



# EV Power Inverter

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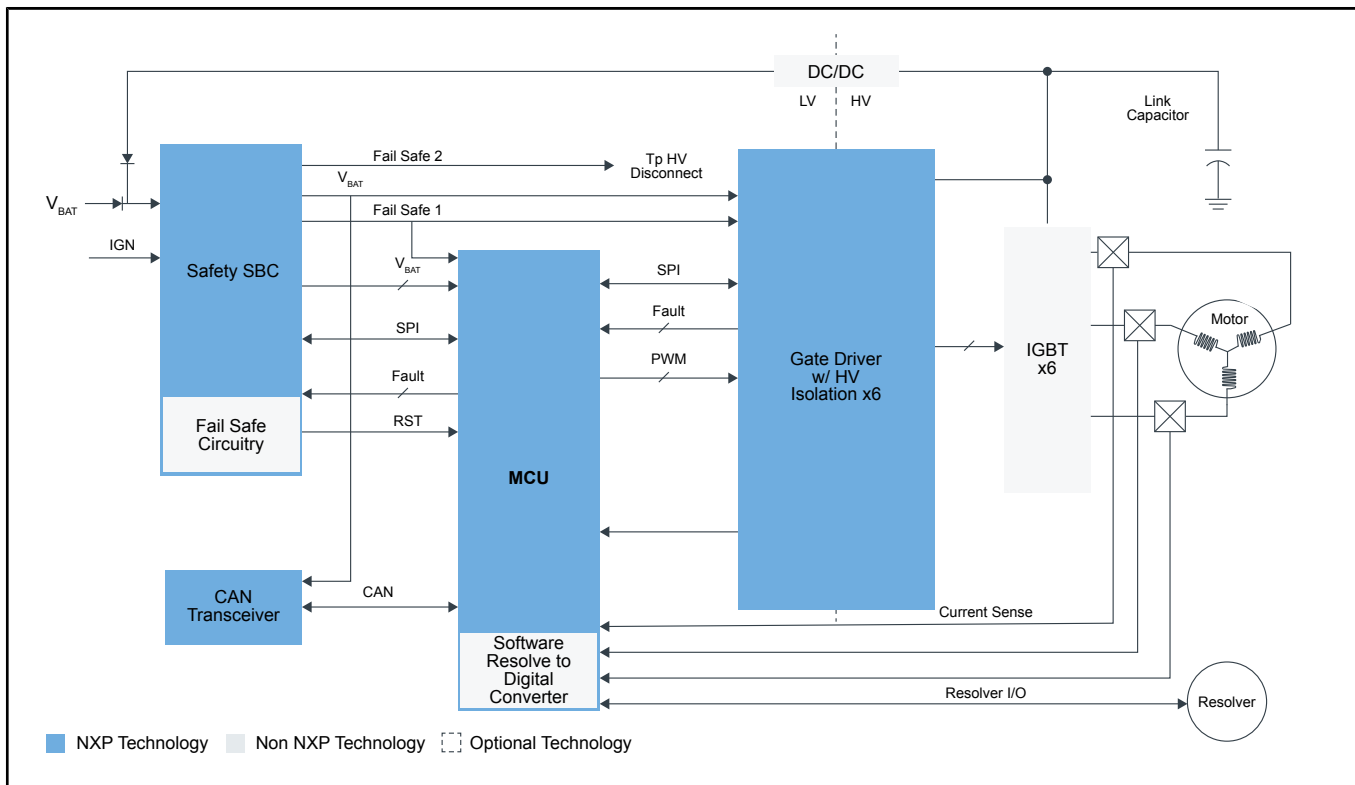
EV traction inverters must provide high power – in the range of 80 to 200+ kW- to the traction motor, withstand high temperatures and be as small and as light as possible. Key performance parameters for inverters are high efficiency - for longer battery life, high-power density - for small size and low weight, and high levels of functional safety to protect the vehicle operator and systems.

The inverter converts energy from the high-voltage battery to multiphase AC current to drive the traction motor, which is a 3-phase inductive load. Electronics in the inverter control this power conversion to the traction motor with highest possible efficiency and reliability and therefore:

- Precisely control, monitor and protect the high power switches to achieve energy and high reliability
- Accurately and efficiently control the motor speed and torque
- Enable the highest level of functional safety in compliance with ISO 26262 requirements

NXP components for implementing inverter control applications include multicore, lockstep MCUs, SBCs, CAN PHYs and high-voltage gate drivers, all implemented with ASIL D system level functional safety capabilities. To enable customers with a solid foundation for their system development, NXP offers easy-to-use design platforms with system enablement software to speed inverter development. In addition to components and software, these design platforms include schematics, BoMs, layout files and safety documentation for use with either IGBTs or SiC MOSFET modules.

## Power Inverter Block Diagram



#### Recommended Products for Power Inverter

Motor & Gate Driver	<ul style="list-style-type: none"> <li>• <a href="#">GD3100</a>: Advanced Single-Channel Gate Driver for Insulated Gate Bipolar Transistors and Silicon Carbide MOSFETs</li> <li>• <a href="#">GD3160</a>: Advanced Single-Channel High-Voltage Isolated Automotive Gate Driver for SiC MOSFETs/IGBTs</li> </ul>
Microcontrollers (MCU)	<ul style="list-style-type: none"> <li>• <a href="#">S32S Microcontrollers for Safe Vehicle Dynamics</a></li> <li>• <a href="#">MPC5775B and MPC5775E Microcontrollers for Battery Management Systems (BMS) and Inverter Applications</a></li> <li>• <a href="#">NXP GreenBox Vehicle Electrification Development Platform</a></li> <li>• <a href="#">MPC5777C</a>: Ultra-Reliable MPC5777C MCU for Automotive and Industrial Engine Management</li> <li>• <a href="#">MPC574xP</a>: Ultra-Reliable MPC574xP MCU for Automotive &amp; Industrial Safety Applications</li> </ul>
Safety SBC	<ul style="list-style-type: none"> <li>• <a href="#">FS4500</a>: Grade 1 and Grade 0 Safety Power System Basis Chip with CAN Flexible Data Transceiver</li> <li>• <a href="#">FS26</a>: Safety System Basis Chip (SBC) with Low Power Fit for ASIL D</li> </ul>
CAN Transceiver	<ul style="list-style-type: none"> <li>• <a href="#">CAN Transceivers</a>: CAN Transceivers</li> </ul>

View our complete solution for [EV Power Inverter](#).

**Note:** The information on this document is subject to change without notice.

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