International Components Corporation ™

Preliminary **bq2150H**

Li-Ion Power Gauge™ Module

Features

- Complete bq2050H Power Gauge solution for Li-Ion battery packs
- Battery information available over a single-wire (HDQ) bidirectional serial port
- Control signals to enhance pack protection
- Battery state-of-charge monitoring for 2- to 5-cell series applications
- On-board regulator allows direct connection to the battery
- "L" version includes push-button activated LEDs to display state-of-charge information
- Nominal capacity pre-configured
- Compact size for battery pack integration

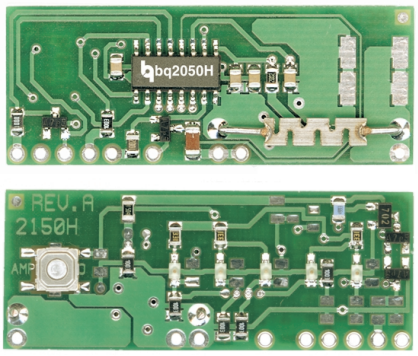
General Description

The bq2150H Power Gauge Module provides a complete and compact solution for capacity monitoring of Li-Ion battery packs. Designed for battery pack integration, the bq2150 incorporates a bq2150H Gas Gauge IC, a current sense resistor, and all other components necessary to accurately monitor and display the capacity of 2 to 5 series cells.

The bq2150L includes five LEDs to display remaining capacity in 20% increments of the learned capacity. The LEDs are activated with the onboard push-button switch.

Contacts are provided on the bq2150H for direct connection to the battery stack (BAT+, BAT-) and the serial communications port (HDQ). The RBI input provides backup power to the bq2150H in the event that the cells are removed or the battery is turned off. The bq2150H has a 1µF capacitor onboard connected to RBI to supply backup power for about an hour. In battery packs that use high-side FETs to control the charge/discharge of the Li-Ion cells, the RBI input can be wired to a single cell to provide prolonged data retention times. The SD input allows an external signal (active low) to turn the bq2050H IC off to minimize internal current consumption of the battery pack and maximize storage life of the pack in the system. When turned off, the bq2150H is non-functional, and the RBI power source maintains register information. Please refer to the bq2050H data sheet for the specifics on the operation of the Gas Gauge.

Unitrode configures the bq2150H based on the information requested in Table 1. The configuration defines the number of series cells, the nominal battery pack capacity, and the Li-Ion battery type (coke or graphite anode). Figure 1 shows how the module connects to the cells.



A module development kit is also available for the bq2150. The bq2150HB-KT or the bq2150HLB-KT includes one configured module and the following:

1) An EV2200-50H interface board that allows connection to the serial port of an AT-compatible computer.

2) Menu-driven software to display charge/discharge activity and to allow user interface to the bq2150H from any standard Windows 3.1x or 95 PC.

Pin Descriptions

P1	**HDQ/Serial Communications port**
P2	**PSTAT/Protector status input**
P3	**BAT+/Battery positive/pack positive**
P4	**SD/Shutdown**
P5	**RBI/Register backup input**
P6	**GND/Ground**
P7	**PACK-/Pack negative**
P8	**BAT-/Battery negative**
P9	**CFC/Charge FET control output**

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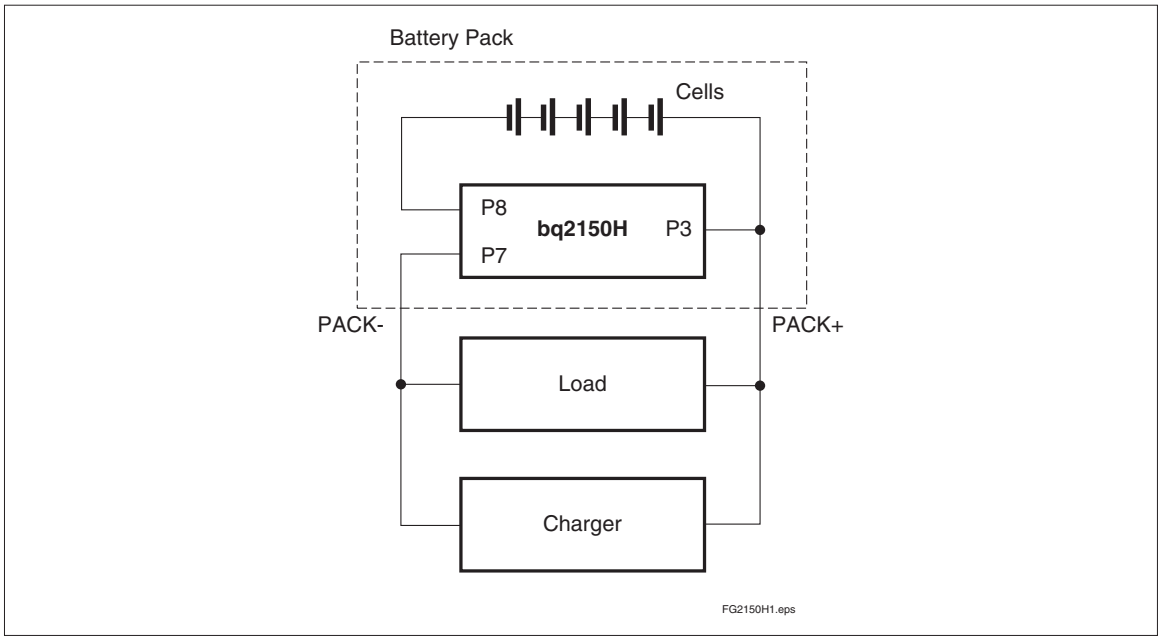


