



L9963F

Automotive-grade multicell battery monitoring and balancing IC



Developed in compliance with ISO 26262 up to ASIL D, scalable from 48 V to high-voltage traction packs

The L9963F is an AEC-Q100 qualified, ASIL-D-ready IC for monitoring 4 to 14 Li-ion cells in series. A sigma-delta ADC architecture with redundant sensing paths supports diagnostic coverage at the component level and reliable measurement under fault conditions.

Synchronous sampling captures cell voltages and pack current with 0 μ s desynchronization between samples, giving the BMS algorithm a coherent snapshot of pack state during fast current transients. The device daisy-chains up to 31 nodes, addressing 48 V and HV traction packs from a single component base.

Hot-plug capability and integrated fault detection cover insertion events, communication failures, and cell-level anomalies, reducing the external protection circuitry and software overhead around the IC.

KEY FEATURES

- AEC-Q100 qualified
- ASIL-D ready (ISO 26262 compliant)

MAIN BENEFITS

- Redundant measurements support limp-home functionality
- Hot-plug capability protects the IC during battery assembly
- Synchronous sensing preserves measurement accuracy during fast current transients.




KEY APPLICATIONS

- 48 V and high-voltage automotive battery packs
- Urban mobility (e-bikes, e-scooters, and LEVs)
- Energy storage systems (ESS)
- Humanoid robots

A development ecosystem built around AutoDevKit-Studio

The L9963F is supported by the AutoDevKit development framework. Evaluation boards based on the SPC58 Line MCU with AutoDevKit Studio help designers move directly from board bring-up to algorithm development.

The L9963F and its evaluation boards

<p>The L9963F is housed in a TQFP64 package with exposed pad (down), supporting thermal dissipation during continuous cell balancing of up to 200 mA per cell.</p>	
<p>The AEK-POW-BMS63EM is a BMS evaluation board configurable as the first node in a daisy chain, addressing battery packs of 6, 10 (configuration A or B), or 14 cells in a 48 V to 64 V range per node. Two embedded transceivers on the board cover daisy-chain and dual-access ring BMS topologies. The chain itself scales from 1 to 31 nodes.</p>	
<p>The AEK-POW-BM5CC is a compact intermediate-node board for centralized daisy-chain BMS architectures, supporting up to 31 nodes of 4 to 14 cells each.</p>	

Part number	Rating	Battery level (per IC)	Balancing current	Operating temperature (°C)	Package	Evaluation boards
L9963F	Automotive, AEC-Q100, ASIL-D ready	Up to 72 V	Up to 200 mA per cell	-40 to 105	TQFP64 (exposed pad down)	AEK-POW-BMS63EM AEK-POW-BM5CC



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