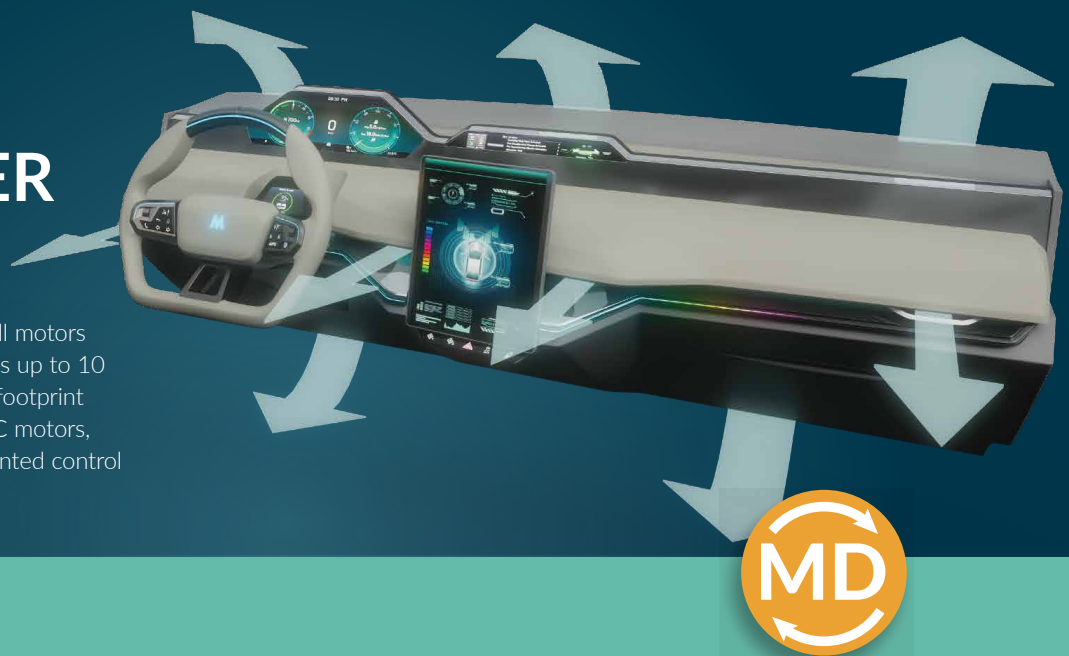


LIN MOTOR DRIVER

MLX81350

The MLX8135x is a gen-4 LIN driver for small motors targeting automotive mechatronic applications up to 10 W. These all-in-one LIN drivers enable small footprint applications to control BLDC, stepper and DC motors, and support sensed or sensorless field-oriented control (FOC) algorithms.



Key features

- ✓ **Motor driver**
 - Driver for DC/BLDC/Stepper motor
 - $R_{on} = 3\Omega$ for 1 half-bridge + shunt
 - 2x NFET for each half-bridge
 - On-chip charge-pump for top-NFETs
- ✓ **Microcontroller**
 - 3 core
- ✓ **Memories split per CPU**
 - MLX16-FX memories:
 - 32 KB Flash with ECC
 - 10 KB ROM / 2 + 3 KB RAM
 - 512 B EEPROM with ECC
 - MLX4 memories:
 - 6 KB ROM / 512 B RAM
- ✓ **Pin-compatible in SO8 and QFN24**
 - Compatible with Gen3 MLX81330
- ✓ **Periphery**
 - Configurable RC-clock **24..40** MHz
 - 4x / x8 general purpose IO's, digital, analog, 1x high-voltage input, **UART**, SPI, I2C-**Master** & slave
 - 5x 16-bit motor PWM timers
 - 2x 16-bit timers
 - Differential current sense amplifier
 - Temperature sensor, over-temperature detection
 - Over-current detection, over-voltage and under-voltage protection
- ✓ **Bus interface**
 - LIN 2.x/SAE J2602 and ISO17987-4 compliant LIN slave
- ✓ **Voltage regulators**
 - Internal voltage regulators, directly powered from 12V battery supply
 - Operating voltage $V_s = 5.5V$ to **28V**
 - Low standby current consumption of typ 25µA (max 50 µA) in sleep mode
 - Wake-up possible via LIN, external pins or internal wake-up timer
- ✓ **Automotive AEC-Q100 qualified**
- ✓ **Designed for safety applications according to ASIL B (ISO 26262)**
- ✓ **Maximum IC temperature** (with validated mission profile) $T_j = 175^\circ C$



Voltage regulator	RC clock	Timer	12-bit ADC auto-sequence
Flash + ROM	MLX16-FX 16-bit MCU + CoProcessor		Diagnostics
EEPROM	LIN controller		Motor voltage
RAM			Current sense
LIN tranceiver	4...8 x IO	5 x PWM	4x driver



DC OR BLDC MOTOR <5 W
Thermal valve
Blowers
HVAC flap
Grill shutter

Applications - Automotive

- Small Stepper / BLDC flap or valve, < 0.5 Apk (< 1 Apk) per phase
- Small DC flap / valve, or single-coil fan/pump, < 0.7 Apk (< 1.4 Apk)

MLX81350 - 32 KB Flash, QFN-24/SO8-ep, < 0.5 A



melexis.com/MLX81350