Figure 1. Module Connection Diagram

Table 1. bq2150H Module Configuration

Customer Name: _____

Contact: _____ Phone: _____

Address: _____

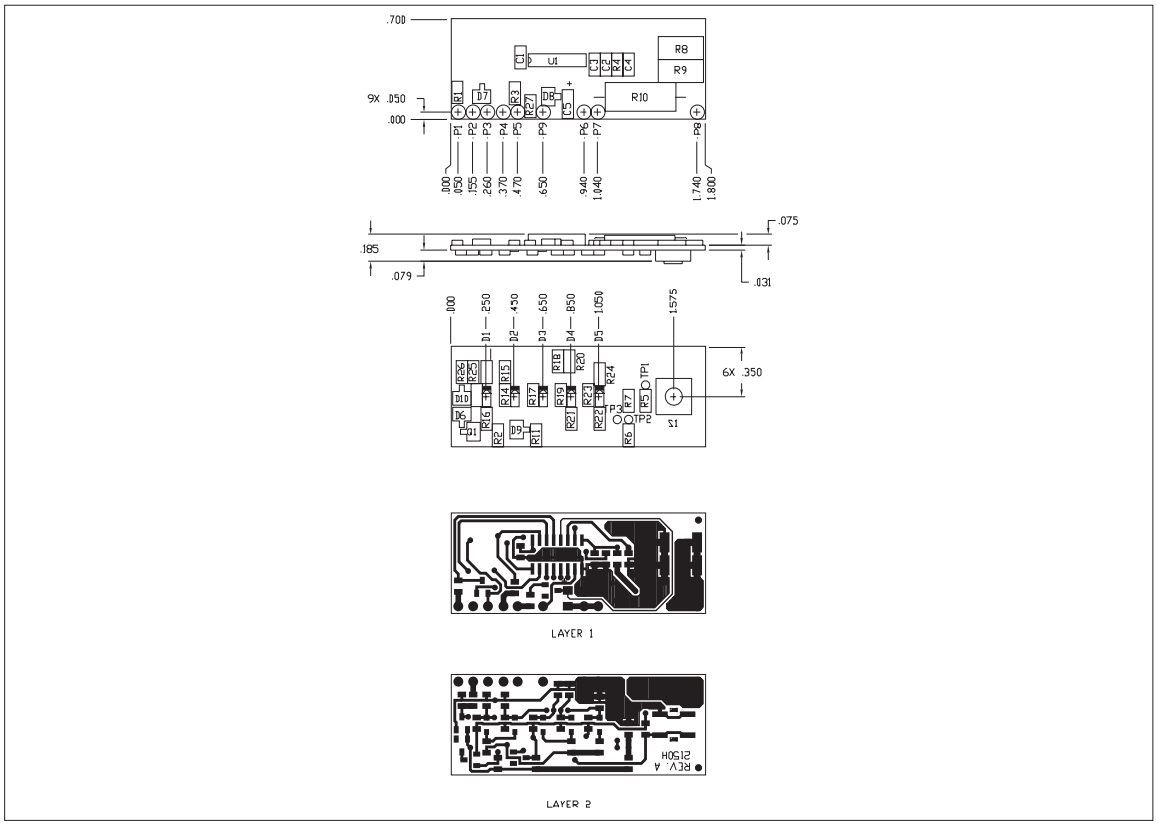
_____

Sales Contact: _____ Phone: _____

Number of series battery cells (2-5)	_____
Coke or graphite cell anode	_____
Battery pack capacity (mAh)	_____
Discharge rate into load (A)	min. _____ avg. _____ max. _____
Charge rate	_____
Self-discharge compensation (Y/N)	_____
LEDs and switch (Y/N)	_____

FAE Approval: _____ Date: _____

bq2150H Board



Ordering Information

bq2150H **B** —

Customer Code:
Blank = Sample or Pre-production[1]
KT = Evaluation system
XXX = Customer-specific; assigned by Unitrode[2]

Package Option:
B = Board-level product

LED Option:
L = LEDs plus switch

Device:
Li-Ion Power Gauge Module

Notes:
1. Requires configuration sheet (Table 1)
2. Example production part number: bq2150HLB-001