

FEATURES

- ▶ Measures up to 16 Battery Cells in series
- ▶ Independent and Synchronous Current Measurement with Auto-Calibration
- ▶ Integrated Zero False Positive Fast Over Current Measurement with Dedicated outputs
- ▶ Up to 10 General Purpose Analog Inputs or Digital I/O
- ▶ High Accuracy Performance Over Lifetime and Operating Temperature
- ▶ Dedicated Fault output for all Active and Low Power Operation
- ▶ Integrated Coulomb Counter for SOC Calculation

- ▶ Low Power independent Cell Voltage, Temperature & Current Monitoring
- ▶ Package 64 Pin QFN-SS
- ▶ AEC-Q100 qualified for Automotive Application

APPLICATIONS

- ▶ Mild Hybrid Electric Vehicles
- ▶ Two-Wheeler, Three-Wheeler Electric Vehicles
- ▶ Four-Wheeler Electric Vehicles
- ▶ Backup Battery Systems
- ▶ Energy Storage Systems (ESS)

TYPICAL APPLICATION DIAGRAM

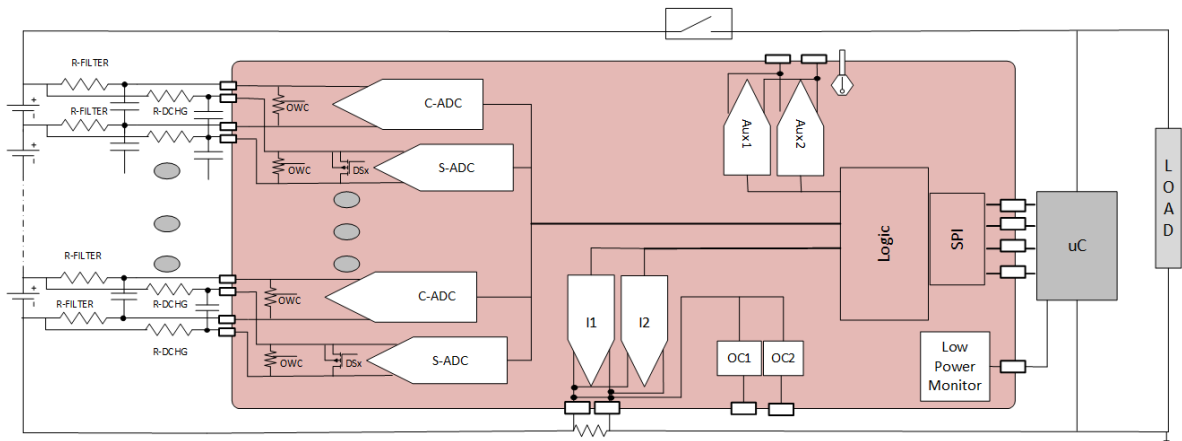


Figure 1. Typical Application Diagram 48V System with ADBMS6948

GENERAL DESCRIPTION

ADBMS6948 is a multi-cell battery monitor measuring up to 16 series-connected battery cells with a very high measurement accuracy over the entire temperature range. With a measurement range of -2.5V to 5.5V ADBMS6948 is suitable for all battery chemistries including NMC and LFP. ADBMS6948 provides the best in class integrated bi-directional current measurement capability. It measures the current flowing in and out of the battery pack by measuring the voltage drop over an external sense resistor. The current channel ADCs are synchronized to Cell Voltage measurements to provide a true synchronous Cell voltage and Current measurements enabling an accurate State of Charge(SOC), State of Health(SOH), State of Power(SOP) estimation.

ADBMS6948 is the only Li-ion Cell monitor with a Zero False Positive Over Current (OC) Detection feature that can not only detect Short circuit event but protect the FETs, thereby improving the reliability of the system while reducing the system cost. The dedicated over current pins can be used to connect to an external FET driver

to open the switches in case of short circuit event. ADBMS6948 overcomes the limitations of the traditional comparator based Over Current detection with its innovative, patented technology that improves accuracy and reliability under all operating conditions.

ADBMS6948 also provides a low-power independent monitoring mode that can be used to monitor the battery cell voltage, temperature and current while the MCU is in the low power state. ADBMS6948 provides an SPI interface, with a maximum operating frequency of 2MHz for configuration and measurement purposes. ADBMS6948 can be powered directly from the battery stack or from an isolated power supply. ADBMS6948 supports passive cell balancing with individual PWM duty cycle control. Other features include an on-board 5V regulator and sleep mode.

For more information on the ADBMS6948, see the [ADBMS6948 product page](#).

Rev. PrA

DOCUMENT FEEDBACK

TECHNICAL SUPPORT

Information furnished by Analog Devices is believed to be accurate and reliable "as is". However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

NOTES