

FEATURES

- Measures up to 18 battery cells in series
- 3.2 mV maximum total measurement error
- Stackable architecture for high voltage systems
- Built-in isoSPI™ interface
 - 1 Mb isolated serial communications
 - Uses a single twisted pair, up to 100 meters
 - Low EMI susceptibility and emissions
 - Bidirectional for broken wire protection
- 290 μs to measure all cells in a system
- Synchronized voltage and current measurement
- 16-bit delta-sigma ADC with programmable third-order noise filter
- Passive cell balancing up to 200 mA (maximum) with programmable pulse-width modulation
- 9 general purpose digital I/O or analog inputs
 - Temperature or other sensor inputs
 - Configurable as an I²C or SPI master
- 6 μA sleep mode supply current
- 64-lead eLQFP package

APPLICATIONS

- Backup battery systems
- Grid energy storage
- Residential energy storage
- UPS
- High power portable equipment

GENERAL DESCRIPTION

The ADBMS1818 is a multicell battery stack monitor that measures up to 18 series connected battery cells with a total measurement error of less than 3.2 mV. The cell measurement range of 0 V to 5 V makes the ADBMS1818 suitable for most battery chemistries. All 18 cells can be measured in 290 μs, and lower data acquisition rates can be selected for high noise reduction.

Multiple ADBMS1818 devices can be connected in series, permitting simultaneous cell monitoring of long, high voltage battery strings. Each ADBMS1818 has an isoSPI interface for high speed, RF immune, long distance communications. Multiple devices are connected in a daisy chain with one host

TYPICAL APPLICATION

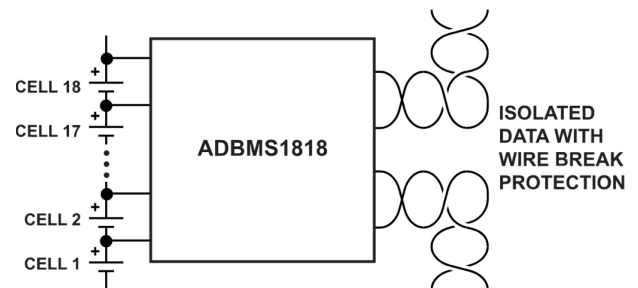


Figure 1.

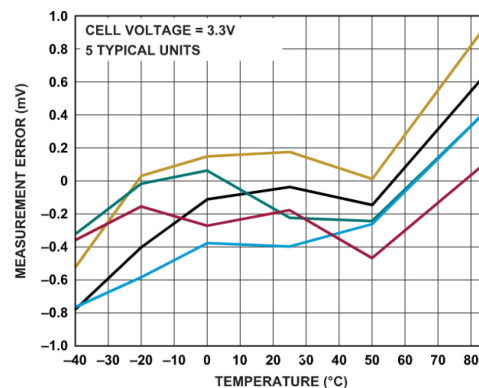


Figure 2. Cell 18 Measurement Error vs. Temperature

processor connection for all devices. This daisy chain can be operated bidirectionally, ensuring communication integrity, even in the event of a fault along the communication path.

The ADBMS1818 can be powered directly from the battery stack or from an isolated supply. The ADBMS1818 includes passive balancing for each cell, with individual PWM duty cycle control for each cell. Other features include an on-board 5 V regulator, nine general purpose I/O lines, and a sleep mode where current consumption is reduced to 6 μA.

All registered trademarks and trademarks are the property of their respective owners. Protected by multiple U.S. patents, including 8908779, 9182428, and 9270133.

For more information about the ADBMS1818, contact the Analog Devices, Inc., Customer Interaction Center at www.analog.com/technical_support to connect with a technical support specialist.

Rev. PrA

[Document Feedback](#)

Information furnished by Analog Devices is believed to be accurate and reliable. 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.

One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, U.S.A.
Tel: 781.329.4700 ©2020 Analog Devices, Inc. All rights reserved.
[Technical Support](#) www.analog.com

NOTES