

Melexis

# Evaluation Board DC Pre-Driver MLX83100

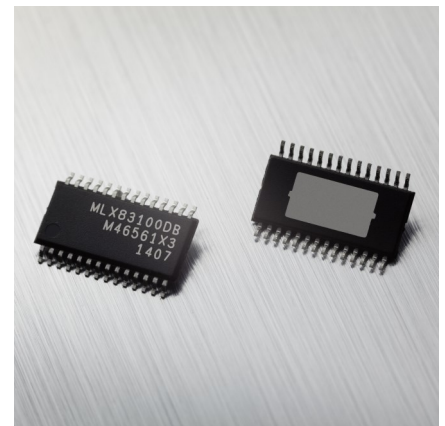
[www.melexis.com/product/MLX83100](http://www.melexis.com/product/MLX83100)

## 2-Phase Brushed DC Pre-Driver

The MLX83100 is a two phase pre-driver (also called 'bridge' or 'gate' driver) IC with integrated current sense amplifier. The device is used to drive brushed DC motors in combination with a microcontroller and 4 discrete power N-FETs with gate charge up to 500nC at 20kHz. The IC supports full H-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.

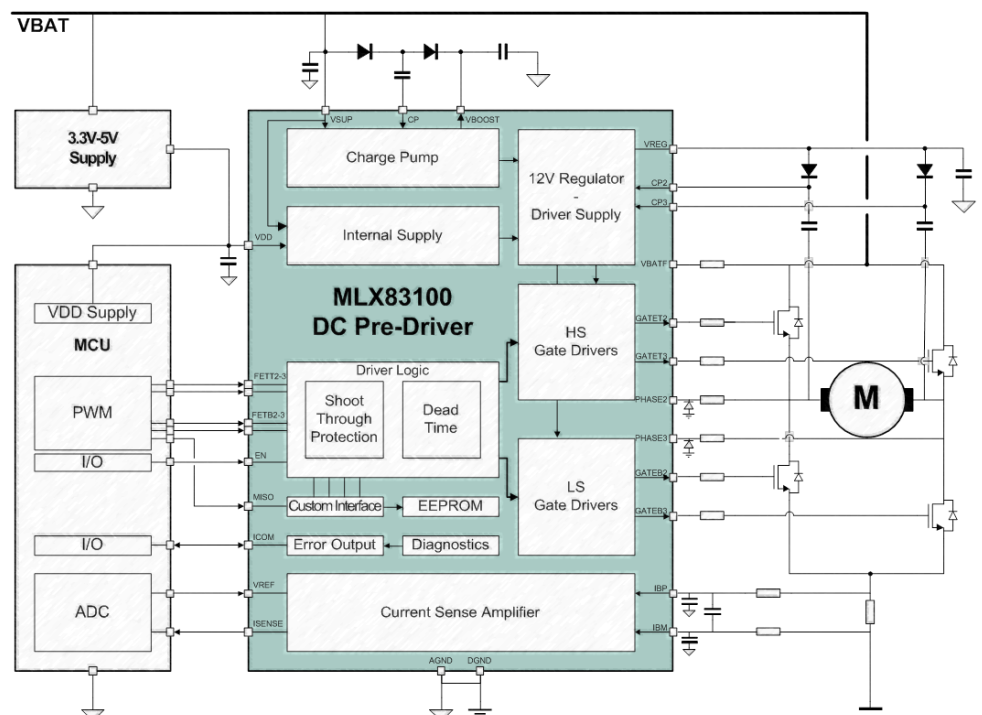
### Key features

- ✓ Integrated charge pump supports 4.5V-28V operation, and supports reverse recovery N-FET
- ✓ Supports full H-bridge operation with N-FETs up to 500nC 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 0 for junction temperature up to 175°C
- ✓ Similar product for brush-less DC motors MLX83203-MLX83202
- ✓ TSSOP28-EP package (4.4x9.8mm)



