GNSS_EVB_Cube*2116 Bitmap



The module gusset GNSS_EVB_Cube*2116 uses pins on both sides to connect to the mainboard. To support positioning and orientation functions, the module needs to be connected to two external antennas. The RF signals are connected through the IPEX coaxial line and the corresponding antenna ports of the mainboard, that is, the RF_A of the gusset is connected to the RF_A of the mainboard, and the RF_B of the gusset is connected to the IPEX seat of the RF_B of the mainboard.

The inertial navigation module is on the left side of the GNSS module, which is used to evaluate the combined navigation function. If it is not needed, the inertial navigation module can be left blank. The inertial navigation module will indicate the default installation direction. When using it, you need to pay attention to the default X-axis facing the vehicle's forward direction.

1.6 GNSS_EVB_Cube*2217 Bitmap

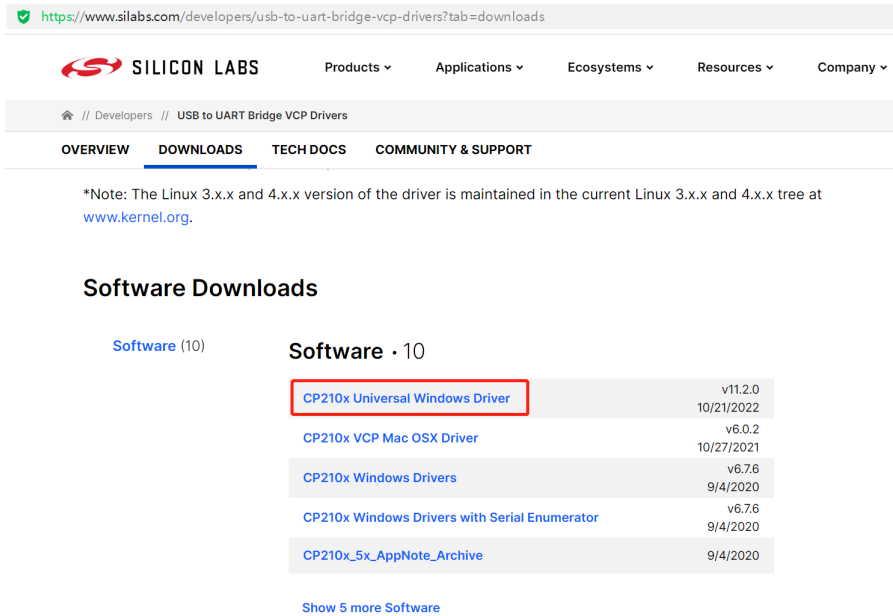


Module gusset GNSS_EVB_Cube*2217 uses pin headers on both sides to connect to the mainboard. To support RTK solution, the RF signal is connected to the mainboard's RF_A, i.e., antenna port No. 1, through the IPEX coaxial cable. The integrated navigation module will indicate the default installation direction. When using it, you need to pay attention to the default X-axis facing the vehicle's forward direction.

1.7 Driver Download

Silicon labs' driver for CP2108 is available for download at:

<https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers?tab=downloads>



<https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers?tab=downloads>

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OVERVIEW **DOWNLOADS** TECH DOCS COMMUNITY & SUPPORT

*Note: The Linux 3.x.x and 4.x.x version of the driver is maintained in the current Linux 3.x.x and 4.x.x tree at www.kernel.org.

Software Downloads

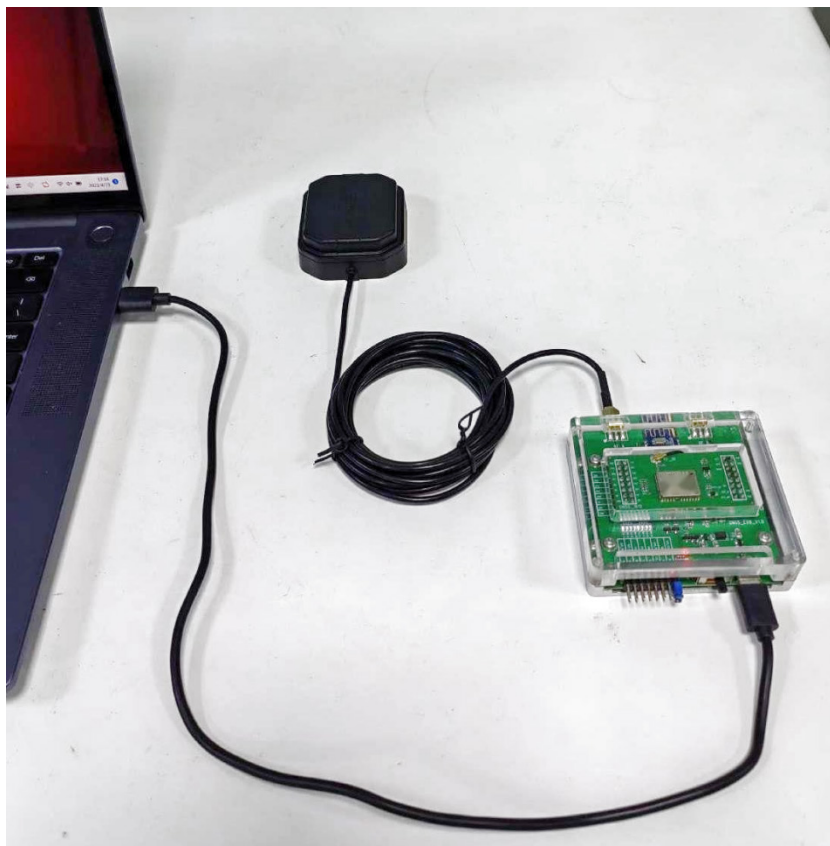
Software (10)

