

GLF73610

Ultra-Efficient I_QSmart™ Battery Protection IC with Shipping Mode

DESCRIPTION

The GLF73610 is an I_QSmart™ ultra-efficient, full battery protection IC with an accurate over charge/discharge voltage, shipping mode, over charge/discharge current, and short circuit protection for lithium-Ion/Polymer battery safety.

The over charge and discharge voltage protections keep a rechargeable battery working within the desired safe operating condition. When the battery is charged past the over voltage detection level, the GLF73610 charging switch opens in a preset delay time. As the battery voltage decreases below the over discharge detection voltage level, the GLF73610 discharging switch is turned off immediately to cut off the battery power rail, consuming an ultra-low leakage current (ISD) to save the battery. In addition, when the load current reaches the ISC short circuit protection level, the GLF73610 is turned off and will maintain the off state to avoid any serious damage to system. The short circuit delay time avoids any false trigger which might open the switch.

The GLF73610 provides a shipping mode pin to prevent smart devices with a non-removable battery from discharging during the shipping period. When a charged battery cell is connected the GLF73610 remains in the off state and consumes an ultra-low leakage current (ISD) until the V_{ON} voltage is applied to V_{OUT} pin. Note that the GLF73610 is activated only by a V_{ON} voltage from a charger output.

FEATURES

- V_{OC}, Over Charge Detection: 4.35 V_{BAT}
 - Monitor V_{out} to release V_{oc}
- V_{OD}, Over Discharge Detection: 2.80 V_{BAT}
- I_{OC}, Over Charge Current Detection: 100 mA
- I_{DC}, Over Discharge Current Detection: 85 mA
- Short Circuit Protection
- 1.5 A Continuous Charging Current Capability from V_{OUT} to V_{BAT} Pin
- Activated by Applying V_{ON} to the V_{OUT} Pin from Charger
- Low R_{ON}: 115 mΩ Typ. @ 3.6 V_{BAT}
- I_Q = 1.35 μA Typ @ 3.6 V_{BAT}
- Shutdown Current
 - I_{SD} = 1 nA Typ. @ V_{BAT} < V_{OD}
 - I_{SD} = 1 nA Typ. @ V_{BAT} = 3.6 V, Shipping Mode
 - I_{SD} = 4 nA Typ. @ V_{BAT} = 4.2 V, Shipping Mode
- Latch-off at Over Discharge Detection and Short Circuit Protection. Apply V_{ON} to V_{OUT} pin to turn on
- Shipping Mode Implementation
- 0 V Battery Minimum Voltage for Charging
- Reverse Polarity Connection Protection
- Patent Pending Circuit Architecture
- HBM: 8 kV, CDM: 2 kV
- 0.97 mm x 0.97 mm x 0.55 mm Chip Scale Package 4 Bumps, 0.5 mm Pitch