



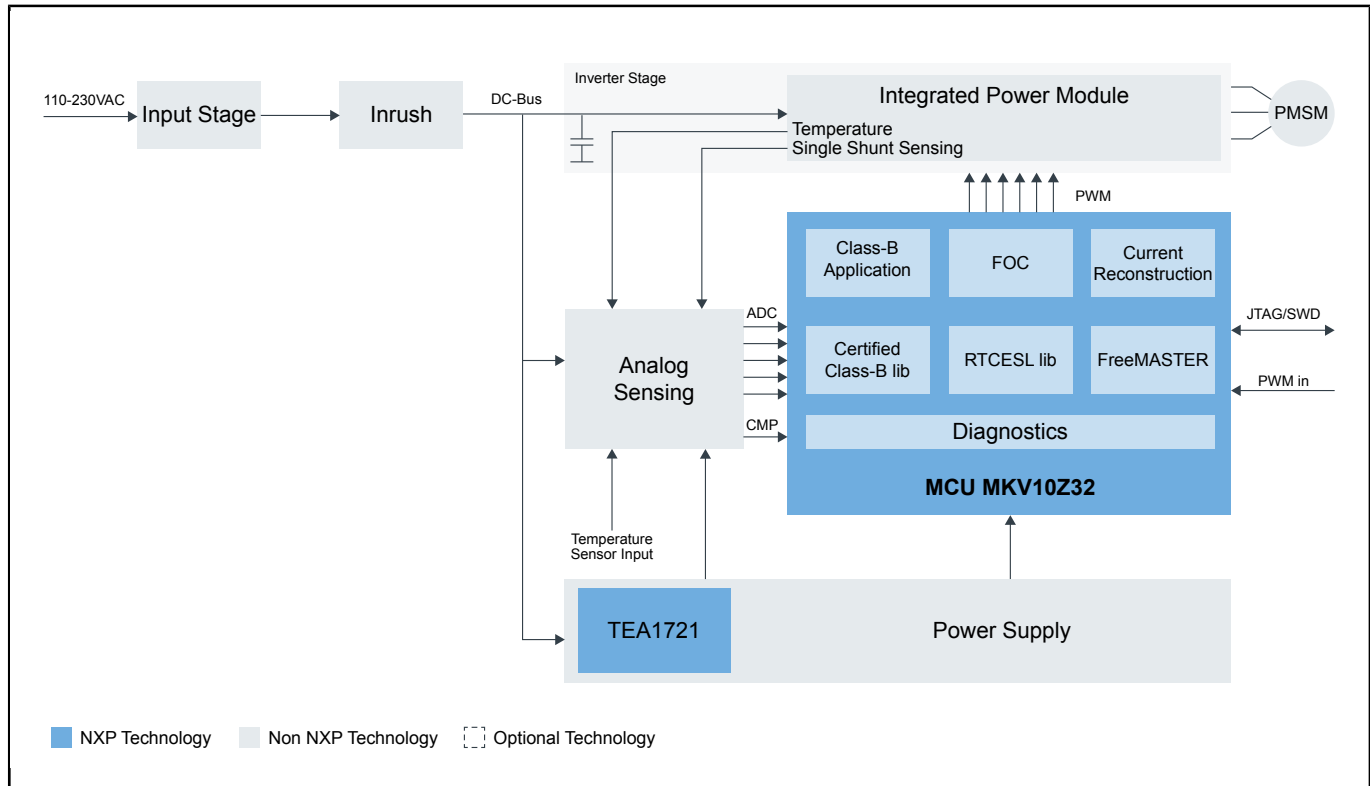
Circular Pump Inverter Reference Design

CIRCULAR-PUMP-INVERTER-RD

Last Updated: Nov 15, 2022

This reference design introduces PMSM safety motor control SW optimized for dedicated HW HVP-MC3PH-LITE equipped with Kinetis V series MCU. The aim of the reference design is help customers to develop motor control solutions with safety features intended for controlled heating systems, electric circulation pumps, service water installation and other devices used in industrial applications. Reference design HW is targeted to circular pump application sector but could be reused for general 3-phase motor control applications up to 60 W with AC supply 110 V to 230 V. Reference design HW utilizes NXP cost optimized MCU MKV10Z32 with core M0+ and NXP high-voltage DC-DC converter TEA1721. There is also implemented integrated power module, inrush circuit and single shunt current sensing. In reference design SW there is implemented sensorless PMSM control with IEC60730/IEC60335 Class B appliance safety including MCU core, memory and peripheral tests, program flow check and additional safety-related features. Customers could reuse design reference manuals, schematics, firmware and manufacturing files to speed up product design.

Circular Pump Inverter Block Diagram Block Diagram



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