Description

The SLM6809 is a two-cell Li-Ion battery synchronous boost current circuit for a 5V adapter. It is a fully integrated power MOS device and a synchronous boost converter with a 750KHz switching frequency, so it has a charging efficiency of over 92% and a maximum charging current of 1.5A.

The SLM6809 includes a complete charge termination circuit, automatic recharge, and a preset charge voltage of 8.9V with an accuracy of ±1%. It integrates output short-circuit protection, chip and battery temperature protection.

The SLM6809 adapts the current supply capability of the adapter to ensure that the input adapter is not overloaded, making it suitable for a wide range of DC devices as well as standard USB charging devices.

The SLM6809 integrates a 20V power MOSFET. It can withstand voltages up to 20V and integrates under-voltage and over-voltage protection for high reliability without the need for additional surge or over-voltage protection.

The SLM6809 is available in a small form factor QFN4x4-16L package that saves PCB area.

Absolute Maximum Ratings

- Input Supply Voltage (VIN): -0.3V~22V
- BAT: -0.3V~22V
- TM: -0.3V~7V
- Others: -0.3V~VIN+0.3V
- BAT Short Circuit Duration: Continuous
- Maximum junction temperature: 145℃
- Operating Temperature Range: -40℃~85℃
- Storage Temperature Range: -65℃~125℃
- Lead Temperature (Soldering, 10 sec): 260℃

Features

- Up to 20V Input Voltage Protection
- Fully Integrated Power MOSFET
- Up to 92% Output Efficiency
- Maximum 1.5A Adjustable Output Current
- Input Current Automatic Identification, Adapter Adaptation
- Chip High Temperature Automatic Current Limiting and Over Temperature Shutdown Protection
- No External Power MOS
- Accuracy of 8.9V±1% Charging Voltage
- Charging Status Dual Lamp Indication, No Battery or Fault Status Indication
- Double Cell 5.86V Trickle Charge Voltage Switching
- Integrated Under-voltage and Over-voltage Protection
- Battery Temperature Monitoring
- Output Short Circuit Protection
- Small QFN4x4-16L Package

Applications

- Mobile Phone
- Tablet PC
- Bluetooth Speaker
- Digital Camera
- Mobile Power
- GPS
- Portable Devices, Various Chargers

Complete Charge Cycle

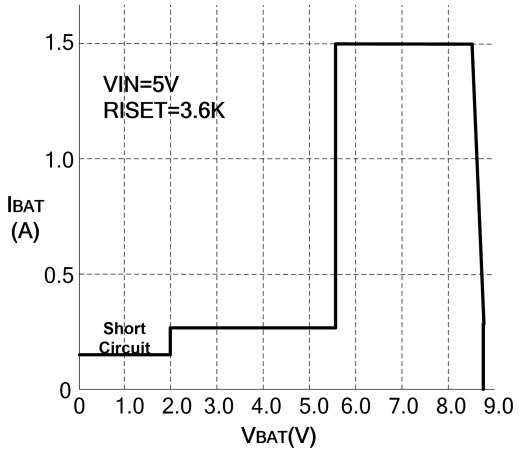
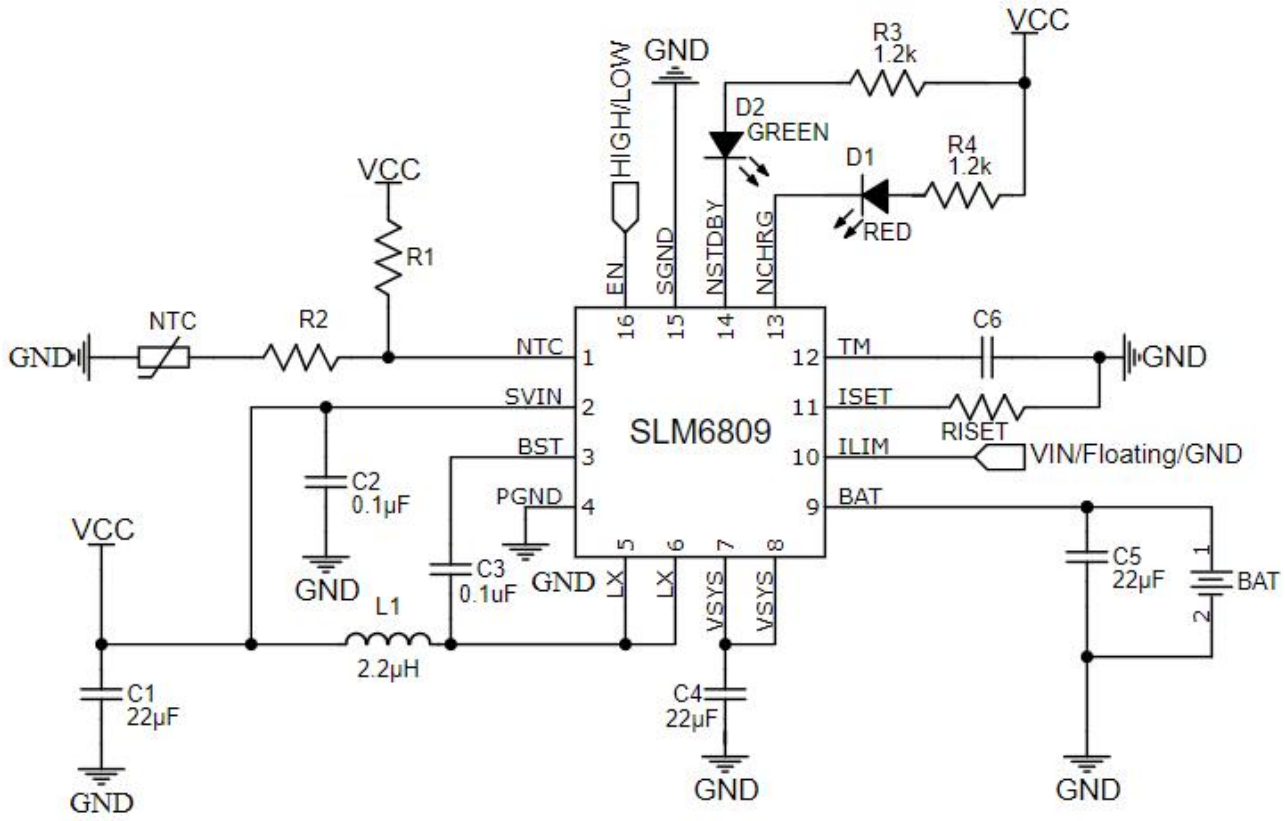


