Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Robust, reliable analog solutions

MC33771 and MC33664 Battery Cell Controller and Transformer Physical Layer

The MC33664 transformer physical layer and MC33771 battery cell controller solution enable reliable, safe low-cost Li-ion cell control applications with affordable, robust and high-speed isolated communication.

AUTOMOTIVE APPLICATIONS

- High-voltage battery management systems (> 800 V)
- 48 V battery management systems

INDUSTRIAL APPLICATIONS

- Energy storage systems (ESS)
- Uninterrupted power supply (UPS)
- E-bikes, E-scooters

These fully integrated battery monitoring devices are for automotive and industrial mission-critical applications. Battery topology flexibility is supported with compatibility including 48 V batteries with one analog front end (AFE).

High-speed and robust daisy chain provides a smart alternative to CAN solutions. Fast data acquisition and communication to the pack controller can be achieved in only 3.0 ms for the pack controller to acquire conversions from 96 cells. Also, determination of individual cell impedances in one shot is synchronized for cell voltages and current measurements within 114 µs.

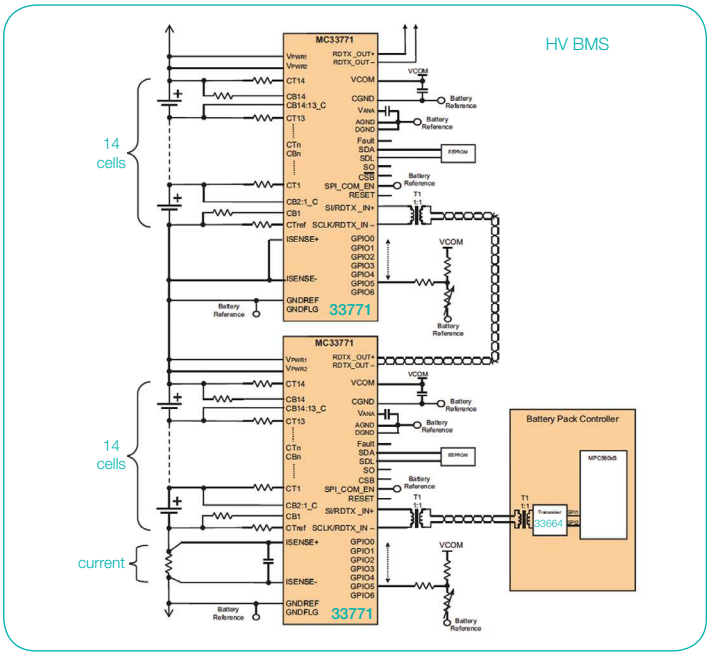
With functional verification and diagnostics, the MC33664 transformer physical layer and and MC33771 battery cell controller support ISO 26262 SafeAssure® functional safety. Functional verification of cell measure, current measure, cell terminal openings or leakage and ADC precision checks are all performed.

FEATURES

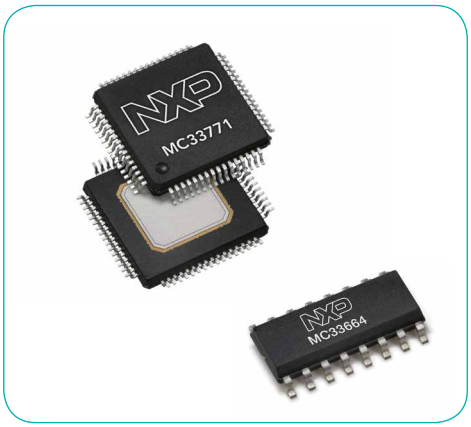
- 9.6 V ≤ VPWR ≤ 61.6 V operation, 75 V transient
- Isolated 2 Mbps differential communication or 4 Mbps SPI
- 14 x differential cells voltage and stack voltage measurements
- High-precision current measurement (+/- 1500 A) with low resolution
- Coulomb counter
- Synchronized cell voltage/current measurement 100 µs skew
- 7 x ADC/GPIO/temperature sensor inputs
- Addressable on initialization
- Onboard 300 mA passive cell balancing low ohmic MOSFETS with diagnostics
- Low-power modes
- 64-pin LQFP package
- Designed to support ISO 26262, up to ASIL D safety capability

Features	Benefits
Integrated current channel and coulomb counting	Reduces bill of materials (BOM) for 48 V battery applications (only one AFE required)
Integrated current channel synchronized with cell voltage measurements	Determination of individual cell impedances in one shot for improved SoC/SoH prediction
Optional high-speed isolated or SPI communication	Addresses all existing battery management system topologies (centralized, distributed daisy chain, distributed CAN)
High-speed (2.0 Mbit/s) isolated high-speed differential communication	Allows BOM cost reduction by transition from CAN to daisy chain without compromise on communication speed
Fast data acquisition and communication to pack controller	Determination of individual cell impedances in one shot, synchronized cell voltages and current measurements within 114 µs
Robust against hot plug and random cell connection	No pre-damaging of cell and no damaging of devices during customer battery/electronics assembly
ESD/EMC robustness	Strong electrostatic discharge (ESD) protection and electromagnetic compatibility (EMC) avoid the need for external components
Supports ISO 26262 SafeAssure® functional safety with single package solution	Has functional verification and diagnostics
Low-level drivers	Simplifies software development and reduces switching cost

MC33771 AND MC33664 HIGH-VOLTAGE BATTERY MANAGEMENT SYSTEM



MC33664 AND MC33771 PRODUCTS



DEVELOPMENT TOOLS:

FRDM33771BTPLEVB

FRDM33771BSPIEVB

FRDM33664BEVB

www.nxp.com/battery

Document Number: MC33664FSA4 REV 4

Product Longevity

SAFE ASSURE by NXP