

Boost Converter Module module Product Brief

Boost Converter Module: a compact, efficient DC–DC boost regulator that increases low input voltages for reliable operation using the high-efficiency TPS61023 from Texas Instruments.

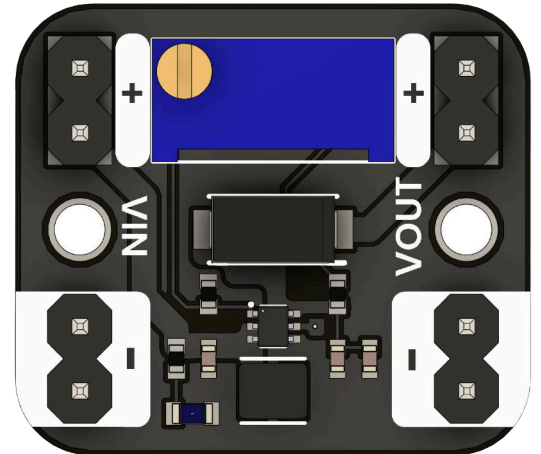
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Introduction

The Boost Converter Module is a compact, adjustable DC–DC step-up (boost) regulator designed to increase a lower input voltage to a higher output voltage. It is powered by the TPS61023 high-efficiency switching regulator from Texas Instruments, enabling reliable operation even from low-voltage sources such as LiPo batteries or solar panels. A multi-turn potentiometer is included for precise output voltage adjustment, making the module ideal for battery-powered applications and compact embedded systems.

This makes it ideal for powering circuits from LiPo cells, USB power banks, solar panels, and other low-voltage sources in embedded projects and prototyping.



Functional Description

- The module uses the TPS61023 to boost input voltages from as low as 0.5V to a stable output voltage up to 5.5V.
- It features a multi-turn potentiometer for fine-tuning the output voltage, allowing for precise control.

Electrical Characteristics

- Regulator IC: Texas Instruments TPS61023 – high-efficiency boost converter
- Input Voltage Range: 0.5V to 5.5V
- Start-up Voltage: Operates from input as low as 0.7V
- Adjustable Output: Up to 5.5V (via onboard multi-turn potentiometer)
- Output Current: Up to 1A (depending on input/output conditions)
- Efficiency: Up to 96- Switching Frequency: 2MHz for reduced external component size
- Protections: Overcurrent (OCP), thermal shutdown, undervoltage lockout (UVLO)
- Form Factor: Breadboard-friendly 20.3mm × 17.78mm PCB
- Applications: Ideal for LiPo boosts, USB power banks, solar panels, sensors, LEDs, prototyping
- Datasheet: [TPS61023 – Texas Instruments](https://www.ti.com/product/TPS61023)

Features

- Ultra-compact module using high-efficiency TPS61023.
- Input as low as 0.5V; startup from 0.7V.
- Adjustable output via multi-turn potentiometer.
- Output up to 5.5V and 1A.
- Built-in protections: OCP, thermal shutdown, UVLO.
- 2MHz switching for small component footprint.
- Breadboard-friendly layout.
- Ready-to-use for embedded development.

Applications

- Battery-powered systems: Boost 3.7V LiPo to 5V for microcontrollers or sensors.
- LED drivers: Drive high-voltage LED strings from 3V or 3.7V input.
- Portable electronics: Step-up for small regulated power in mobile designs.
- Sensor modules: Power 5V+ sensors from 3.3V systems.

- DIY projects prototyping: Simple integration in breadboard or PCB-based designs.

Settings

Interface Overview

Interface	Signals / Pins	Typical Use
Power Input	VIN, GND Input	Connect low-voltage power source
Power Output	VOUT, GND Output	Connect regulated output to load
Adjustment	POT	Set desired output voltage

Supported Pins

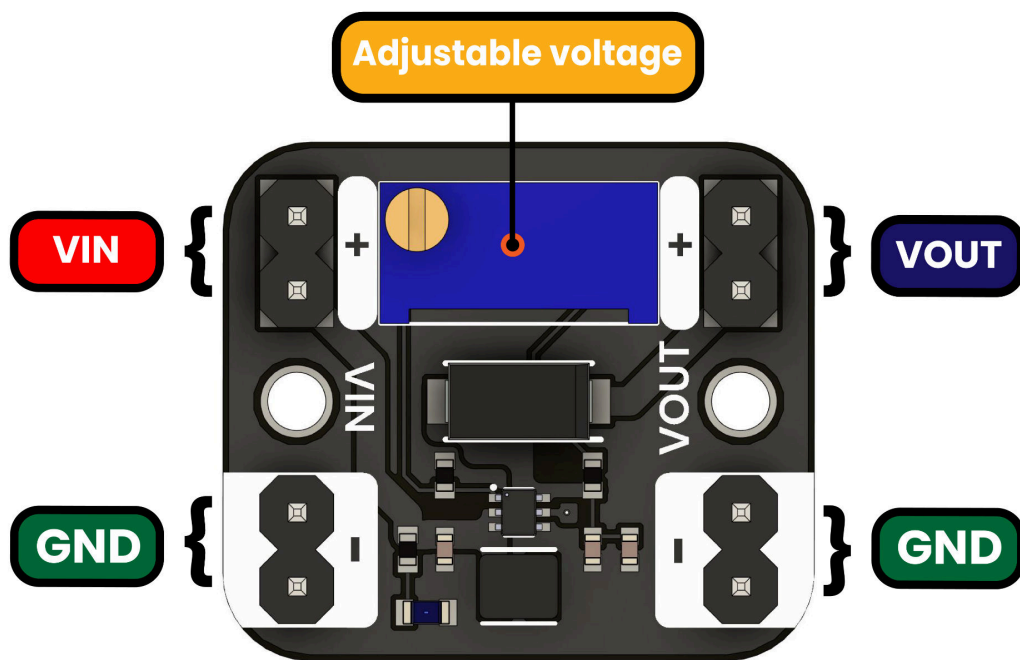
Feature	Description
Adjustable Output	Set via onboard potentiometer
Low-Voltage Start	Operates from $\geq 1V$ input for energy harvesting
Compact Footprint	Fits in small enclosures and breadboards
Plug-and-Play	No configuration or firmware required

