Permanent magnet synchronous motors (PMSM) are typically used for high-performance and high-efficiency motor drives. High-performance motor control is characterized by smooth and accurate rotation over the entire speed range of the motor. NXP provides a comprehensive development ecosystem to support a rapid design of motor control devices that integrates PMSM.

3 Phase PMSM Block Diagram

Recommended Products for 3 Phase PMSM

<table>
<thead>
<tr>
<th>MCU</th>
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<tr>
<td>* MCX-N94X-N54X: MCX N94x and N54x MCUs with Dual Core Arm® Cortex®-M33, eIQ® Neutron NPU and EdgeLock® Secure Enclave Core Profile</td>
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### S32M2: S32M2 Integrated Solution for 12V Motor Control
- S32K3: S32K3 Microcontrollers for Automotive General Purpose
- 
- KV Series Arm Cortex-M4/M0+/M7: KV Series: Real-Time Motor Control and Power Conversion MCUs Based on Arm® Cortex®-M0+/M4/M7
- KE Series Arm Cortex-M4/M0+: Kinetis® E Series: 5V, Robust Microcontrollers (MCUs) Based on Arm® Cortex®-M0+/M4 Core
- S32K1: S32K1 Microcontrollers for Automotive General Purpose

### Power stage driver
- MC33937: 3-Phase Field Effect Transistor Pre-Driver
- GD3100: Advanced High Voltage Isolated Gate Driver for IGBT and SiC MOSFETs

### Motor Control Software
- FreeMASTER Run-Time Debugging Tool
- RTCESL: Real Time Control Embedded Software Motor Control and Power Conversion Libraries
- Model-Based Design Toolbox (MBDT)
- Motor Control Application Tuning (MCAT) Tool

### Voltage regulator
- MC33730: Power Supply with Multiple Linear Regulators
- MC33903: SBC Gen2 with High-Speed CAN and LIN
- MC33904: System Basis Chip Gen2 with High Speed CAN
- MC33905: SBC Gen2 with High-Speed CAN and LIN
- MC34717: 5.0 A, 1.0 MHz Integrated Dual Switch-Mode Power Supply

### Security (EdgeLock Discrete)
- EdgeLock® SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility

### View our complete solution for Permanent Magnet Synchronous Motor (PMSM).

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

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