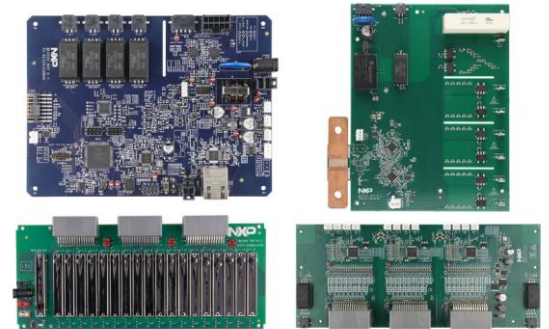


NXP 1500V Battery Energy Storage System (BESS)

Overview

The NXP ESS is a production-grade battery management system reference design. It is an IEC 61508 and IEC 60730 compliant architecture of up to 1500V intended for a variety of high-voltage battery management solutions for utility, commercial, industrial and residential energy storage. NXP ESS is a complete hardware, software and safety package encompassing product safety libraries and documentation considering pre-certification for IEC 61508 SIL 2 and IEC 60730 Class B.



Core Chips

NXP --MC33774/MC33772C
NXP -- PFS2633
NXP -- MC33665A

NXP -- S32K358
NXP -- MC33XS2410

Features

- 2.0 Mbps differential communication or 4.0 Mbps SPI.
- Support redundant measurement, which can be achieved through balanced channel redundancy. A single chip supports up to 18-cell measurement.
- Support up to 9 GPIOs, TPL3 protocol(64—112Bit).16-bit high-precision current sampling channel.
- Support CAN、Ethernet、UART、CAN/CAN-FD SPI
- Utilizes MC33665 as the gateway connected to the battery cell end to receive uploaded data from the daisy-chain network.
- Complies with IEC61508 SIL 2 and IEC60730 Class B standards, ensuring functional safety requirements for application standards including UL9540, UL1973, IEC62933 and IEC62619 are met.

Applications

High-voltage battery energy storage system, Automotive BMS

Block Diagram

