

Taidacent MP2307DN

Taidacent MP2307DN 3A Step-Down DC-DC Converter Module User Manual

Model: MP2307DN

1. PRODUCT OVERVIEW

The Taidacent MP2307DN is a compact and efficient step-down (buck) DC-DC converter module designed to convert a higher input voltage to a stable lower output voltage. It is suitable for various electronic projects requiring a regulated 3.3V power supply from a wider input range.

This module features high conversion efficiency and a stable output, making it ideal for applications where space and power efficiency are critical.

2. KEY FEATURES

- Input Voltage Range: 4.75V to 23V
- Fixed Output Voltage: 3.3V
- Output Current: Up to 3A (peak), 1.8A (continuous)
- High Conversion Efficiency: Up to 96%
- Switching Frequency: 340KHz
- Compact Design

3. SPECIFICATIONS

Parameter	Value
Input Voltage	4.75V - 23V
Output Voltage	3.3V
Output Current (Peak)	3A
Output Current (Long-term)	1.8A
Conversion Efficiency	Up to 96%

Switching Frequency	340KHz
Output Ripple (No Load)	30mV
Load Regulation	±0.5%
Voltage Adjustment Rate	±2.5%
Working Temperature	-40°C to +85°C

4. MODULE PINOUT AND DIMENSIONS

Understanding the pinout and physical dimensions is crucial for proper integration.



Figure 1: Module Bottom View with Pinout. This image displays the underside of the MP2307DN module, clearly labeling the input voltage (V1+), ground (GND), and 3.3V output (V3.3) pins for connection.

