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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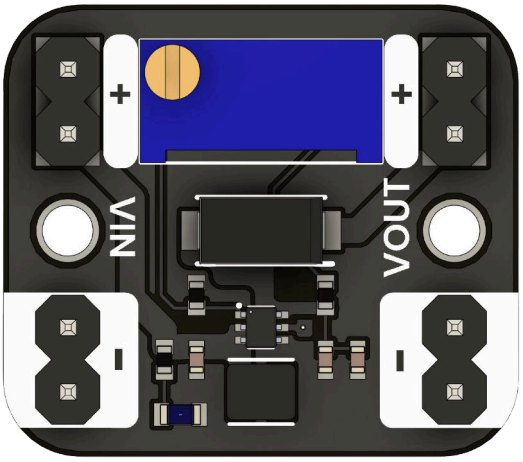
Introduction

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

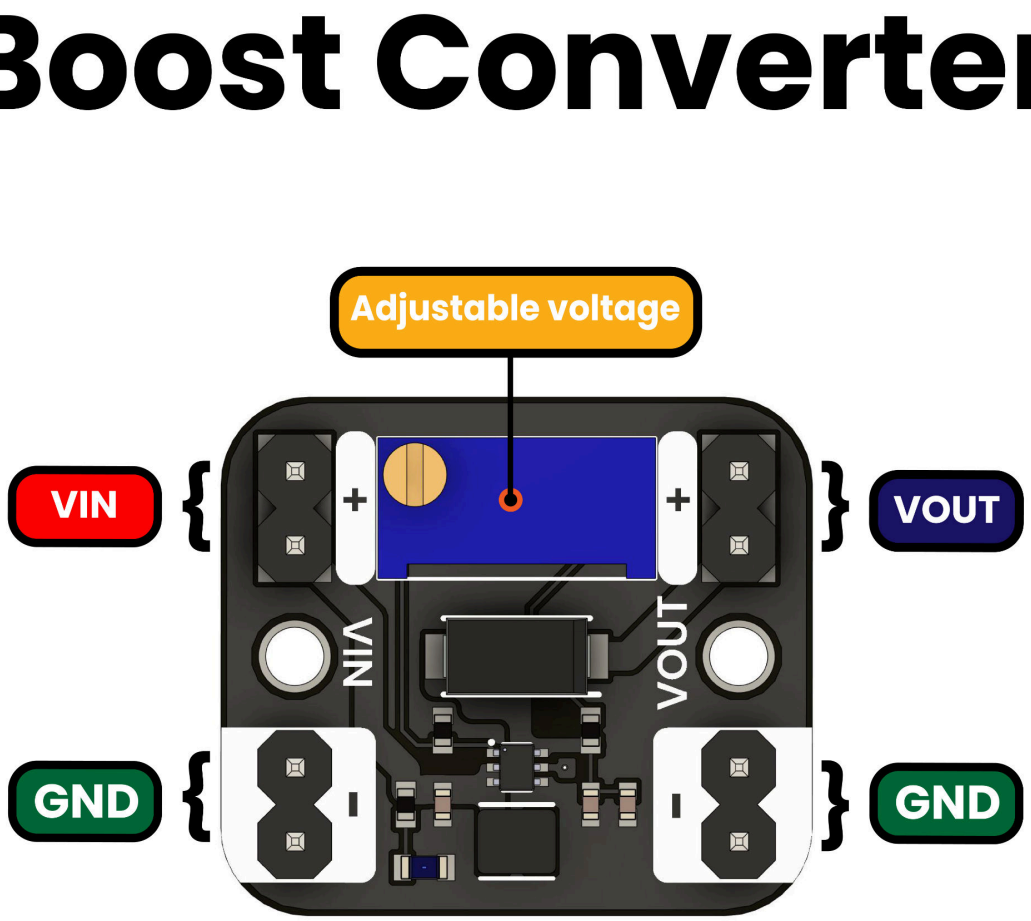
Supported Pins

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

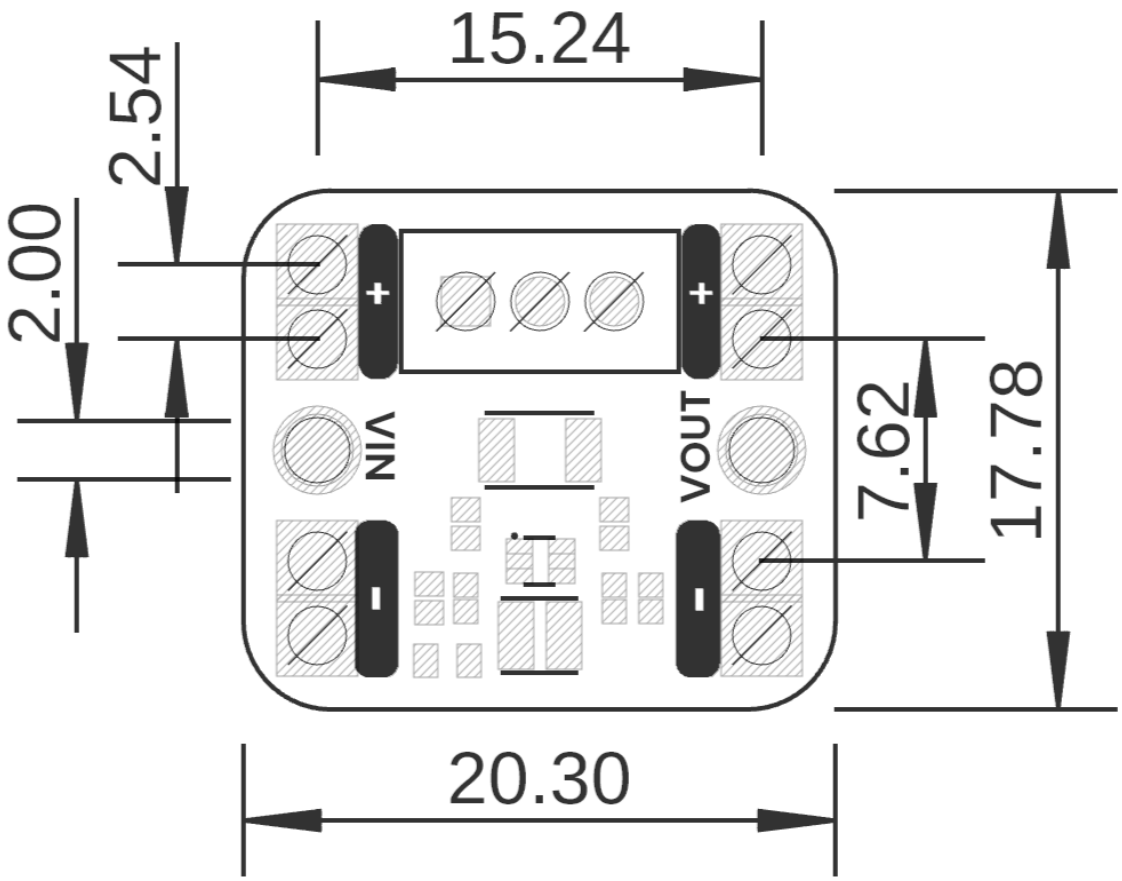
Pin & Connector Layout

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



Dimensions



Mechanical dimensions in millimeters

Usage

- Arduino interfaces (Uno, Mega, Nano)

Downloads

- Schematic PDF

Purchase

- Buy from UNIT Electronics