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› Senzooe MT3608 LM2577 DC-DC Boost Converter User Manual

Senzooe MT3608 LM2577

Senzooe MT3608 LM2577 DC-DC Boost Converter User Manual

Model: MT3608 LM2577

1. INTRODUCTION

This manual provides essential instructions for the safe and effective use of the Senzooe MT3608 LM2577 DC-DC Boost Converter module. Please read this manual thoroughly before installation and operation to ensure optimal performance and prevent damage.

2. PRODUCT OVERVIEW

The Senzooe MT3608 LM2577 is a compact and efficient DC-DC boost (step-up) converter module designed to convert a lower DC input voltage into a higher DC output voltage. It features an adjustable output voltage range and a Micro USB input option for convenience. This module is suitable for various electronic projects requiring a stable, higher voltage supply from a lower voltage source.

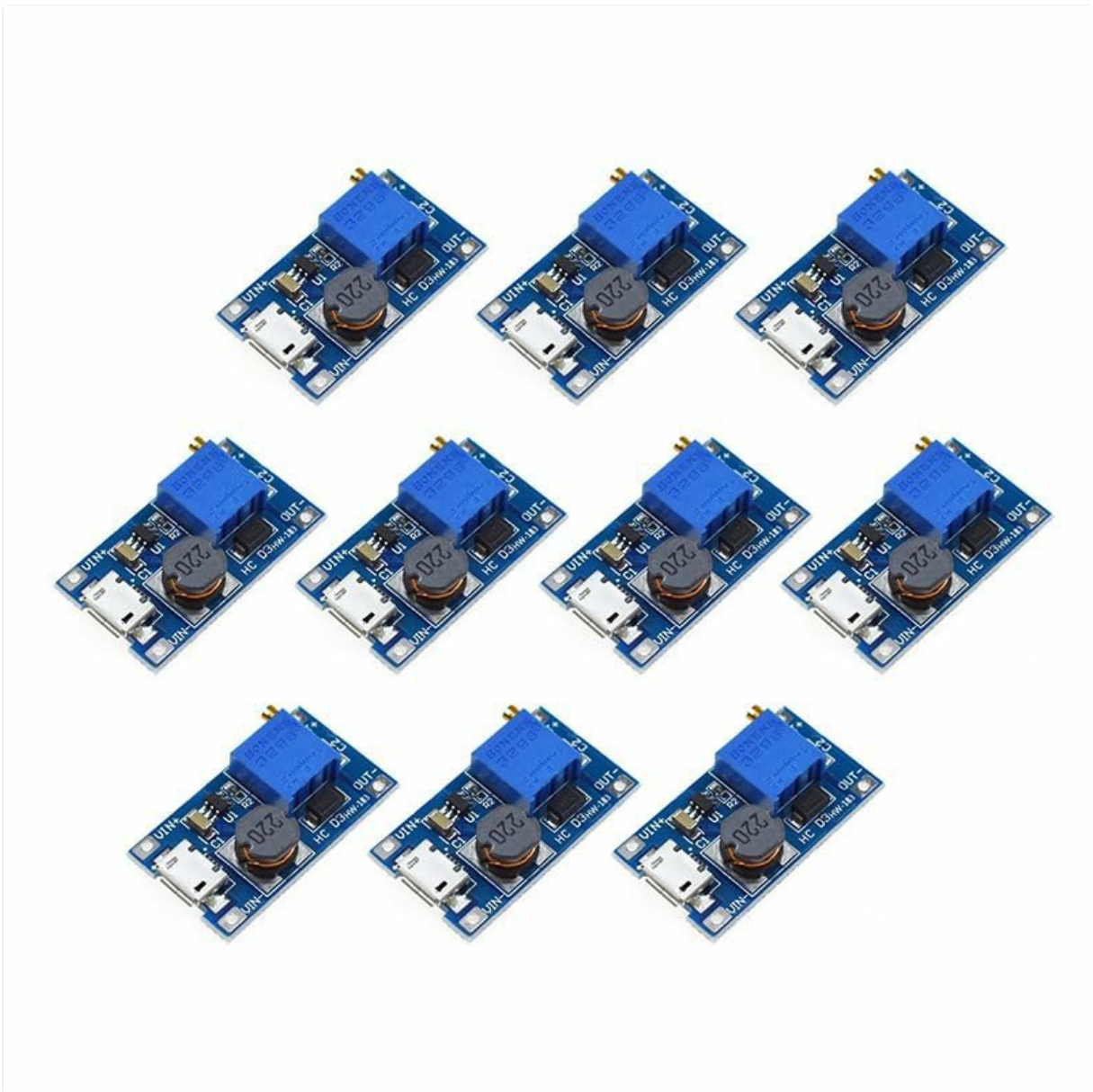


Figure 2.1: Senzooe MT3608 LM2577 DC-DC Boost Converter Module. This image displays the compact design of the MT3608 LM2577 DC-DC Boost Converter module, highlighting its input/output terminals, Micro USB port, and the adjustable potentiometer.