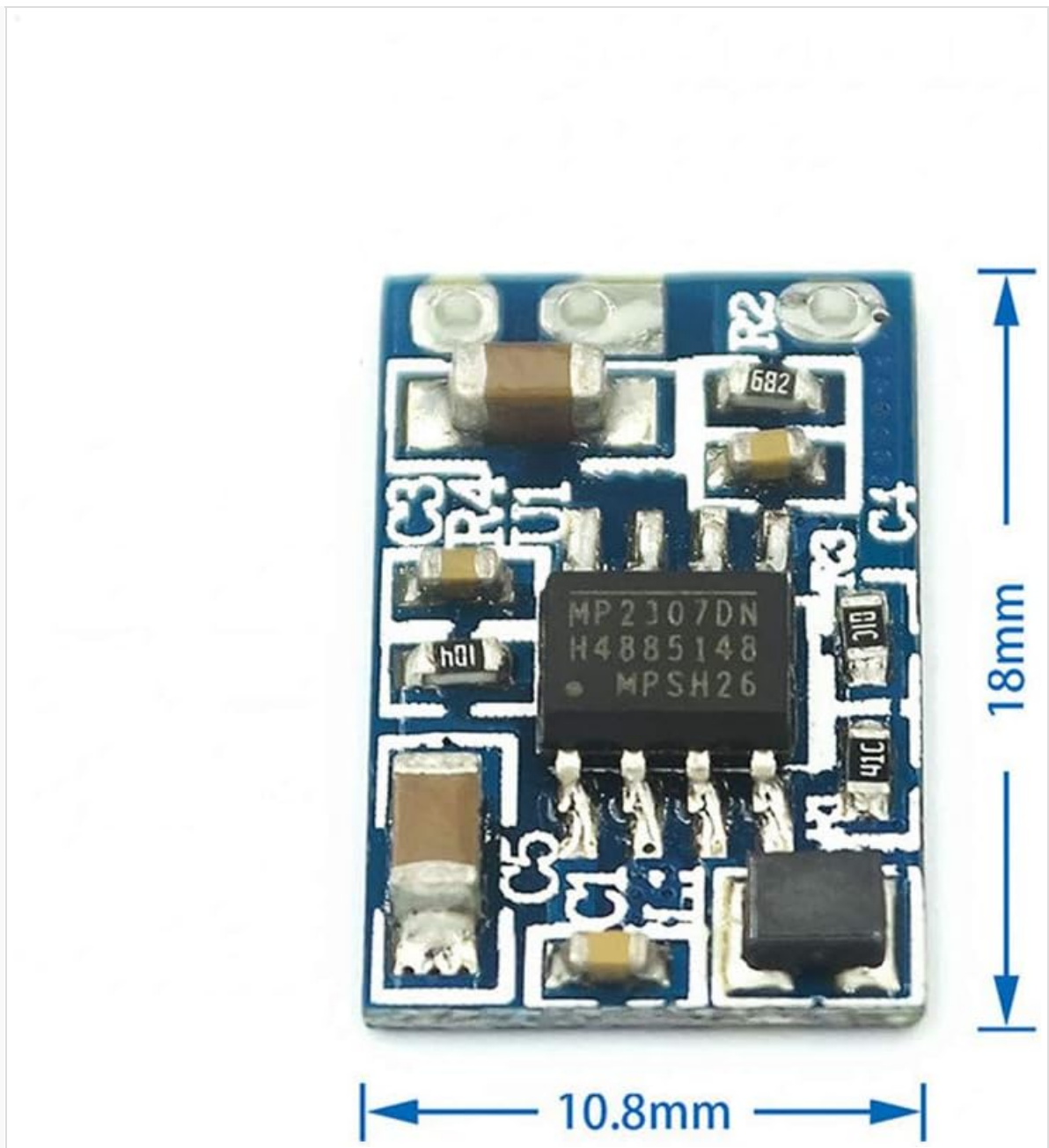


Figure 2: Module Dimensions. This image illustrates the physical dimensions of the MP2307DN module, showing a length of 18mm and a width of 10.8mm, essential for PCB layout and enclosure design.

The module typically features solder pads for input voltage (V_{IN}), ground (GND), and output voltage (V_{OUT}).

- **V_{IN} (V1+):** Connect your input DC voltage source (4.75V to 23V) here.
- **GND:** Connect to the common ground of your power supply and load.
- **V_{OUT} (V3.3):** This is the regulated 3.3V output, which should be connected to your load.

5. SETUP AND CONNECTION

Follow these steps to correctly set up and connect your MP2307DN module:

1. **Identify Pins:** Locate the V_{IN} , GND, and V_{OUT} pads on the module. Refer to Figure 1 for visual guidance.
2. **Prepare Connections:** Ensure your input power supply is within the specified range (4.75V-23V DC) and your load requires 3.3V.
3. **Connect Input:** Solder or connect the positive terminal of your input power supply to the V_{IN} (V1+) pad. Connect the negative terminal of your input power supply to the GND pad.

4. **Connect Output:** Solder or connect the positive terminal of your 3.3V load to the V_{OUT} (V3.3) pad. Connect the negative terminal of your load to the GND pad. Ensure all connections are secure and properly insulated to prevent short circuits.
5. **Double-Check:** Before applying power, carefully review all connections to ensure correct polarity and wiring. Incorrect connections can damage the module or connected devices.

