



Intersil's Battery Pack Monitoring, Protection and Balancing Solutions

Intersil's Li-Ion battery pack monitoring, protection and balancing IC's are specifically designed to meet the stringent safety, reliability and performance requirements of portable and battery powered applications such as consumer products, home appliances, battery backup and e-motor/e-bikes.

The IC's incorporate built-in fault detection for all major internal functions and detect external faults such as open wire, over and under voltage as well as temperature and cell balancing faults to mitigate battery pack failures.

Overall the highly integrated functionality of the [ISL94212](#), [ISL94203](#) and [ISL94208](#) offer a number of benefits and their use can significantly reduce overall battery management costs.

Key Components

ISL94212

Multi Cell Battery Management and Balancing IC

ISL94203

3-8 Cell Li-Ion Battery Pack Manager

ISL94208

4 - 6 Cell Li-Ion Battery Management Analog Front End

ISL94212



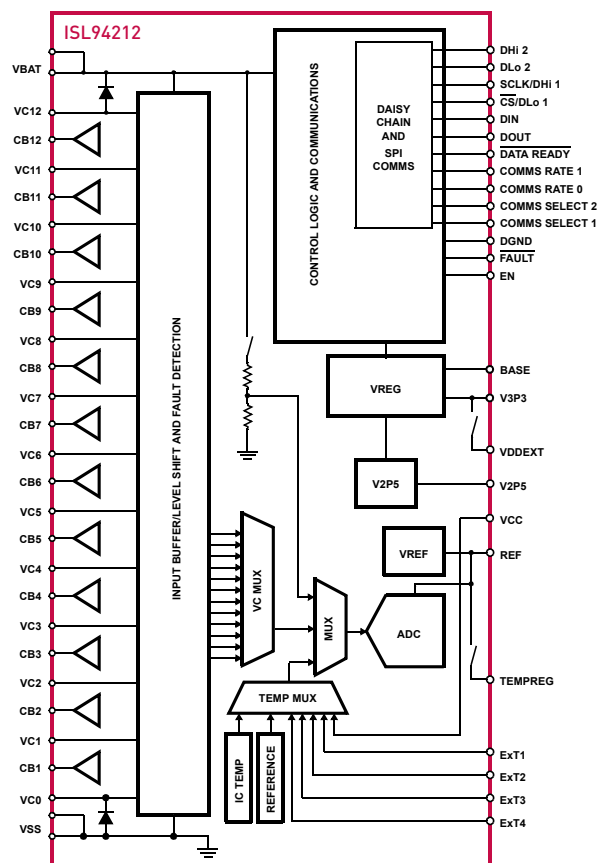
ISL94212EVZ

Multi Cell Battery Management and Balancing IC

Key Features

- Supervises up to 12 cells
- Daisy chain capable up to 14 devices or 168 cells
- Cell voltage measurement accuracy
 - $\pm 10\text{mV}$ from 0 to 50°C , 2.6 to 4.0V
- Cell voltage scan rate of $20\mu\text{s}$ per cell
- Simple daisy chain communications
 - Low cost twisted pair wiring for stacking
 - Capacitive isolation
- 2.5Mbps SPI - Stand alone & Daisy Chain
- Integrated system diagnostic functions:
 - Cell over and under voltage
 - Over temperature
 - Open cell monitoring wires
 - Open temperature monitoring wires
 - VBAT and VSS connection integrity
 - Voltage reference function
 - Oscillator function
 - Watchdog shutdown of IC if communications are lost
- Robust Hot-Plug performance
 - No hazardous conditions due to random connection of battery pack or cell wiring
 - No degradation due to hot plugging
- Extensive Cell Balance Control
 - Built-in cell balance FET drivers
 - Automatic cell balance based on manual control by μC , time, or target capacity