Figure 1

Typical Application



Pin Configuration

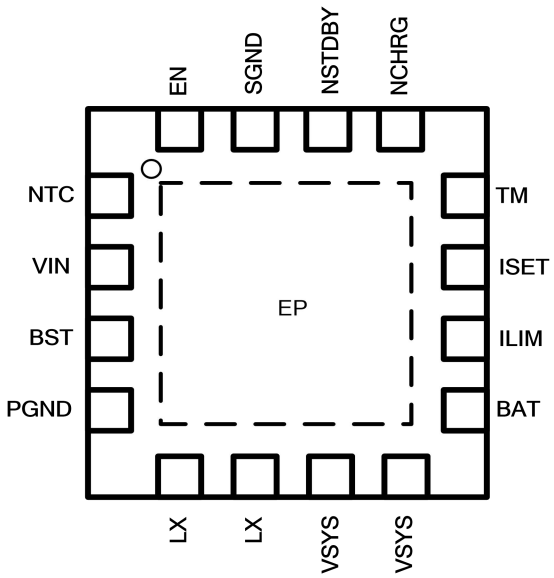


Figure 3

Pin Assignment

NTC(Pin1): Battery temperature monitoring, when the voltage is in the range of 33.5% to 77% of VIN, the chip is normally charged.

VIN(Pin2): The power input terminal is internally integrated with under-voltage and over-voltage protection.

BST(Pin3): Bootstrap, a 0.1uF capacitor is connected between the pin and the LX pin to provide drive capability to the internal power MOS.

PGND(Pin4): Power ground.

LX(Pin5, 6): Switch terminal, external connection inductor.

VSYS(Pin7, 8): At the boost output, connect at least one 10uF capacitor to ground.

BAT(Pin9): Battery terminal, connected to the battery positive.

ILIM(Pin10): Input VIN current limit terminal, there are three states of high, ground, and floating, which can be set to allow the maximum decrease of VIN voltage drop.

ISET(Pin11): Charging current setting, the setting formula is IBAT = (1.0V / RISET) * 5000(A).

TM(Pin12): Charging time limit setting pin.

NCHRG(Pin13): The charging indicating end indicates the charging state through the light emitting diode, the light is on when charging, the light is off when the battery is full, and the frequency is blinking at about 1 Hz when the charging is abnormal.

NSTDBY(Pin14): The indicator is fully charged, and the state of fullness is indicated by a light-emitting diode. When the battery is full, the light is on, and other status lights are off.

SGND(Pin15): Signal ground.

EN(Pin16): Enable pin, high active.