NU6805 High Efficiency Buck-Boost Charger With 3 Ports Management

1 Feature

- Supports 1 to 4 cell battery configurations from 3V to 19.2V CV range with input range 4V–24V and maxim input power 100W.
- Supports 3V to 22V output voltage and maxim output power 100W.
- Programmable switching frequencies (200 kHz, 300 kHz, 400 kHz, 800 kHz).
- Automatic PFM/PWM mode switching for high efficiency across load ranges.
- Integrated 3 external drivers for port management with adapter detection and inserting detection.
- Real-time 12-bit ADC monitoring (VBUS, VBAT, currents, NTC temperature).
- Ultra-low shutdown current: 40 μA (typical)
- Full input/output protection integrated: Overvoltage (OVP), Undervoltage (UVP), Overcurrent (OCP), Short-Circuit (SCP).
- Trickle, constant current, voltage charging with timeout controls.
- Configurable device address (0x18, 0x1C, 0x38, 0x3C).
- 4mm x 4mm QFN-32 package with enhanced thermal performance

2 Applications

- Power Bank
- Power Tools
- Other Li-ion Battery Charger

3 Descriptions

The NU6805 is a high-efficiency, synchronous bidirectional buck-boost charge-discharge controller designed for managing 1- to 4-cell battery systems. It integrates a 4-switch architecture driver to support buck, boost, and buck-boost modes, enabling efficient power conversion across input voltages ranging from 4V to 24V while in charging mode, and output voltage from 3 to 22V in discharging mode. With a maximum input and output power of 100W, the device offers flexible input/output path management, programmable current/voltage limits via I^2C interface, and robust protection features. The NU6805 is ideal for applications requiring bidirectional power flow, such as power banks, industrial equipment, and rechargeable battery systems.

Device Information

PART NUMBER	package	Package size
NU6805	QFN33	4mm×4mm

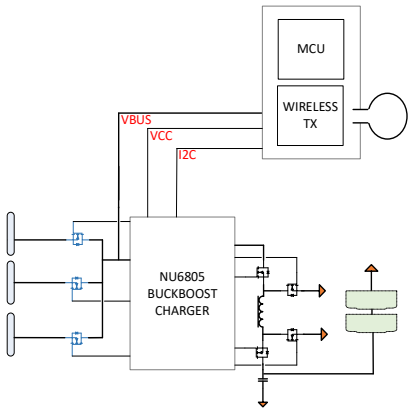

Figure 1 NU6805 Simplified Application Diagram