Contributing to Safer Batteries in Automotive and Energy Storage Systems

# Nuvoton Introducing 26-Cell EIS-Enabled Battery Monitoring IC Samples

***EIS: Electrochemical Impedance Spectroscopy**

## ■ Overview

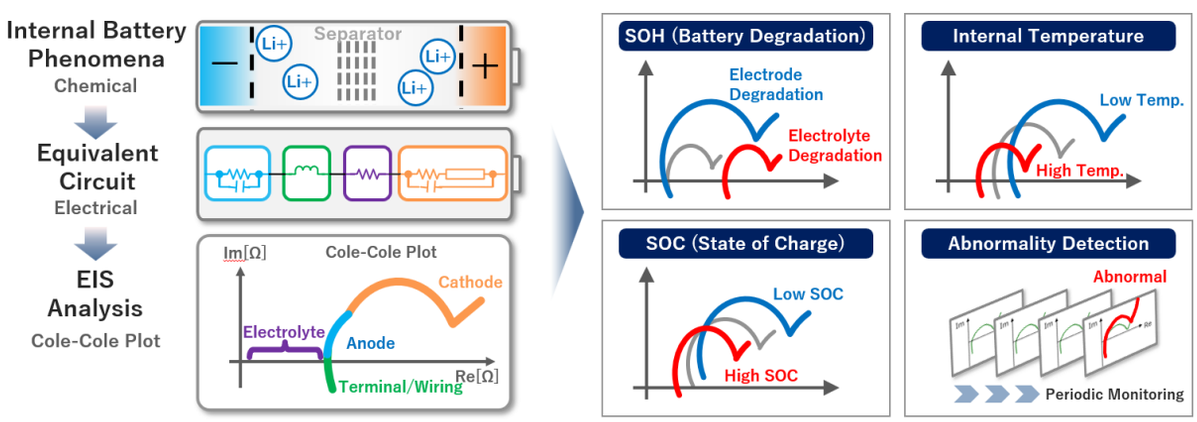
EIS-equipped Gen 6 battery monitoring IC (BM-IC) “KA85010UA” samples will be available in January 2027. Supporting up to 26 series-connected cells, the IC combines battery monitoring with quantification of internal battery conditions for degradation diagnosis, lifetime prediction, and early detection of signs of cell abnormalities, contributing to improved safety in vehicles and energy storage systems. Our proprietary inductor method reduces EIS-measurement PCB temperature rise by approximately 93% compared with conventional methods. EIS analysis algorithms and implementation support simplify system integration.

KA85010UA
QFP-128 Pin Package

## ■ Features

### ① EIS Identifies Internal Battery Conditions

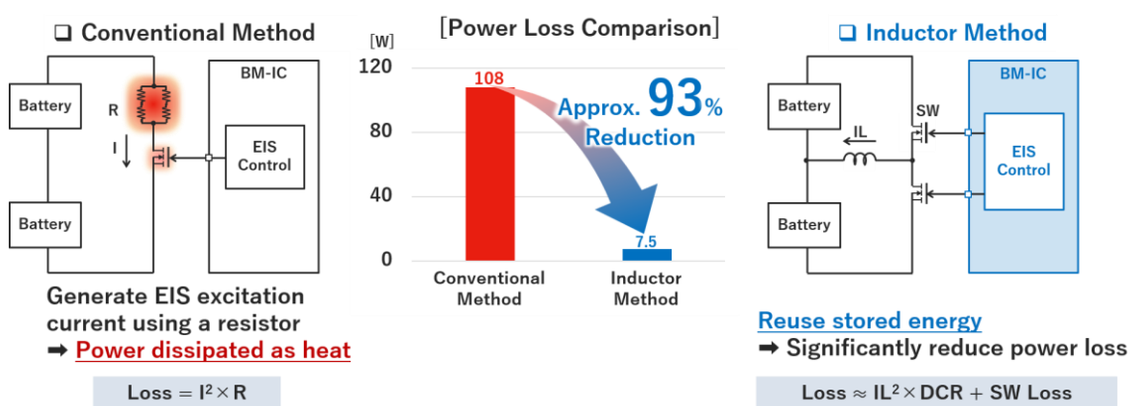
- EIS is integrated into the BM-IC, enabling quantification of internal battery conditions
- Enables degradation diagnosis, lifetime prediction, and early detection of signs of cell abnormalities, contributing to improved safety in vehicles and energy storage systems




