

Melexis

# Evaluation Board DC Pre-Driver MLX83100

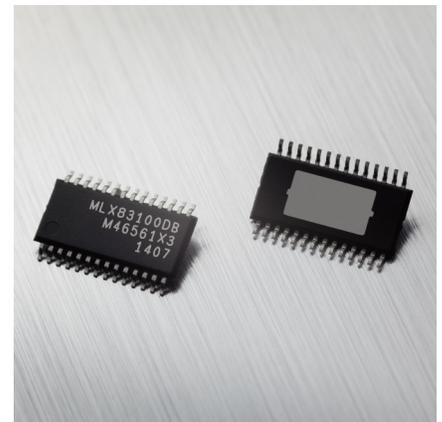
[www.melexis.com/product/MLX83100](http://www.melexis.com/product/MLX83100)

## 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.

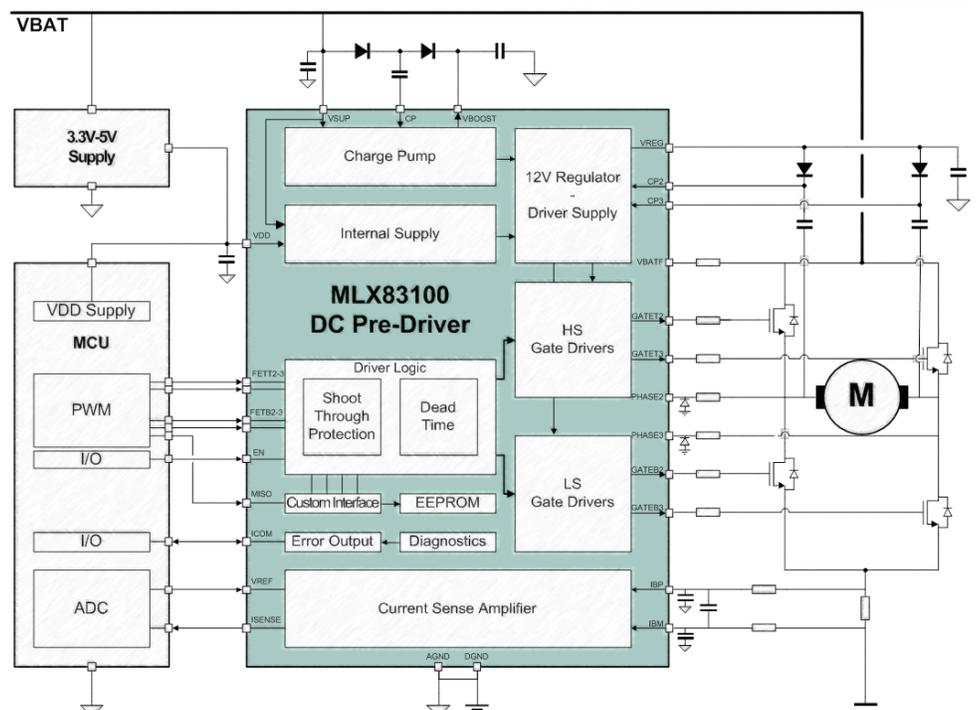
### Key features

- ✓ 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

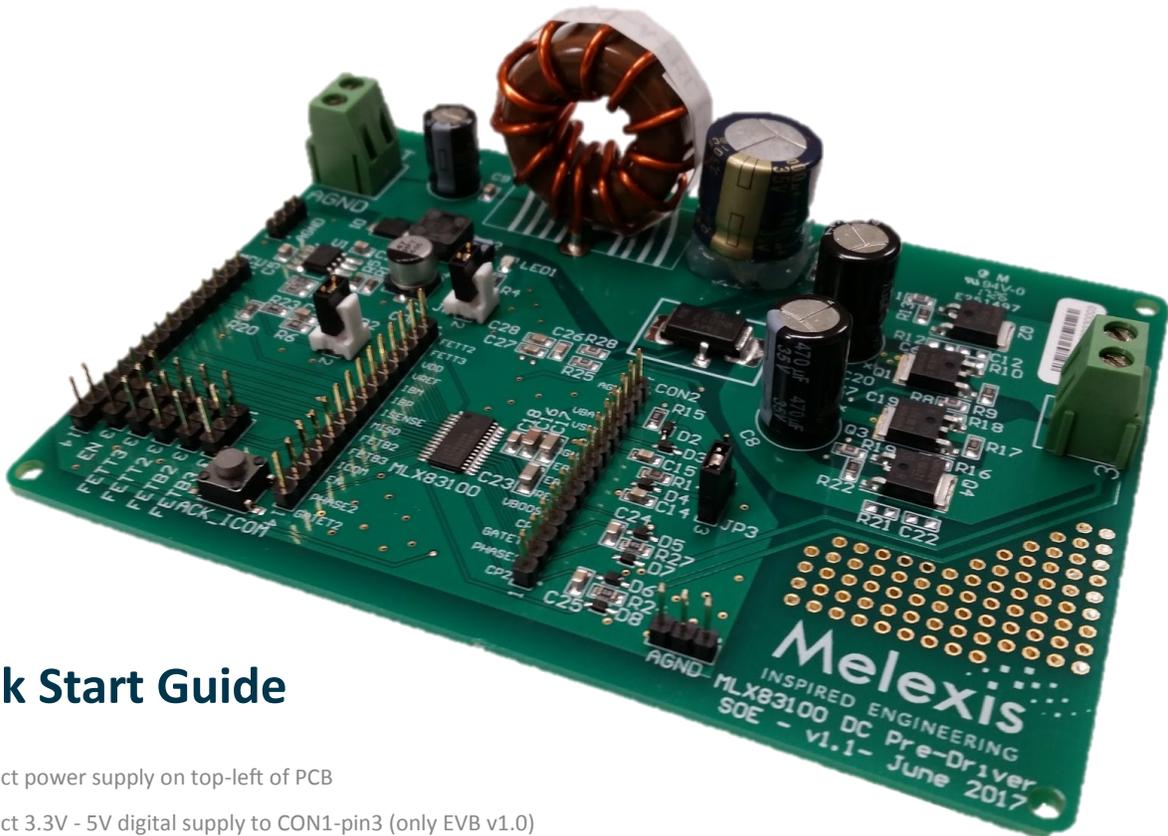


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## Evaluation Board DC Pre-Driver EVB83100



## 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/)

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