

GLF73610

Ultra-Efficient I_QSmart™ Battery Protection IC with Full Protections

DESCRIPTION

The EV011-GLF73610 evaluation board features the GLF73610 that 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 VON voltage is applied to VOUT pin. Note that the GLF73610 is activated only by a VON voltage from a charger output.

FEATURES

- Over Charge Detection, V_{OC}
- Over Discharge Detection, V_{OD}: 2.80 V_{BAT}
- Over Charge Current Detection, I_{OC}: 330 mA
- Over Discharge Current Detection, I_{OD}: 76 mA
- Short Circuit Protection
- Activated by Applying VON to the VOUT Pin from Charger
- 1.5 A Continuous Charging Current Capability from VOUT to VBAT Pin
- Shipping Mode Implementation
- Low R_{ON}: 62 mΩ Typ. @ 3.7 V_{BAT}
- Quiescent Current, I_Q = 1.48 μA Typ. @ 3.7 V_{BAT}
- Shutdown Current:
 - I_{SD} = 6 nA Typ. @ V_{BAT} < V_{OD}
 - I_{SD} = 8 nA Typ. @ V_{BAT} = 3.7 V, Shipping Mode
 - I_{SD} = 10 nA Typ. @ V_{BAT} = 4.2 V, Shipping Mode
- Latch-off at Over Discharge Detection and Short Circuit Protection. Apply VON to VOUT pin to turn on.
- 0 V Battery Minimum Voltage for Charging
- Patent Pending Circuit Architecture
- HBM: 8 kV, CDM: 2 kV
- 0.97 mm x 0.97 mm x 0.55 mm, 4 Bump Wafer Level Chip Scale Package

PRODUCT TABLE

Eval Board Ordering Info: EV011-GLF73610

Part Number	Top Mark	Over Charge Detection V_{oc}	Over Discharge Detection V_{OD}	Over Charge Current I_{oc}	Over Discharge Current I_{OD}	Short Circuit Current I_{sc}
GLF73610-DE23C	FD	4.275 V	2.80 V	330 mA	76 mA	250 mA
GLF73610-GE23C	FG	4.475 V				
GLF73610-CE23C	BY	4.450 V				
GLF73610-HE23C	FH	4.525 V				