**EIS Identifies Internal Battery Conditions**

### ② Heat Reduction Effect of the Inductor Method

- Proprietary inductor method enables low-power consumption impedance measurement
- Significantly reduces power loss during EIS measurements compared with conventional methods, while suppressing PCB temperature rise by approximately 93%.
- Facilitates implementation of EIS functionality in automotive and energy storage systems

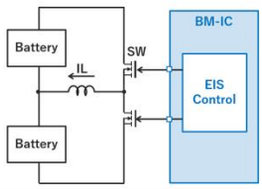
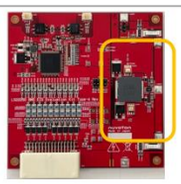
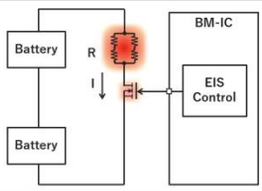
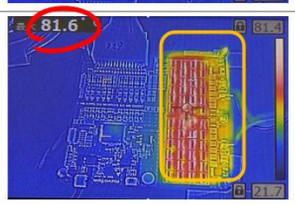



**Power Loss Reduction Effect of the Inductor Method**



As of Sep. 29, 2026

**Nuvoton Technology Corporation Japan**
**https://www.nuvoton.co.jp/en/**

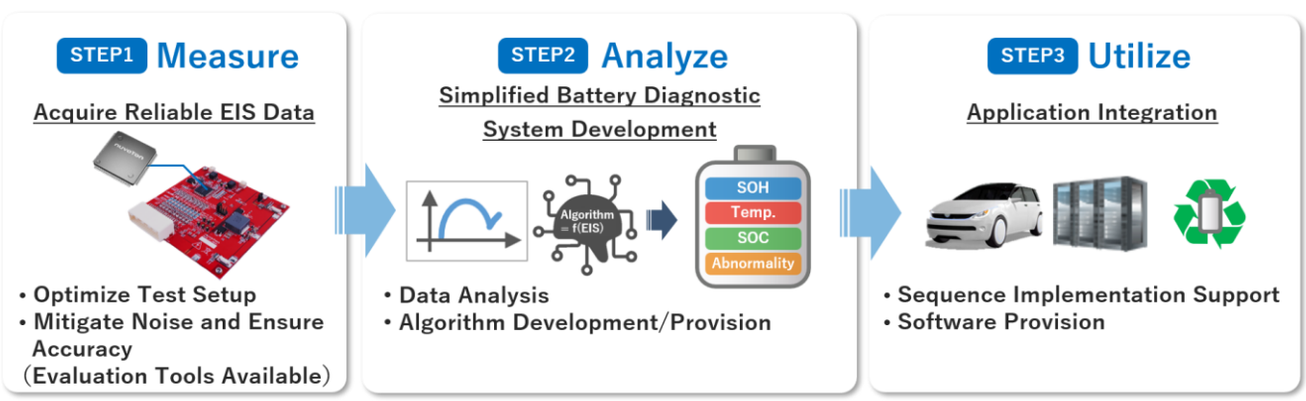
| Method | Current Injection image | Evaluation Board | EIS Board Temp. Rise During EIS Measurement |
|---|---|---|---|
| Inductor Method<br>⊿T = 3.3℃<br>Approx. 93%<br>Reduction |  |  |  |
| Conventional Method<br>⊿T = 54.5℃ |  |  |  |

※Based on Nuvoton evaluation results

**Temperature Reduction Effect of the Inductor Method**

## ③ Total-Solution Support for EIS Implementation

- Provide proven EIS algorithm based on joint verification with automakers and research institutions
- End-to-end support, from setting up EIS measurement environment to product implementation
- Shorten development cycle by supporting rapid implementation of EIS-based battery diagnostics




**Battery Diagnostic Solution Development Flow and Support**

*1: https://www.mitsubishi-motors.com/jp/sustainability/environment/recyclelow/pdf/AC_Method_summary_2022.pdf
*2: https://www.nuvoton.co.jp/press/240412_EIS/
*3: https://www.nuvoton.co.jp/press/251205_EIS/

## ■ Applications

- Automotive (EVs), large-scale energy storage systems (ESS), reused-battery diagnostic systems, etc.

## ■ Target Product Number

- EIS-equipped Gen 6 battery monitoring IC “KA85010UA”

## ■ Specifications

- Maximum number of connected cells: 26 cells
- Voltage measurement accuracy: ±2.0 mV (EOL)
- EIS (AC impedance method)
- Inductor excitation method (power loss reduced by approximately 93%)*Compared with conventional methods
- Redundant measurement system
- ISO 26262 compliant (ASIL-D); AEC-Q100 compliant



As of Sep. 29, 2026

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