### Key applications

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

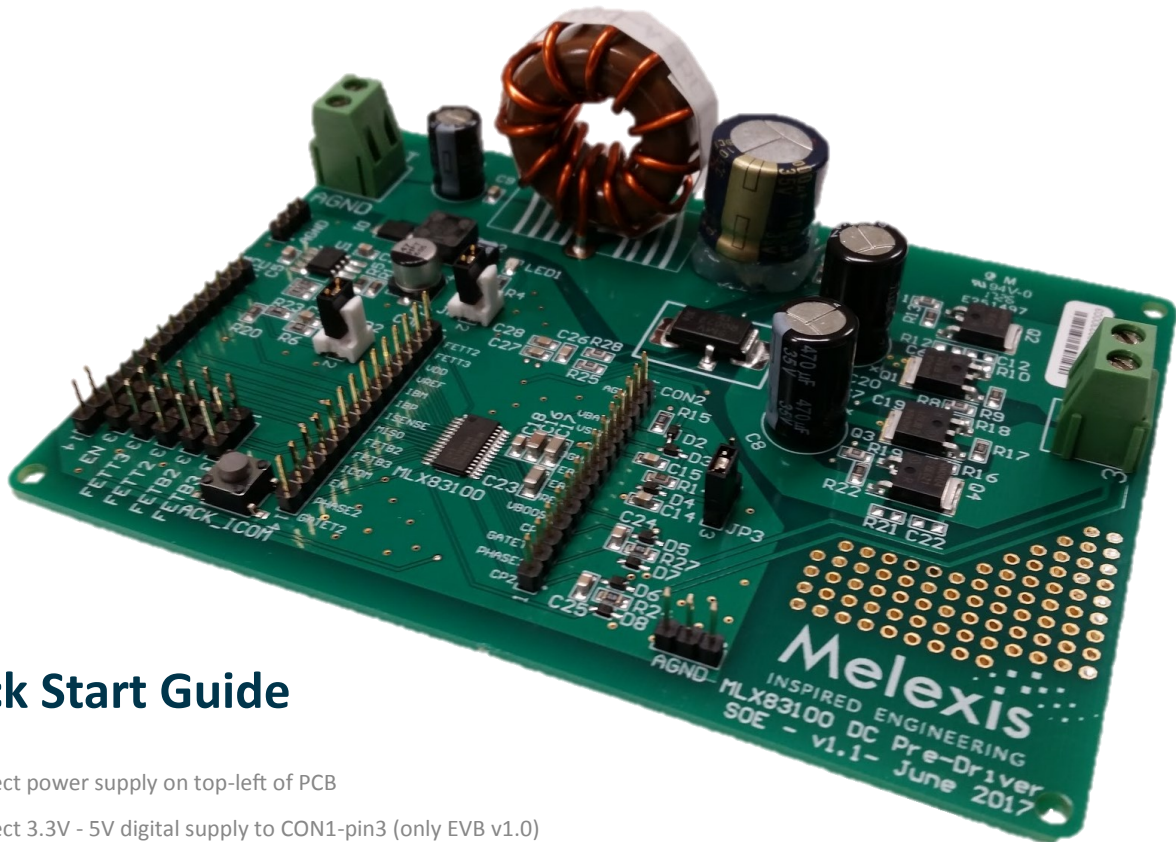


Melexis

# Evaluation Board DC Pre-Driver MLX83100

[www.melexis.com/product/MLX83100](http://www.melexis.com/product/MLX83100)

## Evaluation Board DC Pre-Driver EVB83100



## Quick Start Guide

- ✓ Connect power supply on top-left of PCB
- ✓ Connect 3.3V - 5V digital supply to CON1-pin3 (only EVB v1.0)
- ✓ Connect brushed DC motor on right of PCB
- ✓ Check ICOM (CON1-pin11) diagnostics feedback and acknowledge all errors via ACK\_ICOM push-button
- ✓ Pull EN to VDD by shorting jumper EN pins 1-2 (enable pre-driver stage)
- ✓ Pull FETT2 to GND by shorting jumper FETT2 pins 2-3 (disabling high-side N-FET2)
- ✓ Pull FETB2 to GND by shorting jumper FETB2 pins 2-3 (enabling low-side N-FET2, pulling PHASE2 to GND)
- ✓ Pull FETT3 to VDD by shorting jumper FETT3 pins 1-2
- ✓ Apply PWM signal to FETB3 via jumper FETB3 pin 2 (applying PWM on high-side N-FET3 & PHASE3, inverted PWM on low-side N-FET3)
- ✓ **Brushed DC motor can now be controlled by the PWM duty cycle**
- ✓ **Diagnostics and current feedback are available on CON1 pins 11-7 respectively**
- ✓ For more detailed information visit [www.melexis.com/product/MLX83100/](http://www.melexis.com/product/MLX83100/)

### 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.