S12ZVM 12 V Electrical Fuel Pump (EFP) Reference Design

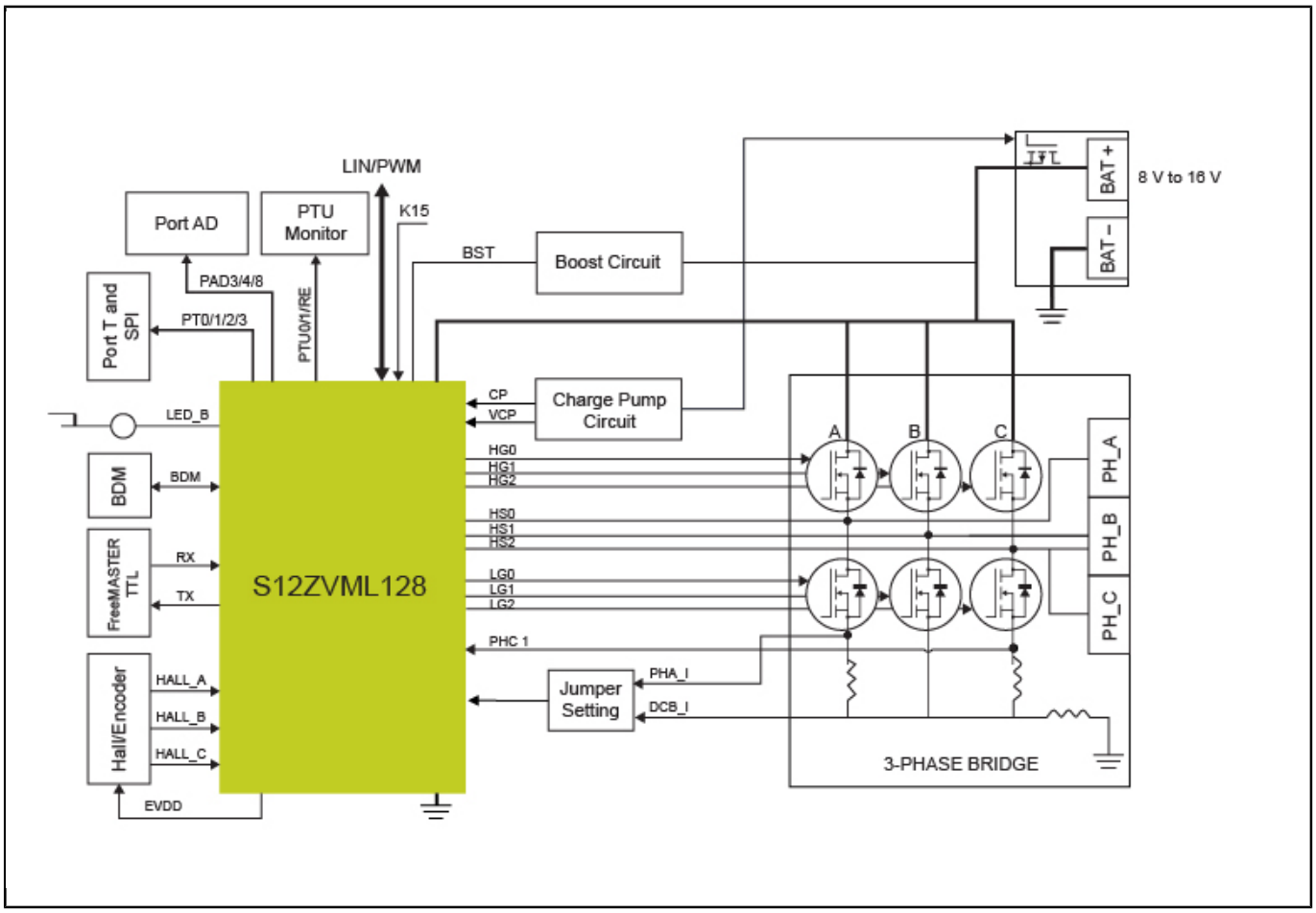
S12ZVM-EFP

Last Updated: Jun 24, 2026

The S12ZVM-EFP is an out-of-box reference design board engineered for 12 V 3-phase permanent magnet synchronous motor (PMSM) automotive electrical fuel pump (EFP).

Based on the 16-bit S12 MagniV® S12ZVM mixed-signal microcontrollers, the S12ZVM-EFP uses smooth cross-over I-F start-up and initial position detection (IPD) algorithm to ensure the robust and fast start-up for achieving the strict goal of below 150 ms from standstill to rated speed.

S12ZVM-EFP Block Diagram



View additional information for S12ZVM 12 V Electrical Fuel Pump (EFP) Reference Design.

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

www.nxp.com
NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2026 NXP B.V.