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# Buck-Boost NVDC Battery Charger with SMBus Interface

## ISL88738

The [ISL88738](#) is a buck-boost Narrow Output Voltage DC (NVDC) charger. The ISL88738 provides the NVDC charging function, system bus regulation and protection features for tablet, ultra-book, and notebook platforms. Intersil's advanced R3™ Technology is used to provide high light-load efficiency and fast transient response.

In Charging mode, the ISL88738 takes input power from a wide range of DC power sources (conventional AC/DC charger adapters, USB PD ports, travel adapters, etc.) and safely charges battery packs with up to 4-series cell Li-ion batteries.

As NVDC topology charger, it also regulates the system output to a narrow DC range for stable system bus voltage. The system power can be provided from the adapter, battery, or a combination of both. The ISL88738 can operate with only a battery, only an adapter, or both connected. For Intel IMVP8 compliant systems, the ISL88738 includes System power monitor (PSYS) functionality, which provides an analog signal representing total platform power. The PSYS output will connect to a wide range of Intersil IMVP8 core regulators to provide an IMVP8-compliant power domain function.

The ISL88738 has serial communication via SMBus/I<sup>2</sup>C that allows programming of many critical parameters to deliver a customized solution.

## Features

- Buck-boost NVDC charger for 1-, 2-, 3-, or 4-cell Li-ion batteries
- Input voltage range 3.2V to 23.4V (no dead zone)
- System output voltage 3V to 18.304V
- Autonomous charging option (automatic end of charge and recharge)
- System power monitor PSYS output, IMVP8 compliant
- Up to 1MHz switching frequency
- Adapter current and battery current monitor (AMON/BMON)
- PROCHOT# open-drain output, IMVP compliant
- Allows trickle charging of depleted battery
- Ideal diode control in Turbo mode
- Two-level adapter current limit available
- Battery Ship mode option
- SMBus and auto-increment I<sup>2</sup>C compatible
- Package 4x4 32 Ld TQFN

## Applications

- Mobile devices with rechargeable batteries

## Related Literature

- For a full list of related documents, visit our website - [ISL88738](#) product page

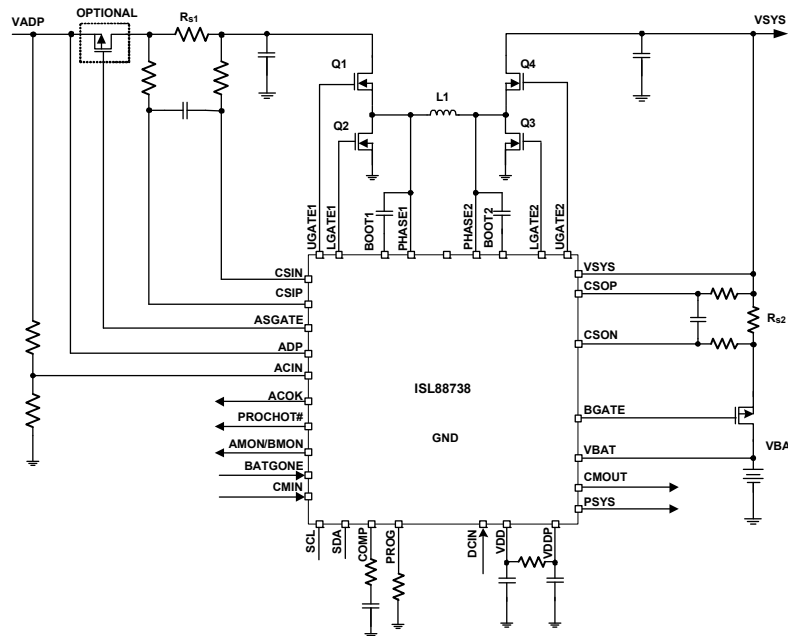


FIGURE 1. TYPICAL APPLICATION CIRCUIT

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