

Mini 25V 8A 12 V Fixed-Output Buck Converter

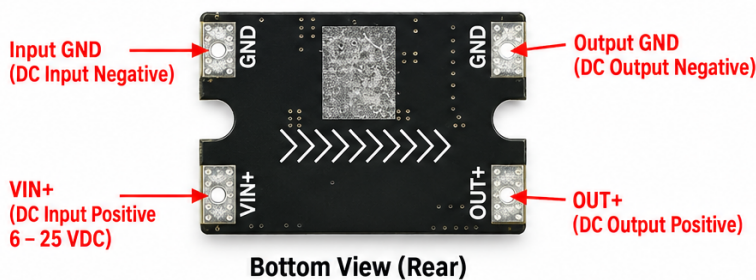
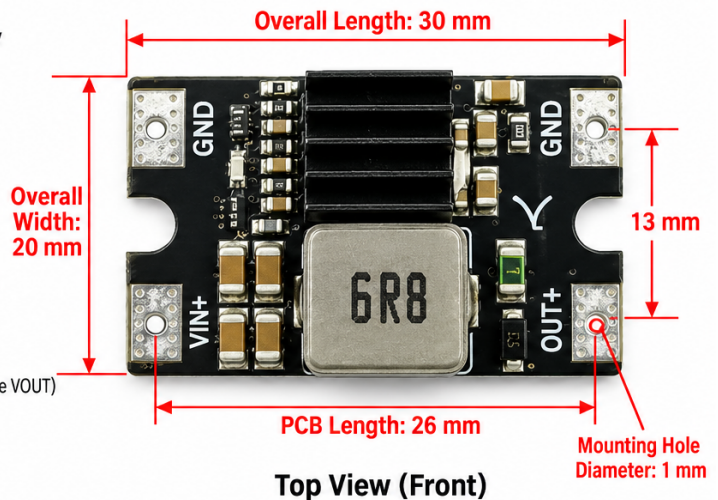
Compact high-current DC-DC step-down power module with fixed regulated output

Specifications

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

Terminal Description

VIN+	: DC Input Positive (6 – 25 VDC, VIN must be at least 1 V above VOUT)
Input GND	: DC Input Negative
OUT+	: DC Output Positive
Output GND	: 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 12 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 12 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 12 V
Output voltage	Fixed 12 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 12 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.