

# Mini 25V 8A 9 V Fixed-Output Buck Converter

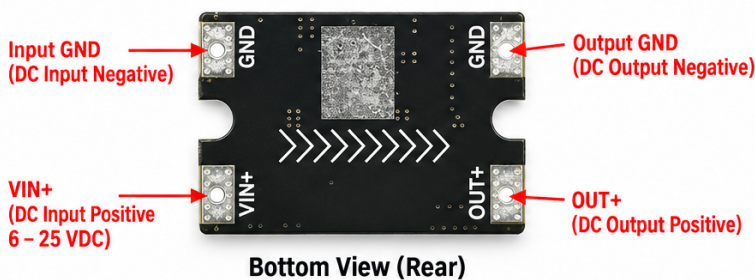
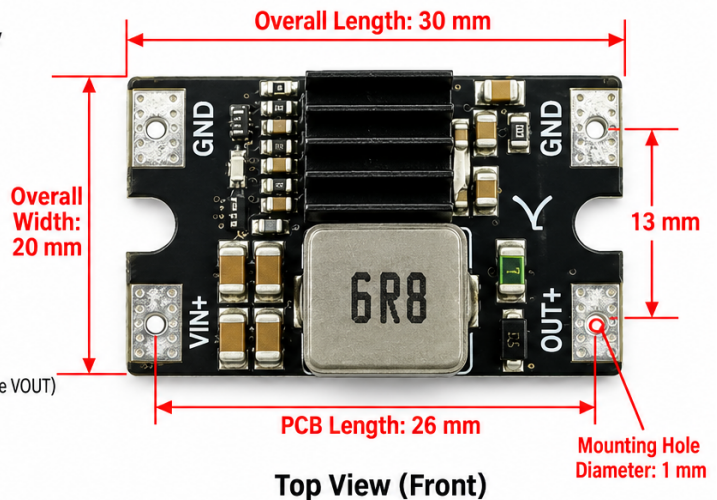
Compact high-current DC-DC step-down power module with fixed regulated output

## Specifications

|                               |                                                                                                           |
|-------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Input Voltage</b>          | : 6 – 25 VDC (VIN must be at least 1 V above VOUT)                                                        |
| <b>Maximum Output Current</b> | : 8 A                                                                                                     |
| <b>Quiescent Current</b>      | : 0.1 mA                                                                                                  |
| <b>Efficiency</b>             | : up to 95%                                                                                               |
| <b>Switching Frequency</b>    | : 500 kHz                                                                                                 |
| <b>Operating Temperature</b>  | : -40 to +85 °C                                                                                           |
| <b>Protection</b>             | : TVS and fuse input protection<br>Output short-circuit protection<br>Built-in overtemperature protection |

## Terminal Description

|                                                  |                                                                       |
|--------------------------------------------------|-----------------------------------------------------------------------|
| <b>VIN+</b>                                      | : DC Input Positive (6 – 25 VDC, VIN must be at least 1 V above VOUT) |
| <b>Input GND</b>                                 | : DC Input Negative                                                   |
| <b>OUT+</b>                                      | : DC Output Positive                                                  |
| <b>Output GND</b>                                | : DC Output Negative                                                  |
| Input GND and Output GND are common (connected). |                                                                       |



## Thermal Note

High-current operation requires adequate cooling. Attach a heatsink to the rear PCB area or provide external airflow.

## Product Overview

This compact buck converter accepts a 6-25 VDC input and provides a fixed 9 V output. The module combines a high switching frequency with low quiescent current and integrated input, short-circuit, and thermal protection. Input and output grounds are electrically common.

### Important operating condition

VIN must be at least 1 V higher than the fixed 9 V output. The 8 A value is the maximum output-current rating; available continuous current depends on input/output differential, airflow, heatsinking, wiring, and ambient temperature.

## Electrical Specifications

| PARAMETER              | RATING / DESCRIPTION                                              |
|------------------------|-------------------------------------------------------------------|
| Input voltage          | 6-25 VDC; VIN must be at least 1 V above 9 V                      |
| Output voltage         | Fixed 9 V                                                         |
| Maximum output current | 8 A maximum; thermal management required at high load             |
| Quiescent current      | 0.1 mA                                                            |
| Conversion efficiency  | Up to 95%                                                         |
| Switching frequency    | 500 kHz                                                           |
| Operating temperature  | -40 to +85 deg C                                                  |
| Input protection       | TVS suppression and fuse                                          |
| Output protection      | Short-circuit protection                                          |
| Thermal protection     | Built-in overtemperature protection                               |
| Topology / grounding   | Non-isolated step-down converter; input and output GND are common |

## Mechanical Dimensions

| PARAMETER                | RATING / DESCRIPTION |
|--------------------------|----------------------|
| Overall length           | 30 mm                |
| Overall width            | 20 mm                |
| PCB length reference     | 26 mm                |
| Right-side vertical span | 13 mm                |
| Mounting-hole diameter   | 1 mm                 |

## Terminal Connections

| PARAMETER  | RATING / DESCRIPTION                      |
|------------|-------------------------------------------|
| VIN+       | DC input positive                         |
| Input GND  | DC input negative; common with output GND |
| OUT+       | Regulated 9 V DC output positive          |
| Output GND | DC output negative; common with input GND |

## Application and Thermal Guidance

### Cooling

The compact PCB has limited natural heat-dissipation area. At high power or high current, attach a heatsink to the rear PCB thermal area and/or provide forced airflow. Verify component and PCB temperatures in the final enclosure.

Use short, adequately sized conductors and observe polarity. Confirm the fixed output voltage with a meter before connecting sensitive equipment. Do not exceed the 25 V input limit.