RAA489108

Buck-Boost Narrow VDC Battery Charger with SMBus Interface Supporting USB PD EPR

The RAA489108 is a buck-boost Narrow Output Voltage DC (NVDC) charger. The RAA489108 provides NVDC charging, system bus regulation, and protection features for tablets, Ultrabooks, notebooks, power banks, and any USB-C interface platform. The advanced Renesas R3™ technology provides high light-load efficiency and fast transient response.

In Charging mode, the RAA489108 accepts input power from a wide range of DC power sources (such as conventional AC/DC charger adapters, USB PD ports, and travel adapters) and safely charges battery packs with up to 4-series cell Li-ion batteries.

As an NVDC topology charger, the RAA489108 also regulates the system output to a narrow DC range for stable system bus voltage. System power can be provided from the adapter, battery, or a combination of both. The RAA489108 can operate with only a battery, only an adapter, or with both connected. For Intel IMVP compliant systems, the RAA489108 includes PSYS (system power monitor) functionality, which provides an analog signal representing total platform power consumption. The PSYS output connects to a wide range of Renesas IMVP core regulators to provide an IMVP compliant power domain function.

The RAA489108 supports reverse buck, reverse boost, or reverse buck-boost operation to the input port from 2-cell to 4-cell batteries.

The RAA489108 provides SMBus/I^2C serial communication that enables programming of many critical parameters to deliver a customized solution.

Features

- Buck-boost NVDC charger for 2, 3, or 4-cell Li-ion batteries
- Input voltage range: 3.9V to 30V (no dead zone)
- System output voltage: 2.4V to 18.304V
- Autonomous charging option (automatic completion of charging)
- Pass-Through mode in forward direction
- System power monitor PSYS output, IMVP compliant
- Up to 1MHz switching frequency
- Adapter current and battery current monitor (AMON/BMON)
- PROCHOT# open-drain output, IMVP compliant
- Trickle charging of depleted battery
- Ideal diode control in Turbo mode
- Reverse buck, boost, and buck-boost operation from battery
- Two-level adapter current limit available
- Battery Ship mode option
- SMBus and auto-increment I^2C compatible
- 4×4 32 Ld TQFN package compatible with the ISL9238 family of parts

Applications

- 2-cell to 4-cell tablets, Ultrabooks, notebooks, power banks, and any USB-C interface portable device requiring batteries

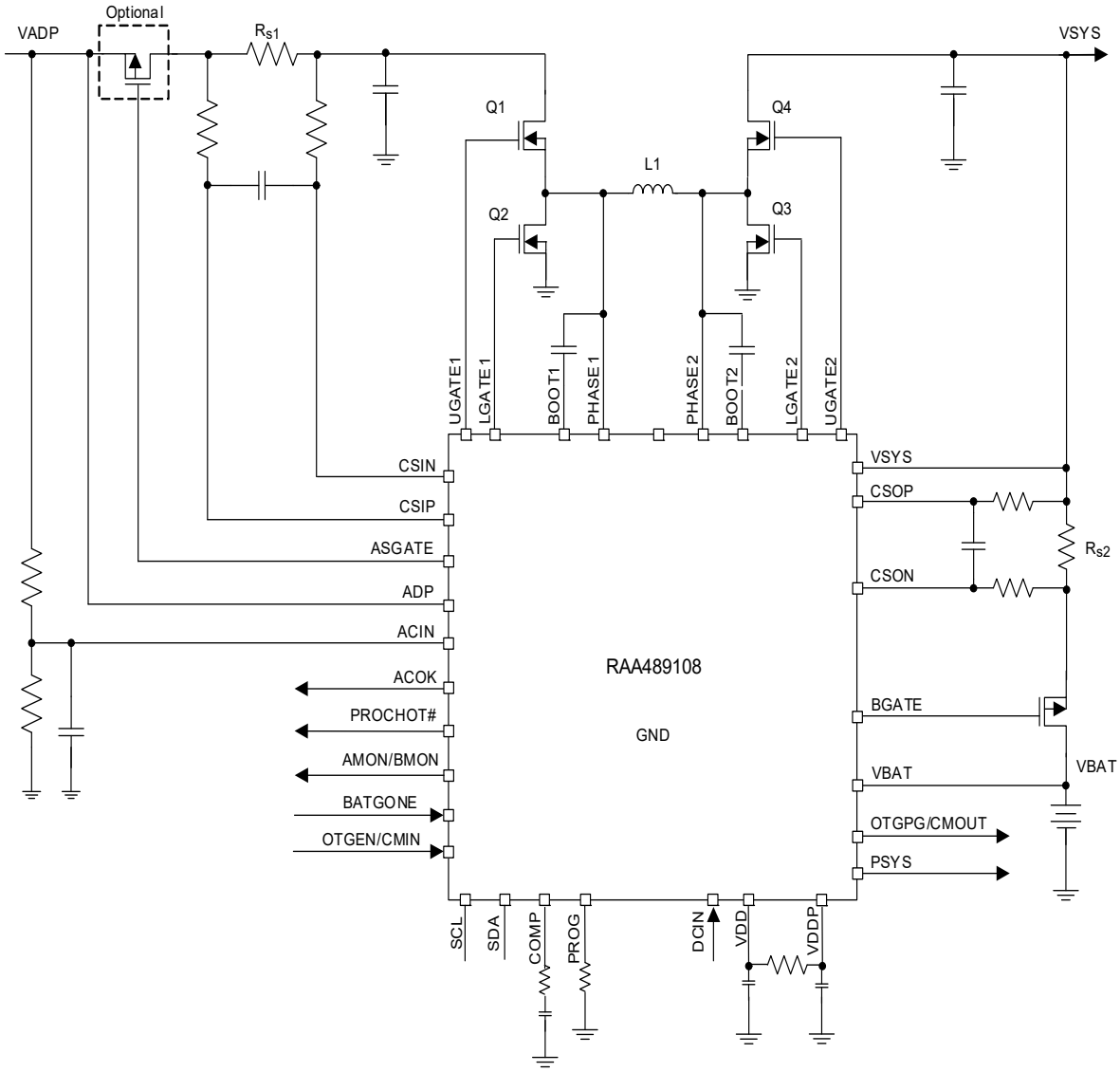

Figure 1. Typical Application Circuit

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