

CN3165 battery charger module Product Brief

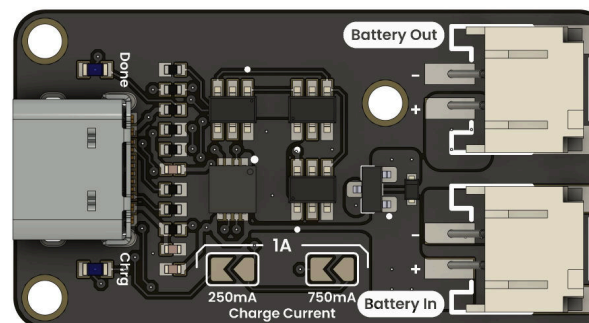
This compact printed circuit board functions as both a single-cell Li-Ion battery charger and a power-out module

Version: 1.0

Modified: 2025-05-02

Introduction

This compact printed circuit board functions as both a single-cell Li-Ion battery charger and a power-out module. It features a USB-C interface that accepts a stable 5 V supply from sources such as PCs, charger bricks, or power banks, and includes an on-board charger IC that supports charging currents of 250 mA, 750 mA, or 1 A. Additionally, two dedicated screw-terminal outputs provide a secure pathway for charging (Battery In) and deliver battery voltage to a load even during charging (Battery Out), making it suitable for portable applications that demand simultaneous charging and power delivery.



Functional Description

- The USB-C port accepts a 5 V supply from PCs, charger bricks, or power banks.
- The CN3165 IC manages the charging process safely with automatic preconditioning, constant current, and constant voltage phases.
- CHRG and DONE LEDs indicate the charging status clearly.
- Battery Out terminals remain powered even during the charging cycle, enabling uninterrupted device usage.

Electrical Characteristics

- Input Voltage: 5 V (USB-C)
- Charging Current Options: 250 mA, 750 mA, 1 A (configurable via resistor)
- Battery Chemistry: Single-cell Li-Ion
- Charge Termination: Voltage threshold and current taper
- Status Indicators: CHRG (charging), DONE (charge complete)

Features

- USB-C power input
- Selectable charging current
- Screw terminals for robust battery connections
- Independent charge and power output paths
- LED indicators for charge status
- Compact PCB footprint

Applications

- Battery charger for single-cell Li-Ion batteries
- Power supply for low-power devices
- Educational prototyping with power delivery requirements
- Portable sensors and microcontroller systems
- USB-powered battery packs

Settings

Interface Overview

Interface	Signals / Pins	Typical Use
USB-C	VBUS, GND	Power input (5 V)
Battery IN	B+, B-	Connects to Li-Ion cell terminals
Battery OUT	OUT+, OUT-	Provides battery voltage to external load
LEDs	CHRG, DONE	Status indication via onboard LEDs

Supported Pins

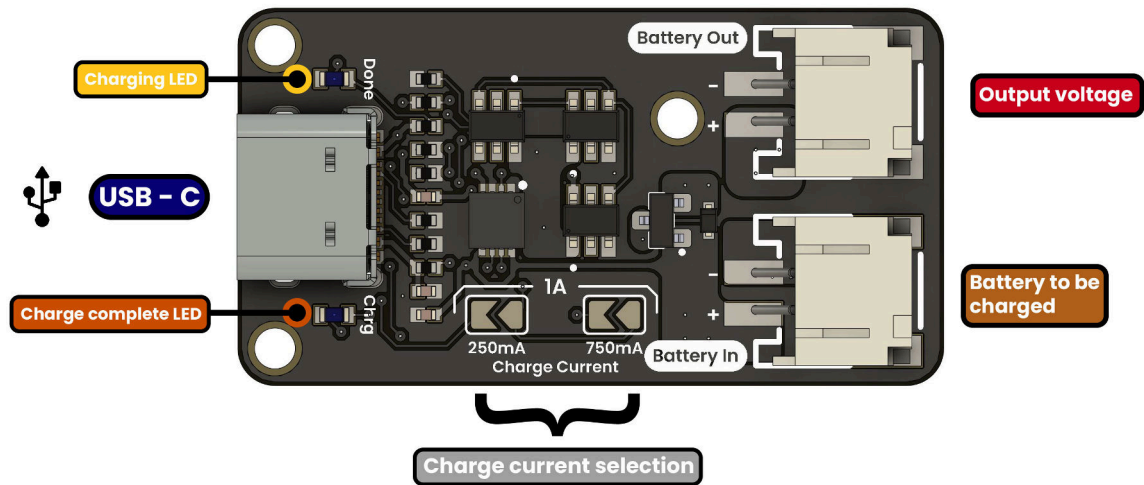
Symbol	I/O	Description
CHRG	O	Active-low signal when charging
DONE	O	Active-high when charging complete

Pin & Connector Layout

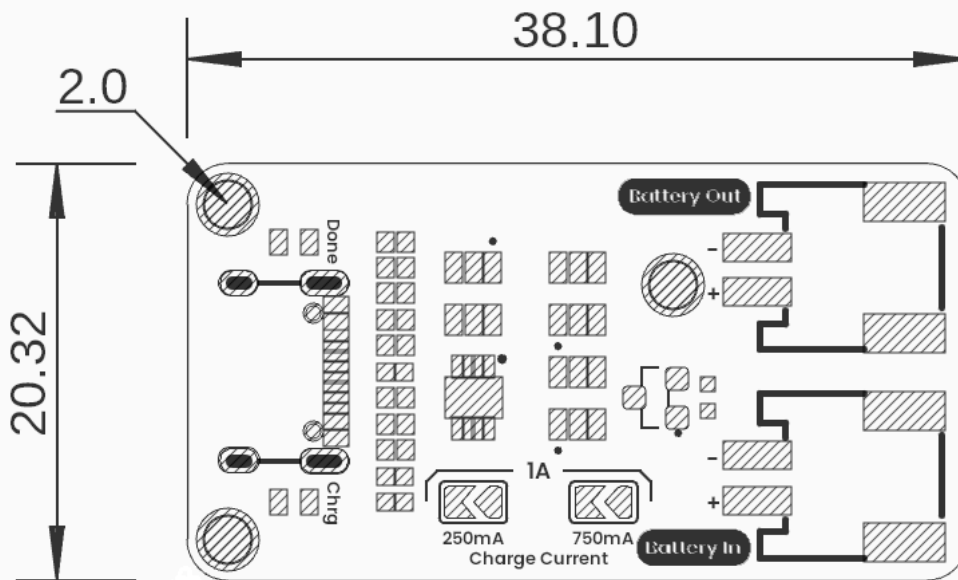
Component	PCB Label	Description
USB-C Connector	USB IN	5 V power input from USB-C source
Connector	Battery IN	Screw terminals for connecting the Li-ion cell
Connector	Battery Out	Screw terminals for outputting battery voltage
CHRG LED	CHRG	Indicator LED: on during the charging phase
DONE LED	DONE	Indicator LED: on when the charging cycle completes

Block Diagram

Battery charger



Dimensions



All dimensions expressed in millimeters (mm)

Usage

- Single-cell 3.7 V Li-Ion batteries
- USB power sources (laptops, power banks, adapters)
- Low-power microcontroller projects
- Systems requiring charge-while-operating configuration

Downloads

- Schematic PDF

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