3. KEY FEATURES

- **Input Voltage Range:** 2V to 24V DC
- **Output Voltage Range:** 5V to 28V DC (Adjustable via onboard potentiometer)
- **Maximum Output Current:** 2A (peak)
- **High Conversion Efficiency:** Up to 93%
- **Integrated Chipsets:** MT3608 and LM2577 for stable boost conversion
- **Input Options:** Solder pads for IN+/IN- and Micro USB port
- **Compact Design:** Small form factor for easy integration into projects

4. TECHNICAL SPECIFICATIONS

Parameter	Value
Input Voltage	2V - 24V DC

Parameter	Value
Output Voltage	5V - 28V DC (Adjustable)
Maximum Output Current	2A (Peak)
Conversion Efficiency	Up to 93%
Switching Frequency	1.2 MHz
Operating Temperature	-45°C to +85°C
Chipset	MT3608, LM2577
Input Interface	Solder pads (IN+/IN-), Micro USB
Output Interface	Solder pads (OUT+/OUT-)

Note: The maximum output current is 2A, but for long-term stable operation, it is recommended to keep the load below 1.5A, especially when the input-output voltage difference is large.

5. SETUP INSTRUCTIONS

- 1. Identify Terminals:** Locate the input terminals (IN+, IN-) and output terminals (OUT+, OUT-) on the module. The Micro USB port can also serve as an input.
- 2. Connect Input Power:**
 - For solder pad input: Connect your DC power source (2V-24V) to the IN+ (positive) and IN- (negative) pads. Ensure correct polarity.
 - For Micro USB input: Connect a Micro USB cable from a suitable power source (e.g., USB charger, power bank) to the Micro USB port on the module.
- 3. Connect Load:** Connect your device or circuit requiring the boosted voltage to the OUT+ (positive) and OUT- (negative) pads.
- 4. Adjust Output Voltage:**
 - Before connecting your load, it is highly recommended to adjust the output voltage.
 - Connect a voltmeter across the OUT+ and OUT- terminals.
 - Carefully turn the small potentiometer (trimmer resistor) on the module using a small screwdriver. Turning clockwise typically increases the voltage, while counter-clockwise decreases it.
 - Adjust until the desired output voltage (between 5V and 28V) is achieved.
- 5. Verify Connections:** Double-check all connections for correct polarity and secure contact before applying power.

6. OPERATING INSTRUCTIONS

Once the module is set up and the output voltage is adjusted, it operates automatically. The module will maintain the set output voltage as long as the input voltage is within the specified range (2V-24V) and the output current does not exceed the maximum limit (2A peak, 1.5A continuous recommended).

- **Voltage Adjustment:** The output voltage is adjusted using the multi-turn potentiometer. A small turn can result in a significant voltage change, so adjust slowly and precisely while monitoring with a

voltmeter.

- **Current Limitations:** Be mindful of the maximum output current. Exceeding 2A (peak) or 1.5A (continuous) can lead to overheating and damage to the module. The actual maximum current also depends on the input-output voltage difference and ambient temperature.
- **Efficiency:** The conversion efficiency is highest when the input and output voltages are closer. Large voltage differences or heavy loads can reduce efficiency and generate more heat.

7. MAINTENANCE

The Senzooe MT3608 LM2577 boost converter module is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure its longevity:

- **Keep Clean and Dry:** Protect the module from dust, dirt, and moisture. Avoid operating in humid or corrosive environments.
- **Avoid Physical Stress:** Do not apply excessive force or bend the PCB.
- **Proper Ventilation:** Ensure adequate airflow around the module, especially when operating at higher currents or larger voltage differences, to prevent overheating.
- **Regular Inspection:** Periodically check connections for looseness or corrosion.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
No output voltage	<ul style="list-style-type: none">◦ No input power or incorrect input voltage.◦ Incorrect wiring (e.g., reversed polarity).◦ Potentiometer set to minimum or faulty.◦ Module damaged.	<ul style="list-style-type: none">◦ Verify input power (2V-24V) and connections.◦ Check polarity of input and output connections.◦ Slowly turn the potentiometer clockwise while monitoring output with a voltmeter.◦ Replace module if damaged.
Output voltage is unstable or incorrect	<ul style="list-style-type: none">◦ Potentiometer not properly adjusted.◦ Input voltage fluctuations.◦ Load current exceeds module's capacity.	<ul style="list-style-type: none">◦ Re-adjust potentiometer carefully with a voltmeter.◦ Ensure stable input power supply.◦ Reduce load or use a module with higher current rating.
Module overheats	<ul style="list-style-type: none">◦ Excessive load current.◦ Large input-output voltage difference.◦ Insufficient ventilation.	<ul style="list-style-type: none">◦ Reduce load current.◦ Consider using a different module if the voltage difference is consistently large and high current is needed.◦ Ensure proper airflow around the module.

9. SAFETY INFORMATION

Please observe the following safety precautions to prevent injury or damage to the module and connected devices:

- **Correct Polarity:** Always ensure correct polarity when connecting input and output power. Reversed polarity can instantly damage the module.
- **Voltage and Current Limits:** Do not exceed the specified input voltage (24V), output voltage (28V), or maximum output current (2A peak). Operating outside these limits can lead to permanent damage.
- **Short Circuits:** Avoid short circuits on the input or output terminals.
- **Insulation:** Ensure the module is properly insulated from other components and conductive surfaces to prevent accidental short circuits.
- **Heat:** The module may generate heat during operation, especially under heavy loads. Ensure adequate ventilation and avoid touching the module when powered.
- **Professional Use:** This module is intended for use by individuals with sufficient knowledge of electronics. If you are unsure about any aspect of its use, seek professional assistance.

10. WARRANTY AND SUPPORT

Senzooe products are designed for reliability and performance. For specific warranty information or technical support, please refer to the retailer or vendor from whom you purchased this product. General support for common issues can often be found through online electronics communities and resources.