

# Melexis

## Evaluation Board BLDC Pre-Driver MLX83203-MLX83202

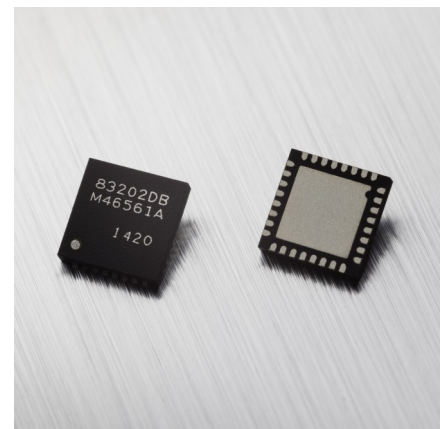
[www.melexis.com/product/MLX83203](http://www.melexis.com/product/MLX83203)

### 3-Phase Brush-Less DC Pre-Driver

The MLX83203 is a 3-phase pre-driver (also called 'bridge' or 'gate' driver) IC with integrated current sense amplifier. The device is used to drive brush-less DC motors in combination with a microcontroller and 6 discrete power N-FETs with gate charge up to 350nC at 20kHz. The IC supports 3x half bridge control in the supply range from 4.5V to 28V, by means of the integrated charge pump. The high side gate drivers are supplied via bootstrap circuits equipped with a trickle charge pump allowing 100% PWM operation. The device comprises various monitoring and protection features with a serial interface to the microcontroller for detailed diagnostics information. A fast, high-bandwidth, current sense amplifier with programmable gain and configurable offset is integrated. Customers can optimize the pre-driver operation to their requirement by end-of-line or in-application EEPROM programming.

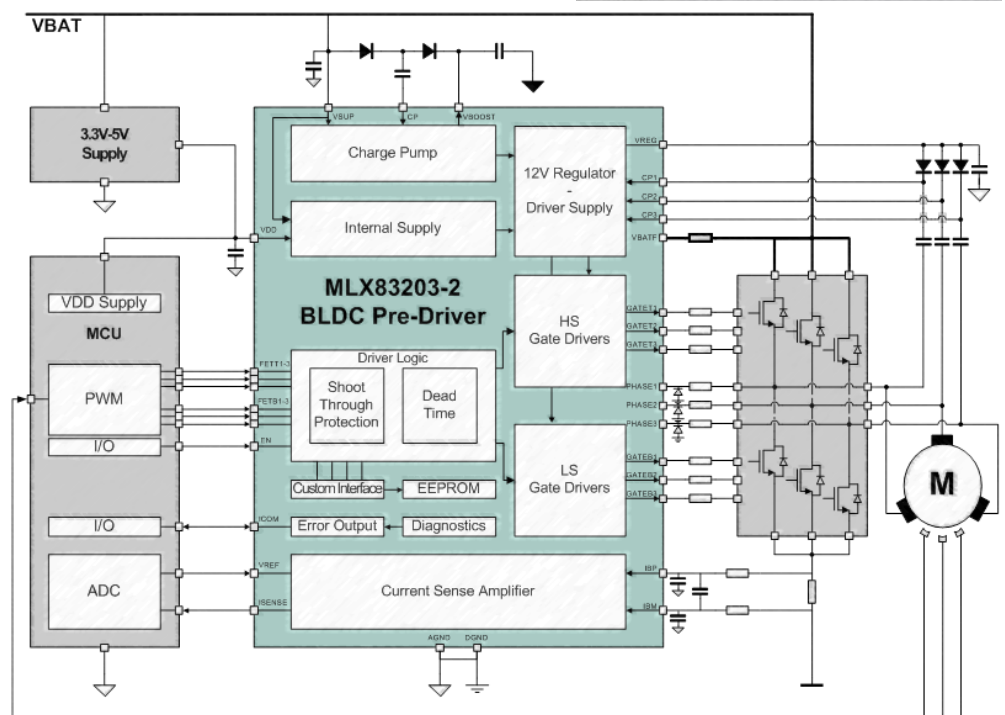
#### Key features

- ✓ Integrated charge pump supports 4.5V-28V operation, and supports reverse recovery N-FET
- ✓ Supports 3x half-bridge operation with N-FETs up to 350nC at 20kHz
- ✓ Integrated fast current sense amplifier with configurable gain and offset
- ✓ Extensive diagnostic & protection features, serial interface for detailed diagnostics feedback
- ✓ Customer configurable EEPROM via end-of-line or in-application programming
- ✓ Automotive qualified, AEC-Q100 grade 1 for junction temperature up to 150°C
- ✓ Similar product for brushed DC motors MLX83100
- ✓ QFN32-EP package (5x5mm)



#### Key applications

- ✓ Automotive market
- ✓ Industrial & Robotics
- ✓ Power tools
- ✓ Fans & Blowers
- ✓ Water | Oil | Fuel pumps
- ✓ Servo motors
- ✓ Compressors

