



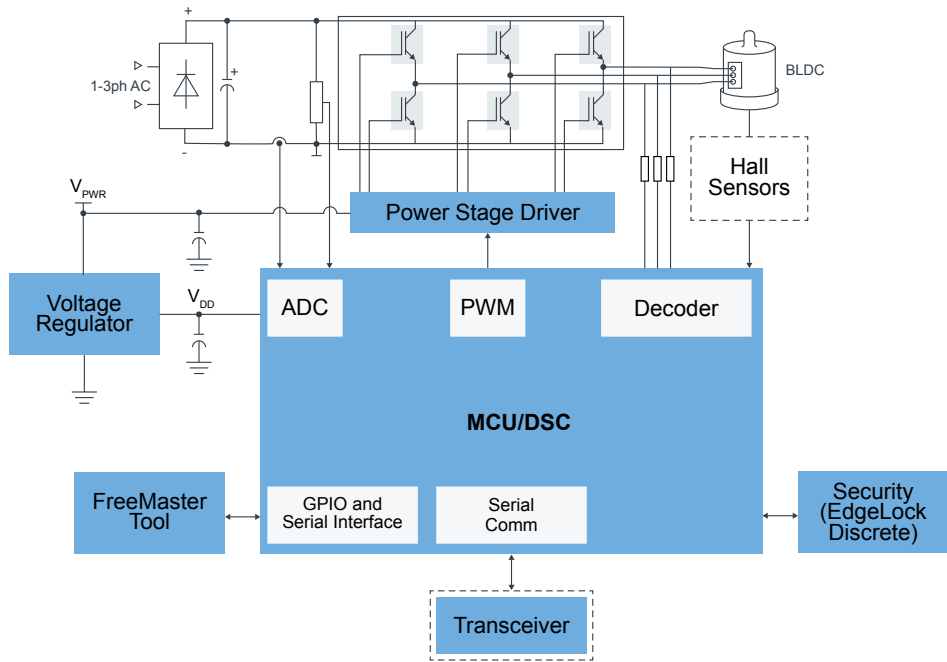
Brushless DC Motor (BLDC) Control

Last Updated: Apr 7, 2024

The brushless DC (BLDC) motor is also referred to as an electronically commutated motor. There are no brushes on the rotor and commutation is performed electronically at certain rotor positions. The stator magnetic circuit is usually made from magnetic steel sheets. One of the recently popular brushless motor control techniques is Field Oriented Control (FOC).

NXP's broad portfolio and extensive documentation allows you to ease the development effort for BLDC control applications.

BLDC Block Diagram



NXP Technology
 Non NXP Technology
 Optional Technology

Recommended Products for BLDC

MCU/DSC

- [MCX-A14X-A15X](#): MCX A14x/15x MCUs with Arm® Cortex® M33, Scalable Device Options, Low Power and Intelligent Peripherals
- [MCX-N94X-N54X](#): MCX N94x/54x Highly Integrated Multicore MCUs with On-Chip Accelerators, Intelligent Peripherals and Advanced Security
- [S32M2](#): S32M2 Integrated Solution for 12V Motor Control
- [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
- [Digital Signal Controllers](#): Digital Signal Controllers
- [LPC5500 Arm Cortex-M33](#): LPC5500 Series: Arm® Cortex®-M33 Based Microcontroller Series for Mass Market, Leveraging 40nm Embedded Flash Technology
- [MCX Arm Cortex-M](#): MCX Industrial and IoT Microcontrollers

	<ul style="list-style-type: none"> • S32K Auto General-Purpose MCUs: S32K Automotive General-Purpose Microcontrollers
Power Stage Driver	<ul style="list-style-type: none"> • 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 • GD3000: 3-Phase Brushless Motor Pre-Driver • MC33937: 3-Phase Field Effect Transistor Pre-Driver
Voltage regulator	<ul style="list-style-type: none"> • Power Management: Power Management
Software	<ul style="list-style-type: none"> • FreeMASTER Run-Time Debugging Tool • RTCESL: Real Time Control Embedded Software Motor Control and Power Conversion Libraries • Model-Based Design Toolbox (MBDT)
Transceiver	<ul style="list-style-type: none"> • CAN Transceivers: CAN Transceivers • CAN with Flexible Data Rate: High Speed CAN with Flexible Data Rate (CAN FD) • CAN Signal Improvement: CAN Signal Improvement Capability (SIC) • Secure CAN Transceivers: Secure TJA115x CAN Transceiver Family
Security (EdgeLock Discrete)	<ul style="list-style-type: none"> • SE050: EdgeLock[®] SE050: Plug and Trust Secure Element Family – Enhanced IoT security with high flexibility

View our complete solution for [Brushless DC Motor \(BLDC\) Control](#).

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. © 2024 NXP B.V.