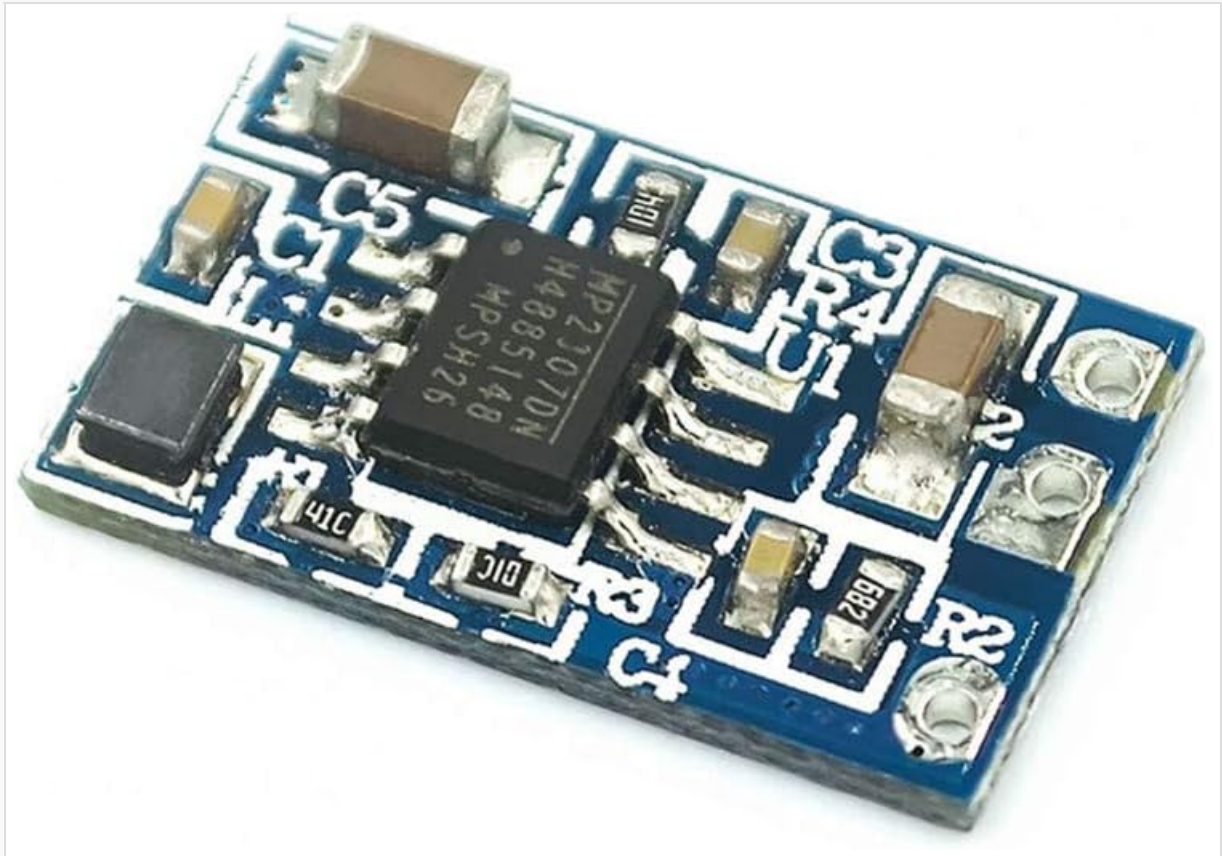


Figure 3: Module Top View. This image shows the top side of the MP2307DN module, displaying the MP2307DN IC and surrounding passive components, which are integral to its step-down functionality.

6. OPERATING INSTRUCTIONS

Once the module is correctly wired, operating it is straightforward:

1. **Apply Input Power:** Turn on your DC input power supply. The module will automatically regulate the input voltage down to 3.3V.
2. **Monitor Output:** You can use a multimeter to verify the output voltage at the V_{OUT} and GND pads. It should read approximately 3.3V.
3. **Load Connection:** Connect your 3.3V device or circuit to the V_{OUT} and GND terminals. Ensure the total current draw of your load does not exceed the module's continuous output current rating of 1.8A (or 3A peak for short durations).
4. **Power Off:** To power down, simply turn off the input DC power supply.

Important: Do not exceed the maximum input voltage of 23V or the maximum continuous output current of 1.8A to prevent damage to the module.

7. MAINTENANCE

The Taidacent MP2307DN module is designed for reliable operation with minimal maintenance. Observe the following

guidelines:

- **Keep Clean:** Ensure the module is free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning if necessary.
- **Environmental Conditions:** Operate the module within its specified working temperature range (-40°C to +85°C). Avoid extreme temperatures and high humidity.
- **Physical Inspection:** Periodically inspect solder joints and connections for any signs of damage or corrosion.
- **Avoid Overload:** Do not continuously draw more than 1.8A from the module to ensure long-term stability and prevent overheating.

8. TROUBLESHOOTING

If you encounter issues with your MP2307DN module, consider the following troubleshooting steps:

- **No Output Voltage:**
 - Check input voltage: Ensure the input voltage is within 4.75V-23V.
 - Verify connections: Confirm V_{IN} , GND, and V_{OUT} connections are correct and secure. Check for loose wires or poor solder joints.
 - Check polarity: Ensure input and output polarities are correct.
 - Test without load: Disconnect the load and measure the output voltage. If it's present, the load might be drawing too much current or have a short circuit.
- **Output Voltage is Incorrect:**
 - Measure input voltage: Confirm it's stable and within the specified range.
 - Check for overload: If the load current exceeds 1.8A, the output voltage may drop. Reduce the load.
 - Module damage: If all other checks pass, the module may be damaged.
- **Module Overheating:**
 - Reduce load current: Excessive current draw is the most common cause of overheating.
 - Improve ventilation: Ensure adequate airflow around the module.
 - Check input-output voltage difference: A large difference between input and output voltage (e.g., 23V in, 3.3V out) can increase power dissipation. While the module is efficient, high current with a large voltage drop can still generate heat.

9. SAFETY INFORMATION

- Always ensure proper insulation for all connections to prevent accidental short circuits.
- Do not touch the module while it is powered on, especially if it is operating under heavy load, as components may become hot.
- Keep out of reach of children.
- This module is intended for use by individuals with sufficient knowledge of electronics.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

Open the live page

<https://manuals.plus/asin/B08FRJ1X1G>

More documents and user manuals: <https://manuals.plus/>