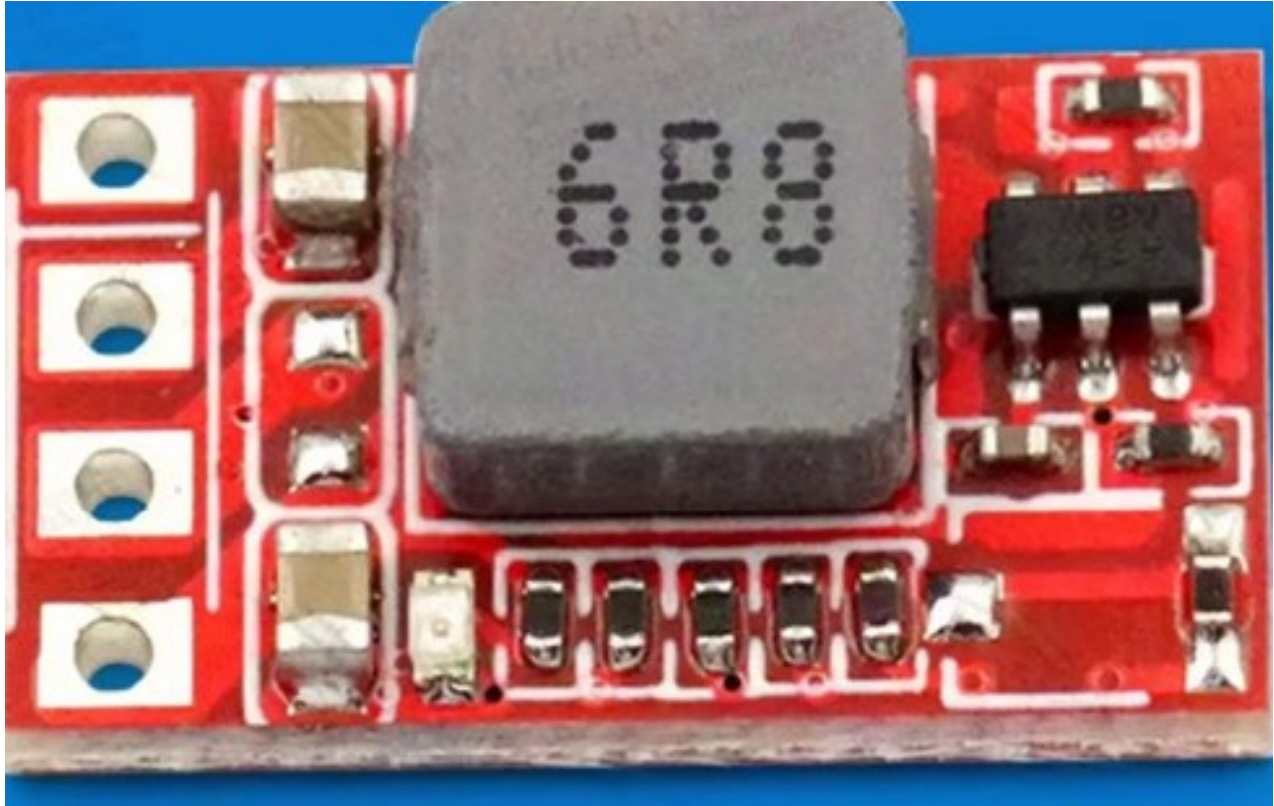


1.3A Selectable-Output Buck Converter

PRODUCT SPECIFICATION AND USER GUIDE



Compact synchronous step-down converter module

Product Description

This compact non-isolated synchronous DC-DC buck converter accepts a 6-30 V DC input. The default output is 5 V; 3.3 V, 9 V and 12 V settings can be selected through the configuration pads on the back of the board. The module includes an integrated shielded inductor, an output indicator LED and an enable input.

Important: This is a step-down converter, so the input must remain above the selected output voltage. The detailed parameter table lists 1.2 A maximum output current; keep continuous current at or below 1 A. Verify the selected output voltage before connecting the load.

