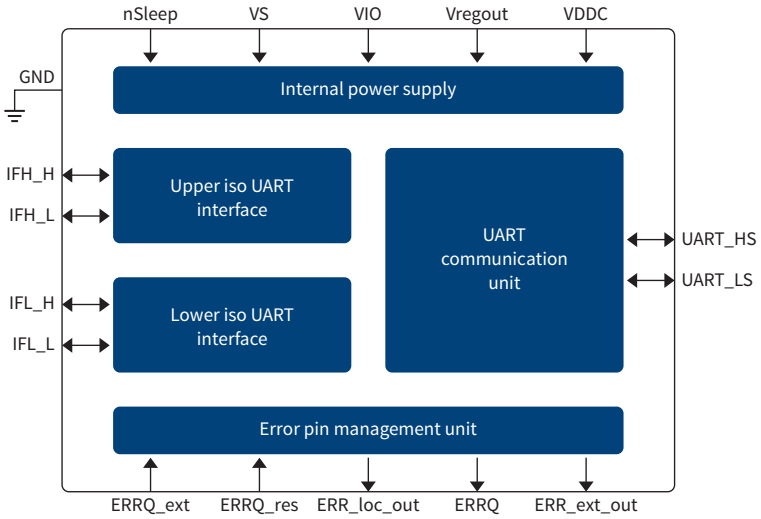
Product brief

Battery management transceiver IC TLE9015QU

The TLE9015QU is a general-purpose transceiver IC to be used in multi-cell battery systems to enable the communication between the main host microcontroller and the slaves in the battery. The IC is designed for Li-Ion battery packs used in Hybrid Electric Vehicles (HEV), Plug-in Hybrid Electric Vehicles (PHEV), Battery Electric Vehicles (BEV) as well as stationary Lithium-Ion batteries. The TLE9015QU enables communication by connecting several TLE9012AQU devices in a daisy chain inside a Li-Ion battery. By means of its two UART and iso UART interface pairs it can support ring communication ensuring a cost optimized robust system solution. It also enables bidirectional information flow by including an error management unit including several inputs and outputs that are programmable on each TLE9012AQU.

Target applications

- Hybrid Electric Vehicle (HEV)
- Plug-in Hybrid Electric Vehicle (PHEV)
- Battery Electric Vehicle (BEV)
- Energy Storage System (ESS)
- Home Energy Storage System (HESS)
- Commercial, Construction and Agricultural Vehicles (CAV), other small vehicles (e.g. eScooter, eBike, etc.)



Features

- Two UART ports for serial communication to host microcontroller
- Two iso UART ports for daisy chain communication inside battery pack
- Fully transparent communication scheme from µC to sensing IC
- Ring mode topology compatible (only 1 device needed)
- CRC check for communication integrity (no CRC modification)
- High robustness against external noise
- General purpose error pin
- Two external fault inputs with internal latching
- Error output pin to trigger external microcontroller
- Internal supply monitoring
- Low energy sleep mode
- AEC-Q100 qualified

Benefits

- Robust communication without need of transformers or common mode chokes
- Master-on-top or master-on-bottom selectable without tedious configuration
- Bi-directional communication scheme using error management logic
- Ring mode topology ensuring a cost optimized robust system solution

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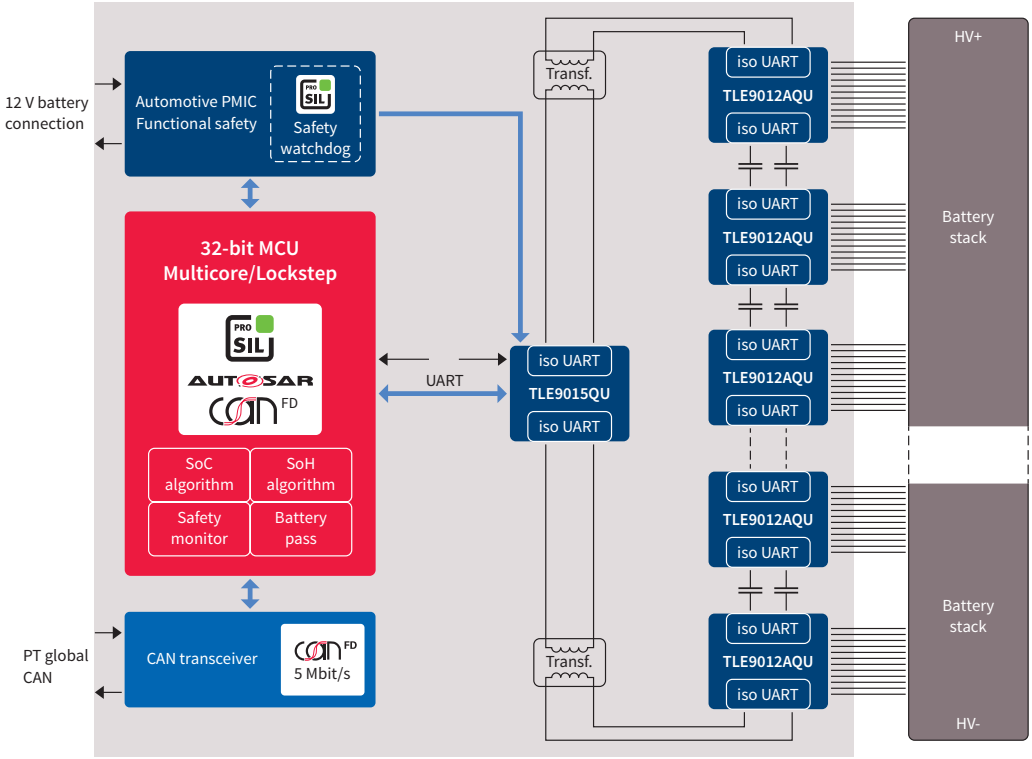
Application diagram



The battery management system is in charge of monitoring each of the cells included in a battery pack and ensuring that they are operated within the safe operating range.

Parametrics TLE9015QU

Isolated communication interface	Iso UART
Non-isolated communication interface	UART
Voltage class	75 V
Number of UART interfaces	2
Number of iso UART interfaces	2
Communication maximum bandwidth	2 Mbps
Stand-by current	3 µA
ESD protection	4 kV
T_j max	150 °C
Package	PG-TQFP-48

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