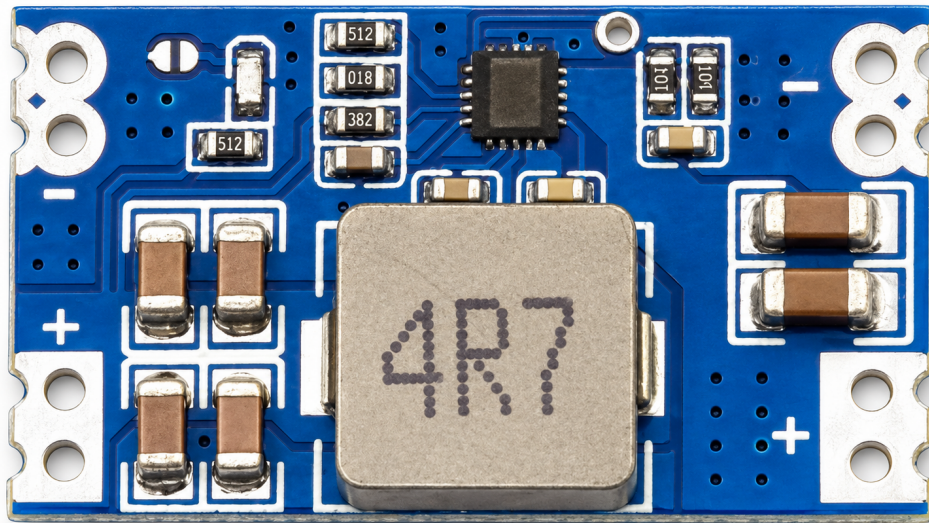


# MINI560 12 V Buck Converter

HIGH-CURRENT SYNCHRONOUS FIXED-OUTPUT STEP-DOWN MODULE



## Product Description

A compact synchronous, non-isolated MINI560 buck converter that accepts 14-20 V DC and supplies a fixed regulated 12 V output.

**Important:** This is a step-down converter. Maintain more than 2 V between input and the 12 V output. Verify temperature and provide cooling for sustained high-current service.

## Electrical Specifications

| Parameter                 | Specification    | Conditions and notes                            |
|---------------------------|------------------|-------------------------------------------------|
| Input voltage             | 14-20 V DC       | Maintain correct polarity                       |
| Output voltage            | 12 V fixed       | No user adjustment                              |
| Output current            | <4 A             | Additional cooling required above 3 A sustained |
| Input-output differential | >2 V             | Maintain adequate headroom under load           |
| Maximum efficiency        | Up to 99%        | Depends on operating point                      |
| Switching frequency       | 500 kHz          | Nominal                                         |
| Operating temperature     | -40 to +85 deg C | Thermal derating may be required                |

## Mechanical Dimensions

| Parameter    | Specification | Conditions and notes |
|--------------|---------------|----------------------|
| Board length | Approx. 30 mm | Overall PCB length   |
| Board width  | Approx. 18 mm | Overall PCB width    |

## Connections

| Parameter | Specification             | Conditions and notes                |
|-----------|---------------------------|-------------------------------------|
| VIN+      | Positive input            | Connect to source positive          |
| VIN-      | Input return              | Connect to source negative / ground |
| VOUT+     | Positive regulated output | Connect to load positive            |
| VOUT-     | Output return             | Connect to load negative / ground   |

## Installation and Commissioning

1. Inspect the board for damage, loose parts or solder bridges.
2. With power disconnected, connect short, adequately sized leads and verify polarity.
3. For adjustable versions, measure and set the output voltage before connecting the load.
4. Apply power without the final load and confirm the output voltage with a multimeter.
5. Connect the load, recheck voltage under load and monitor temperature during an extended test.
6. Add cooling, fusing, surge protection and filtering as required by the source, load and enclosure.

## Operating Guidance

- Do not reverse input polarity or short the output.
- Keep power wiring short to reduce voltage drop and noise.
- Do not exceed the listed input range, output current or temperature limits.
- The module is an open-frame component and must be protected from moisture, conductive debris and accidental contact.
- Maximum efficiency and peak-current figures are operating-point dependent and are not unconditional continuous ratings.

## Troubleshooting

| Parameter       | Specification                                                    | Conditions and notes                                           |
|-----------------|------------------------------------------------------------------|----------------------------------------------------------------|
| No output       | Missing input, reversed polarity, open connection or disabled EN | Remove power; verify source, polarity, wiring and enable state |
| Low output      | Input sag, overload or excessive cable resistance                | Measure input under load; reduce load and improve wiring       |
| Overheating     | Excess current, poor airflow or high ambient temperature         | Disconnect power; reduce load and improve cooling              |
| Noise or resets | Long wiring, grounding problems or transient load                | Shorten wiring and add suitable local filtering                |

## Revision Note

This document is based only on the technical information and product imagery present in the page detail-description section. Board appearance and component markings may vary by production revision. Verify the received hardware before production, safety-critical or high-reliability use.