Electrical Specifications

Parameter	Specification	Conditions and notes
Converter type	Non-isolated DC-DC buck	Input and output grounds are common
Rectification	Synchronous	Non-isolated topology
Input voltage	6-30 V DC	Input must be higher than the selected output
Output voltage	5 V default	Selectable 3.3 V, 5 V, 9 V or 12 V by solder pads
Maximum output current	1.2 A	Detailed parameter value; product family is identified as 1.3 A
Recommended continuous current	<=1 A	Provide airflow and verify temperature under load
Maximum efficiency	Up to 93%	Actual efficiency depends on input, output and load
Output ripple	<50 mV	Measured value depends on layout and load conditions
Output accuracy	+/-0.1 V	Verify after selecting the output-voltage pads
No-load current	0.3 mA	Listed operating value
Operating temperature	-40 to +85 °C	Electrical and thermal derating may be required
Operating humidity	20-90% RH	Non-condensing environment
PCB construction	2-layer board	Open-frame module

Mechanical Dimensions

Feature	Dimension	Notes
Board length	Approx. 17 mm	Overall PCB length
Board width	Approx. 10 mm	Overall PCB width
Connection pitch	2.54 mm	Input and output connection spacing

Absolute Application Limits

- Do not reverse the input polarity.
- Do not short the output.
- Do not apply voltage to the output when the input is unpowered unless the complete system has been verified for backfeed behavior.
- Do not change the output-selection solder pads while power is applied.
- The maximum current and efficiency values are not unconditional continuous guarantees; verify temperature under the actual load and enclosure conditions.

Connections

Terminal	Function	Wiring
IN+	Positive DC input	Connect to the positive terminal of the 6-30 V source
GND	Common negative	Connect to source negative and load negative
VO+	Regulated positive output	Connect to load positive
EN	Enable input	Floating or high: on; low: shutdown

Input and output negative terminals share a common ground. The module is not galvanically isolated.

Installation

1. Inspect the module for damage, solder bridges or loose components.
2. With power disconnected, select the required output voltage using only the documented solder-pad configuration. The factory default is 5 V.
3. Identify IN+, GND, VO+ and EN from the markings on the received board, then solder short and adequately sized wires.
4. Before connecting the load, apply input power and verify the selected voltage between VO+ and GND with a multimeter.
5. Connect the load with correct polarity, restore power and confirm the loaded output voltage.
6. Measure the loaded output voltage and monitor module temperature during the first extended test.
7. Keep continuous load current at or below 1 A and confirm acceptable temperature rise in the final enclosure.

Recommended Wiring

- Keep input and output leads short to reduce voltage drop and noise.
- Use conductor size appropriate for the expected current.
- Place additional input/output capacitors near the module if the source or load has long wires or severe transients.
- Add an input fuse when the source can supply high fault current.
- For vehicle or industrial systems, evaluate surge, reverse-polarity and EMI protection at the system level.

Typical Applications

Input source	Load example	Design consideration
6-12 V adapter	5 V controller or sensor	Confirm input remains above the selected output
12-24 V system	Monitoring or camera electronics	Keep input within the 30 V maximum
Vehicle electrical system	5 V or 9 V accessory	Add surge and reverse-polarity protection
Battery system	Model or telemetry electronics	Verify the full charged and discharged battery range
Portable DC supply	3.3 V logic electronics	Check cable drop and enclosure temperature

Troubleshooting

Symptom	Likely cause	Corrective action
No output	No input, reversed polarity, broken connection or damaged module	Remove power and verify source voltage, polarity and solder joints
Wrong output voltage	Incorrect solder-pad selection or configuration error	Remove power, inspect the selection pads and verify with a meter
Output voltage low	Input sag, overload or excessive wiring resistance	Measure input under load; reduce load and shorten or enlarge conductors
Module overheats	Continuous current too high, poor airflow or high ambient temperature	Disconnect power; reduce current and improve cooling
Load resets	Transient current exceeds available margin	Add local output capacitance and verify startup current
Excessive noise	Long wiring, poor grounding or sensitive load layout	Shorten wiring, improve grounding and add appropriate filtering

Safety and Revision Note

This open-frame module is a component for integration, not a certified finished power supply. Protect it from moisture, conductive debris, accidental contact and short circuits. The module is not waterproof. Component markings and board revisions may vary; verify received hardware and the selected output voltage before production or safety-critical use.