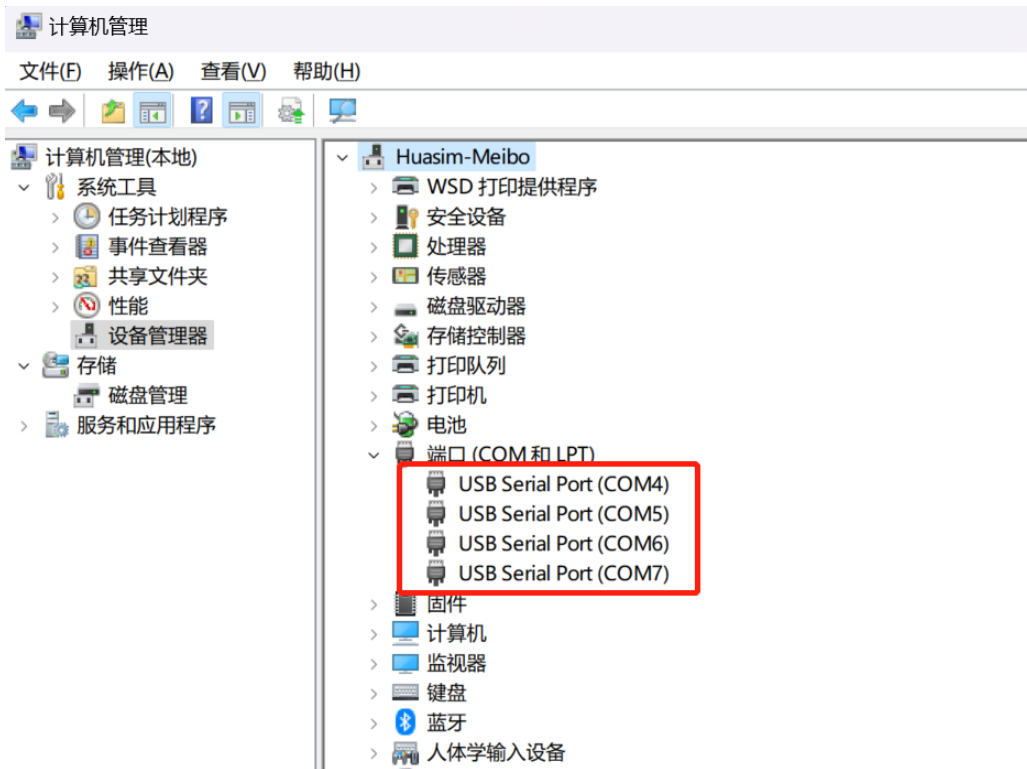
Software - 10

CP210x Universal Windows Driver	v11.2.0 10/21/2022
CP210x VCP Mac OSX Driver	v6.0.2 10/27/2021
CP210x Windows Drivers	v6.7.6 9/4/2020
CP210x Windows Drivers with Serial Enumerator	v6.7.6 9/4/2020
CP210x_5x_AppNote_Archive	9/4/2020

[Show 5 more Software](#)

After successfully installing the driver and connecting the GNSS-EVB via the USB-C cable on a Windows OS computer, you can expand the virtualized 4 sets of serial ports by right-clicking - My Computer - Manage - Device Manager, in the 'Ports' column. The above screenshots are for reference only, the port numbers are not the same for different computers.





2 CONFIGURATION

2.1 Gusset Configuration Description

Serial Number	Gusset Type	Supported GNSS Module Models
1	GNSS_EVB_MainBoard	Compulsory
2	GNSS_EVB_Cube*1097	Support MS31SN1,MS32SN1,MS33SN1,MS35SN1...
3	GNSS_EVB_Cube*1612	Support MS33SN2,MS34SN2,MS35SN2,MS37SN2...
4	GNSS_EVB_Cube*2116	Support MS36SN4...
5	GNSS_EVB_Cube*2217	Support MS34SN3,MS34SNA...

2.2 Wrap

Serial Number	Subassemblies	Notes
1	GNSS-EVB-BOX	Contains EVB_Cube*, magnet, label EVB_Cube* is the GNSS module type to be evaluated
2	AH10b	Optional high precision active antenna
3	short-circuit jump cap	5pcs, In which GNSS-EVB-BOX is installed 1pcs
4	USB cable	1x USB-C Cable, 1m, black
5	Box	

3 STORAGE CONDITIONS

- Please use this product within 6 months after signing up for it.
 - 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 will be stored for more than 6 months after receipt. They must be confirmed before use.
 - Products must be stored in non-corrosive gases (Cl₂, NH₃, SO₂, NO_x, etc.).
 - To avoid damage to the packaging materials, no excessive mechanical impact shall be applied, including but not limited to sharp objects adhering to the packaging materials and products falling.
- This product is suitable for MSL3 (based on JEDEC standard J-STD-020).
 - After opening the package, the product must be stored under conditions of ≤30°C/<60%RH. It is recommended to use it within 168 hours after opening the package.
 - When the color of the indicator in the package changes, the product should be baked before welding.
- When exposed to (≥168h@30°C/60%RH) conditions, the recommended baking conditions:
 1. 120 +5/-5°C, 8 hours, 1 timeProducts must be baked individually on heat-resistant trays because the materials (base tape, roll tape and cover tape) are not heat-resistant and the packaging materials may deform when the temperature is 120°C;
 2. 90°C +8/-0°C, 24 hours, onceThe base tape can be baked together with the product at this temperature, Please pay attention to even heating.

4 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.

5 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.

6 COPYRIGHT STATEMENT

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7 RELATED DOCUMENTS

- [MinewSemi_Product_Naming_Reference_Manual_V1.0](https://en.minewsemi.com/file/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_V2.0)
https://en.minewsemi.com/file/MinewSemi_Connectivity_Module_Catalogue_EN.pdf



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