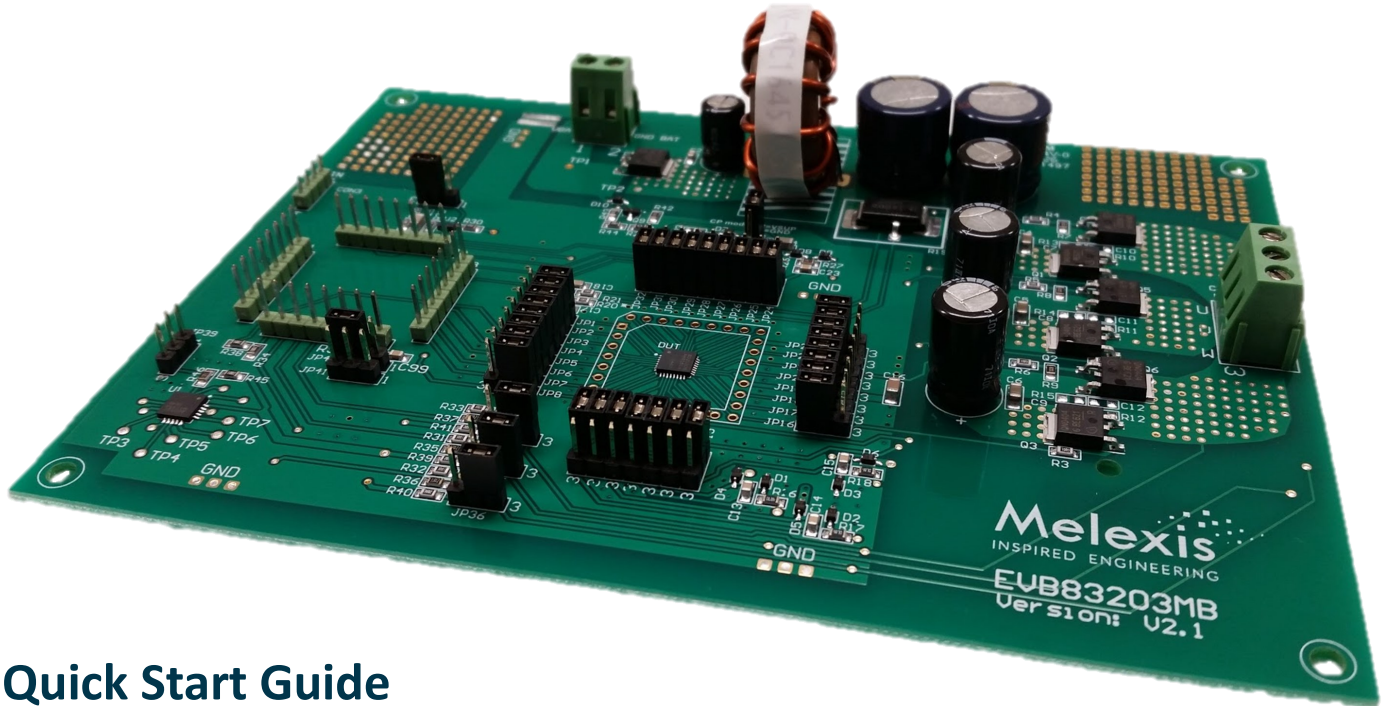


Melexis

# Evaluation Board BLDC Pre-Driver MLX83203-MLX83202

[www.melexis.com/product/MLX83203](http://www.melexis.com/product/MLX83203)

## Evaluation Board BLDC Pre-Driver EVB83203



## Quick Start Guide

- ✓ Connect power supply on top of PCB
- ✓ Connect brush-less DC motor on right of PCB
- ✓ Connect microcontroller to pin headers P1-P2-P3-P4
  - ✓ P4 : Supply for microcontroller
  - ✓ P2 : 3x downsampled back-EMF signals and current sense feedback compatible with 2.5V ADC, for sensor-less motor control/
  - ✓ P1 : Connection to MLX80051 LIN SBC
  - ✓ P3 : Control signals for pre-driver: 3x high-side & 3x low-side FET inputs, EN-input and ICOM feedback
- ✓ Check ICOM (CON1-pin11) diagnostics feedback and acknowledge all errors
- ✓ Pull EN (CON1-pin12) to VDD
- ✓ Let microcontroller drive 3x high-side & 3x low-side FET inputs depending on motor control algorithm
- ✓ **Brush-less DC motor can now be controlled by the MCU**
- ✓ For more detailed information visit [www.melexis.com/product/MLX83203/](http://www.melexis.com/product/MLX83203/)

### Disclaimer:

Devices sold by Melexis are covered by the warranty and patent indemnification provisions appearing in its Term of Sale. Melexis makes no warranty, express, statutory, implied, or by description regarding the information set forth herein or regarding the freedom of the described devices from patent infringement. Melexis reserves the right to change specifications and prices at any time and without notice. Therefore, prior to designing this product into a system, it is necessary to check with Melexis for current information. This product is intended for use in normal commercial applications. Applications requiring extended temperature range, unusual environmental requirements, or high reliability applications, such as military, medical life-support or life-sustaining equipment are specifically not recommended without additional processing by Melexis for each application. The information furnished by Melexis is believed to be correct and accurate. However, Melexis shall not be liable to recipient or any third party for any damages, including but not limited to personal injury, property damage, loss of profits, loss of use, interrupt of business or indirect, special incidental or consequential damages, of any kind, in connection with or arising out of the furnishing, performance or use of the technical data herein. No obligation or liability to recipient or any third party shall arise or flow out of Melexis' rendering of technical or other services. © 2016 Melexis NV. All rights reserved.