



L9962

Intelligent battery management for Li-ion and Li-polymer cells



Complete battery pack monitoring, active balancing, and protection system for up to 10-series cell configurations

L9962 is a highly integrated battery management IC for Li-ion and Li-polymer packs from 4 to 10 cells in series.

It enables compact, cost-optimized and safe battery-powered designs by integrating accurate voltage, current and temperature sensing with on chip protection, relay and fuse control, and a 3.3 V supply for the MCU. This high level of integration minimizes external components and PCB area.

Ultra-low quiescent-current modes extend shelf life and operating time, while the flexible digital interface and embedded NVM simplify configuration and improve overall system robustness.

KEY FEATURES & BENEFITS

- **High integration:** voltage, current and temperature sensing plus relay and fuse control
- **Precise measurement:** 12-bit cell voltage ADC and accurate current sensing with Coulomb counting
- **Advanced protection:** overcurrent and discharge short circuit protection with safety data stored in NVM
- **Simple communication:** I²C interface for easy configuration and connection to the system controller

KEY APPLICATIONS

- Cordless power tools
- Light e-mobility
- Energy-storage systems
- Medical equipment

Accurate monitoring and diagnostics

The L9962 measures cell voltages in 4- to 10-cell stacks with a 12-bit ADC, delivering up to ± 7.5 mV accuracy across the full cell-voltage range. Comprehensive stack-voltage monitoring with over-/under-voltage detection and plausibility checks versus the sum of cells boosts fault coverage and supports reliable state-of-charge and state-of-health estimation. The 16-bit current-sense path with 0.25% full-scale accuracy provides precise pack-current measurement and Coulomb counting for accurate energy tracking.

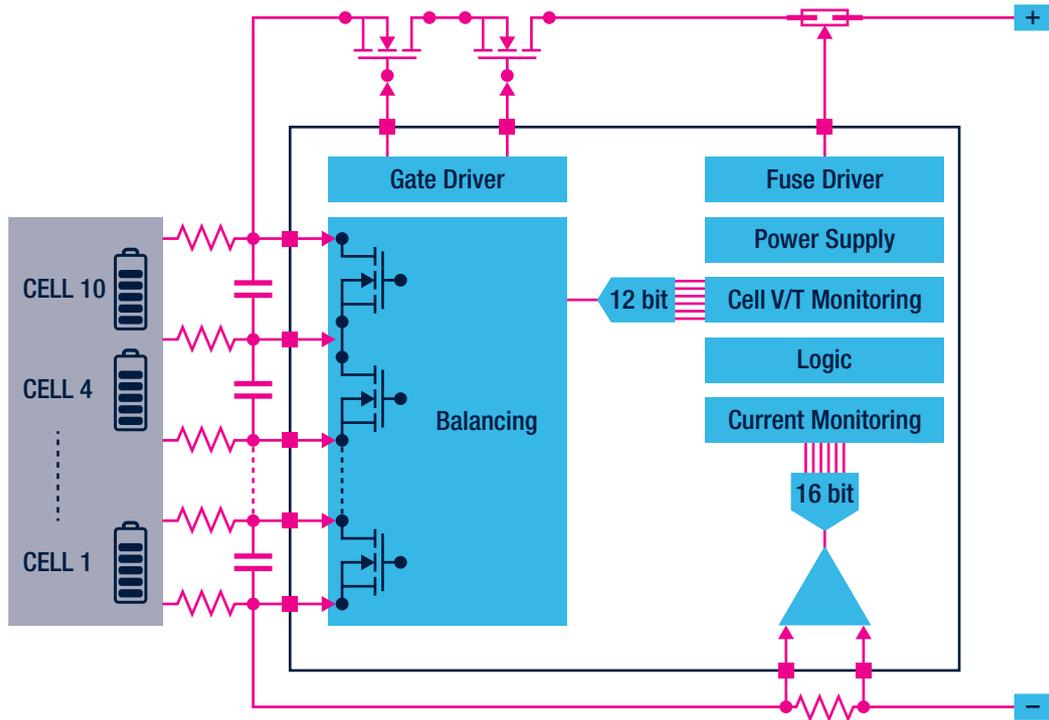
Integrated balancing and temperature sensing

Integrated MOSFETs enable passive cell balancing up to 70 mA per cell, maximizing capacity utilization and extending battery lifetime. Ratiometric NTC temperature measurement with a maximum $\pm 0.8\%$ gain error ensures accurate thermal monitoring at both pack and cell level. Comprehensive diagnostic functions are fully programmable via the I²C interface, giving designers the flexibility to fine tune thresholds and timings for their specific application.

Comprehensive system protection

The L9962 integrates multiple protection layers, such as bidirectional overcurrent protection, discharge short-circuit detection and balance undervoltage protection. A dedicated fuse-driver stage allows fast, controlled pack disconnection under critical fault conditions, and a dual HS/LS-configurable protector provides high flexibility in circuit-breaker designs. Embedded NVM stores customer configurations and safety-critical parameters so that protection settings are retained across power cycles and system certification is simplified.

L9962 block diagram



Device summary

Product	Rating	Battery level	Balancing current	Temperature range (°C)	Package	Ready-to-use evaluation board
L9962	Industrial	Up to 50 V	Up to 70 mA per cell	-40 to 85	TQFP48 (7x7 mm)	EVL9962



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