

## 12-Channel Multicell Battery Monitor

### FEATURES

- ▶ Measures up to 12 battery cells in series
- ▶ Maximum lifetime total measurement error: 1.5 mV
- ▶ Stackable architecture for high voltage battery packs
- ▶ Built-in isoSPI interface
  - ▶ 2 Mb isolated serial communications
  - ▶ Uses a single twisted pair, up to 20 meters
  - ▶ Low EMI susceptibility and emissions
  - ▶ Bidirectional for broken wire protection
  - ▶ Capacitor or transformer coupled
- ▶ Hot plug tolerant without external protection
- ▶ ADBMS6815WFS models designed for use in ISO 26262 applications for Automotive Safety Integrity Level Capability D
- ▶ Diagnostics for IC and application circuit failure modes
- ▶ 304  $\mu$ s to measure all cells in a system
- ▶ 16-bit ADC with programmable noise filter
- ▶ Passive cell balancing up to 300 mA per channel with programmable PWM
- ▶ 7 GPIO or analog inputs
  - ▶ Temperature or other sensor inputs
  - ▶ Configurable as an I<sup>2</sup>C or SPI controller
- ▶ Sleep state supply current: 5.5  $\mu$ A
- ▶ 48-lead LQFP package with exposed pad
- ▶ AEC-Q100 qualified for automotive applications

### APPLICATIONS

- ▶ Electric and hybrid electric vehicles
- ▶ Backup battery systems
- ▶ Grid energy storage
- ▶ Large portable power banks

### GENERAL DESCRIPTION

The ADBMS6815 is a multicell battery stack monitor that measures up to 12 series connected battery cells with a lifetime total measurement error (TME) of less than 1.5 mV. The measurement range of 0 V to 5 V makes the ADBMS6815 suitable for most battery chemistries. All 12 cells can be measured in 304  $\mu$ s, and lower data acquisition rates can be selected for high noise reduction.

Multiple ADBMS6815 devices can be connected in series, permitting simultaneous cell monitoring of long, high voltage battery strings. Each ADBMS6815 has an isoSPI™ interface for high speed, RF immune, long distance communications. Multiple devices are connected in a daisy chain with one host processor connection, which can be operated bidirectionally, ensuring communication integrity even in the event of a fault along the communication path.

Rev. SpB

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.

### TYPICAL APPLICATION CIRCUIT

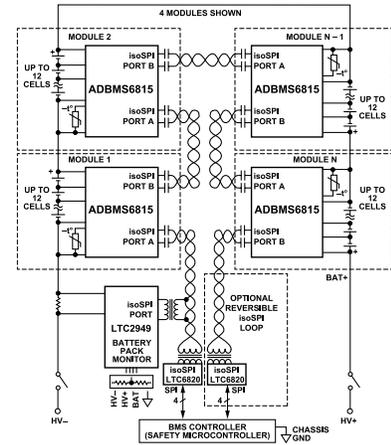


Figure 1. Typical Application Circuit

The ADBMS6815 can be powered directly from the battery stack or an isolated supply. The ADBMS6815 includes passive balancing, with individual pulse-width modulation (PWM) duty cycle control for each cell. Other features include an on-board 5 V regulator, seven general-purpose input/output (GPIO) lines, and a sleep state, where current consumption is reduced to 5.5  $\mu$ A.

The ADBMS6815WFS models are designed for use in ISO 26262 applications for Automotive Safety Integrity Level Capability D (ASIL D).

For more information on the ADBMS6815, visit the [ADBMS6815 product page](#).

NOTES