Atmel AVR Battery Management Devices for Rechargeable Lithium Batteries

Rechargeable lithium-ion (Li-Ion) and lithium polymer (Li-Poly) batteries deliver high energy density at low weight and volume, making them the ideal choice for portable handheld applications.

Battery management devices ensure optimal energy utilization while protecting lithium batteries against potentially hazardous conditions related to current, voltage and temperature.

Atmel® addresses the challenges of rechargeable lithium battery management with solutions built on Atmel AVR® microcontrollers (MCUs) incorporating leading high-voltage technology. We optimize these devices using expertise gained through long-established cooperation with major battery manufacturers. The result is a full range of MCUs dedicated to Li-Ion and Li-Poly battery management solutions supporting from one to four cells in series.

Flexible Platform

By providing both un-programmed battery management ICs and pre-programmed turnkey solutions, Atmel delivers a highly flexible platform. AVR battery management devices cover the entire range of battery management needs—including applications where you can use a fixed-function device off the shelf as well as applications that require some level of customization.

For customers who prefer developing in-house battery management firmware, Atmel provides source code packages that implement the primary functions of a full battery management solution. You can use these packages as a foundation for your own development. If you prefer not to develop the firmware yourself, Atmel also provides fully customized versions of our pre-programmed turnkey battery management solutions.

Atmel battery management devices are built on the AVR MCU architecture, and firmware for these battery management ICs is developed on the same world-class development tools used to create general-purpose AVR MCUs. In addition, Atmel offers dedicated evaluation kits and reference designs for all AVR battery management solutions.
Accuracy and Safety

To ensure industry-leading analog accuracy, Atmel manufactures AVR battery management devices using a proprietary high-voltage, mixed-signal CMOS process. Additionally, the built-in analog reference voltage is factory-calibrated to provide excellent stability over temperature. As a result, these devices deliver the highest accuracy over the full operating temperature range.

Combined with the state-of-the-art Atmel fuel gauge algorithm, the high accuracy of AVR battery management devices ensures a very accurate (<1% error) state-of-charge report to the host system.

Together with a built-in battery protection engine, Atmel battery management solutions deliver a complete, highly accurate and safe single-chip battery management system.