Electric Vehicle (EV) Traction Inverter

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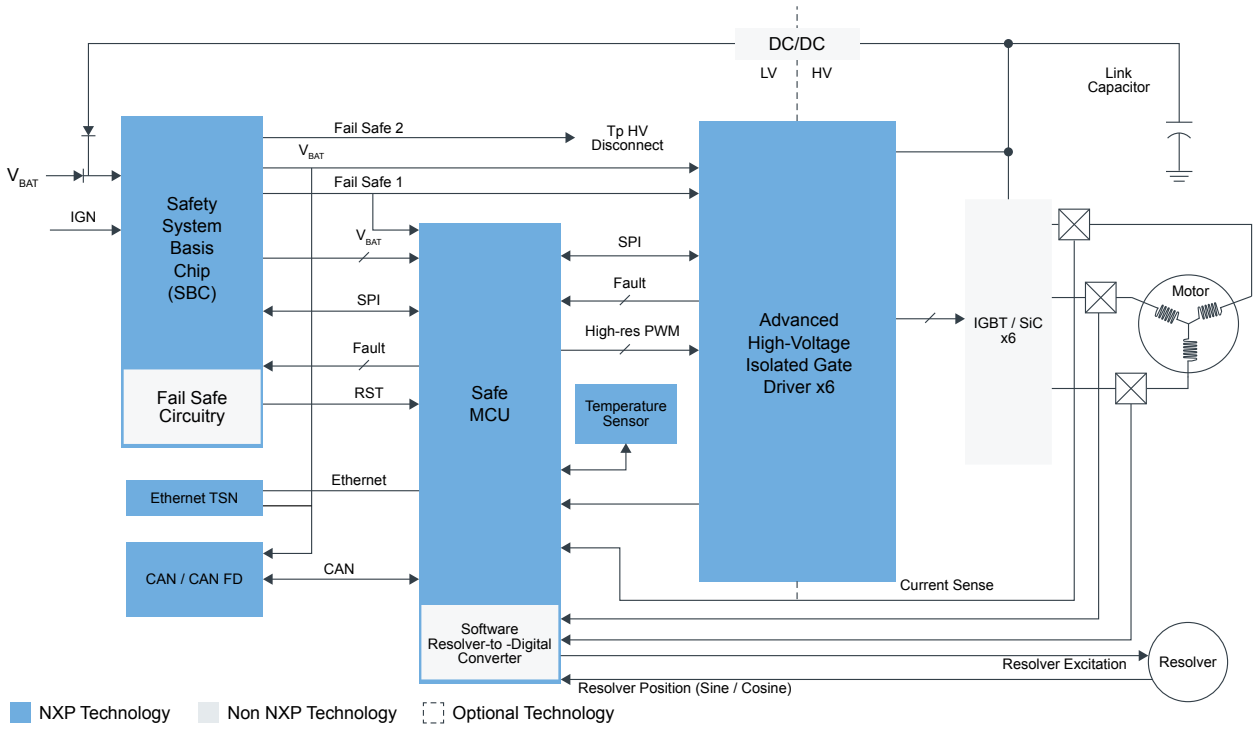
The NXP EV traction inverter is a critical component in electric vehicles which is responsible for converting DC power from the battery to AC power to drive the traction motor. It must deliver high power levels (from 80 to over 200 kW), withstand high temperatures and be lightweight.

NXP's EV traction inverter system solution features multicore lockstep MCUs, safety SBCs, CAN, Ethernet PHY and high-voltage gate drivers to control power conversion to the traction motor with high efficiency and reliability.

NXP's system solution delivers a rich set of motor control software packages to accompany the optimized hardware. The EV traction inverter system also provides precise control, monitoring and protection of high-power switches for energy efficiency and reliability. The system gives accurate and efficient motor speed and torque control and enables ASIL D compliance with ISO 26262 requirements.

To support customers in their traction inverter development and reduce time to market, NXP offers an easy-to-use EV Power Inverter Control Reference Platform with system enablement software. These design platforms include schematics, BoMs, layout files and safety documentation for use with either IGBTs and SiC MOSFET modules.

Traction Inverter Block Diagram



Recommended Products for Traction Inverter	
Safety System Basis Chip (SBC)	• FS26: Safety System Basis Chip with Low Power, for ASIL D Systems • FS6500: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver
CAN / CAN FD	• TJA1462: CAN Signal Improvement Capability Transceiver with Standby Mode • TJA1152: Secure HS-CAN Transceiver with Standby Mode • TJA1044: High-Speed CAN Transceiver with Standby Mode - Mantis Family
Safe MCU	• S32K39-37: S32K39/37/36 Microcontrollers for Electrification Applications
Advanced HV Isolated Gate Driver (x6)	• GD3162: Advanced High Voltage Isolated Gate Driver with Dynamic Gate Strength Control • GD3160: Advanced High Voltage Isolated Gate Driver with Segmented Drive for SiC MOSFETs

	• GD3100: Advanced High Voltage Isolated Gate Driver for IGBT and SiC MOSFETs
Ethernet TSN	• TJA1103: TJA1103, ASIL B Compliant Automotive Ethernet 100BASE-T1 PHY Transceiver • TJA1101: TJA1101B, IEEE 100BASE-T1 Compliant Automotive Ethernet PHY Transceiver
Temperature Sensor	• P3T1755DP: I3C/I^{2}C-Bus ±0.5 °C Accurate Digital Temperature Sensor • P3T1750DP: I3C/I^{2}C-Bus, ±1 °C Accuracy, Digital Temperature Sensor

View our complete solution for Electric Vehicle (EV) Traction Inverter.

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