Pin & Connector Layout

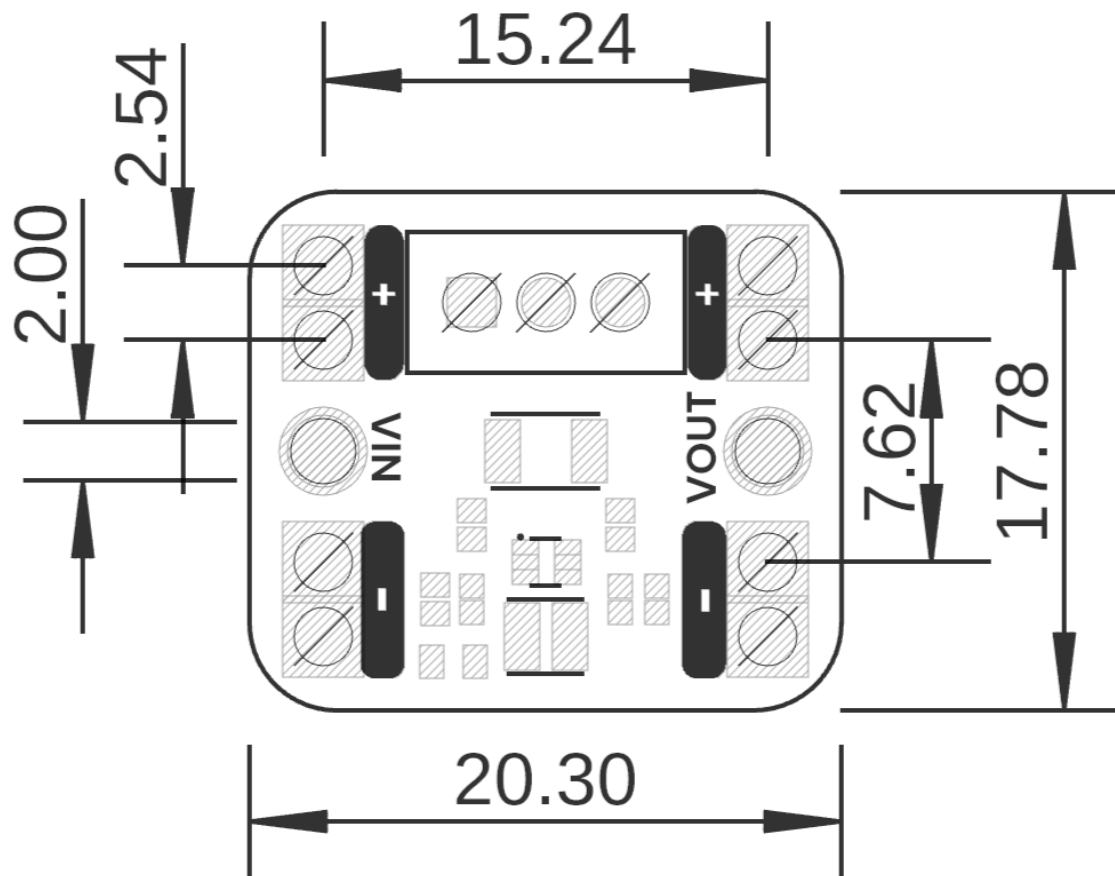
Pin Group	Label	Function
Input	VIN	Positive input voltage. Connect your supply's positive terminal here.
Input	GND Input	Ground reference for input. Connect the supply's negative terminal here.
Output	VOUT	Boosted positive output. Provides regulated higher voltage.
Output	GND Output	Output ground. Connect to your load's ground or system ground.
Adjustment	POT	Multi-turn potentiometer to set the output voltage precisely.

Block Diagram

Boost Converter



Dimensions



Mechanical dimensions in millimeters

Usage

- Arduino interfaces (Uno, Mega, Nano)

Downloads

- Schematic PDF

Purchase

- Buy from UNIT Electronics