

Enabling Safe, High-Quality, and High-Efficiency High-Voltage System Design

16-Cell Battery Monitoring ICs with Daisy-Chain for Industrial & High-Voltage Systems

■ Overview

The IC integrates a high-resolution ADC, enabling highly accurate measurement of battery cell voltage and temperature.

The IC supports monitoring of up to 16 cells and features a robust daisy-chain communication interface and allowing up to 55 devices to be connected in series.

It is ideal for high-voltage applications and contributes to enhanced safety, improved quality, system miniaturization, and low power consumption in battery management systems (BMS).



KA49703A/KA49713A
QFP-48 pin package

■ Features

- Supports up to 16 cells per IC with daisy-chain capability (up to 55 devices)
- Supports both master and slave functions for daisy-chain communication
- High voltage measurement accuracy: ± 2.9 mV (16-bit ADC) ***Enhance**
- Self-diagnostics for ADC, multiplexer, and key circuits
- Open-wire detection
- Alarm outputs for overcharge, over-discharge, over-temperature, and under-temperature ***Enhance**
- Integrated cell balancing function (supports multi-adjacent simultaneous balancing) ***Enhance**
- Supports up to 8 thermistor inputs. Expandable to 16 thermistors with special setup. ***Enhance**
- Wide operating temperature range: -40 °C to $+105$ °C
- Ultra-low power operation: 0.19 mA (typ.)
***Operating intermittently for 250 ms via software control.**
- Ultra-low shutdown current: 0.1 μ A (KA49713A, deep shutdown mode)
***Industry-leading performance (based on internal evaluation)**
- Compact package: 7 mm $\times$ 7 mm

■ Applications

- Data center backup power (BBU)
- Energy Storage Systems (ESS)
- Other high-voltage industrial systems

■ Specifications

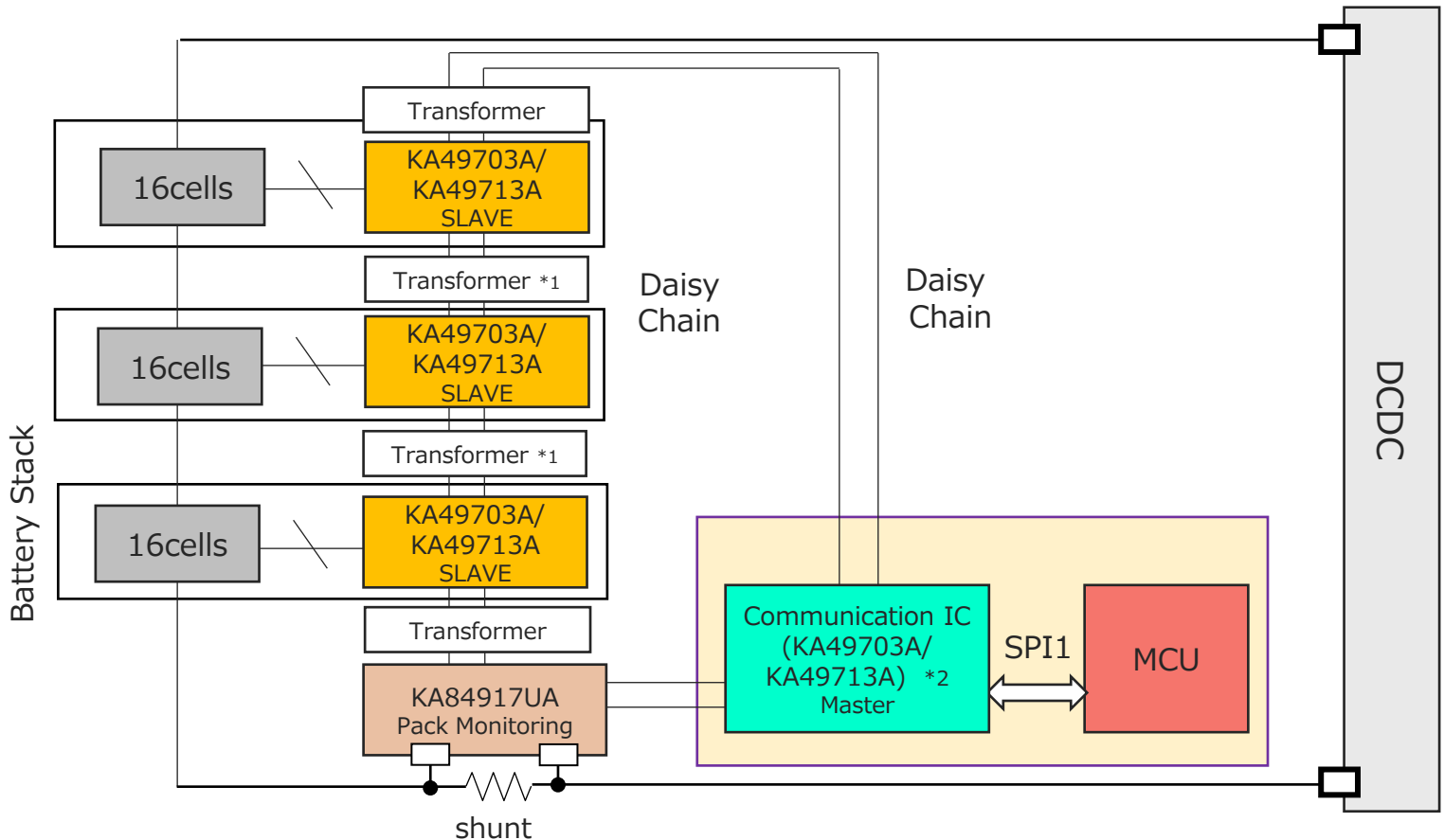
Part Number	[NEW] KA49703A	[NEW] KA49713A	KA49701A	KA49702A
Charge/Discharge Control	-		Low-Side Switch	High-Side Switch
Max Cells	16 Cells		17 cells	
Rated Voltage	76.8 V		85 V	
Voltage Measurement Accuracy	±2.9 mV		±2.9 mV	
Current Measurement Accuracy	-		±1.0%	
Shutdown Current	5.0 μA	0.1 μA	0.1 μA	
Communication	Daisy Chain/SPI		SPI	
Package	QFP-48 pin (7 mm x 7 mm)			

The products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.

As of Jul. 29, 2026

■ Recommended Circuit Diagram

- High-Voltage Battery Monitoring and Communication Solution for AI Servers/ESS
- High-Precision Multi-Cell Monitoring Solution via Isolated Daisy-Chain Communication Using KA49703A/KA49713A (Dual-Use Battery Monitoring IC and Communication IC) and KA84917UA
- High-precision voltage and current monitoring through robust isolated communication



*1 For short connection, capacitors method can be used.

*2 A communication IC dedicated to SPI redundancy (KA84922UA) can also be used.

<https://www.nuvoton.com/products/battery-management/battery-monitoring-ics/stackable/>



The products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.

As of Jul. 29, 2026