www.intersil.com/products/ISL94212



ISL94203



ISL94203EVAL1Z

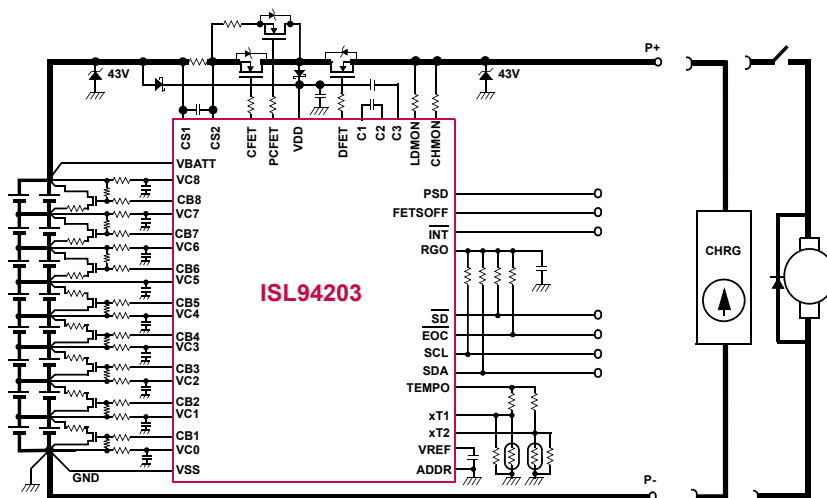
3-8 Cell Li-Ion Battery Pack Manager

Key Features

- Complete stand alone operation
 - Stand-alone pack control - No microcontroller needed
 - Operating parameters programmed in EEPROM
- Can be used as a front end for an external microcontroller
 - μ C can override some or all of the automatic features.
- For 3 to 8 cell applications
 - Support Lilon CoO_2 , Li-Ion Mn^{2+}O_4 , and Li-Ion FePO_4 chemistries
 - Pack voltages from 6 to 36V
 - Monitors cell voltages from 0 to 4.8V

Functions

- Protects battery pack and IC
- Automatically balance cells
- Measures cell voltages
- Monitors pack current and direction
- Provides diagnostic information
- Designed to withstand battery stack hot plug events

www.intersil.com/products/ISL94203


ISL94208



ISL94208EVZ

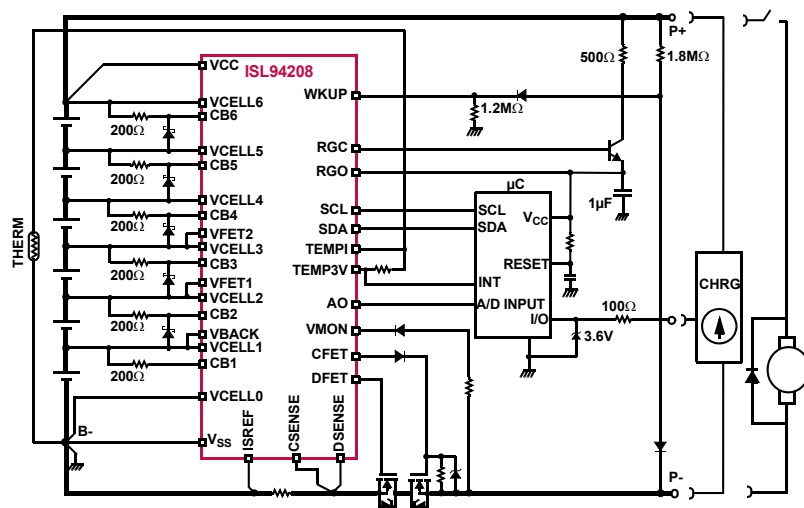
4 - 6 Cell Li-Ion Battery Management Analog Front End

Key Features

- Used as a front end for an external microcontroller
 - Provides analog voltage out – converted by external μ C
 - Incorporates charge/discharge FET drive
 - Supports internal or external passive cell balancing FETs
- Includes automatic over current shutdown of power FETs
- For 4 to 6 cell applications
 - Pack voltages from 8 to 27V

Functions

- Protects battery pack from over current conditions
- Balances cells on command from μ C
- Cell voltage measurement
- Measurement of temperature
- 3.3V regulator for pack electronics
- Diagnostic information

www.intersil.com/products/ISL94208


For more information about Intersil's Industrial Products, contact your local sales office.