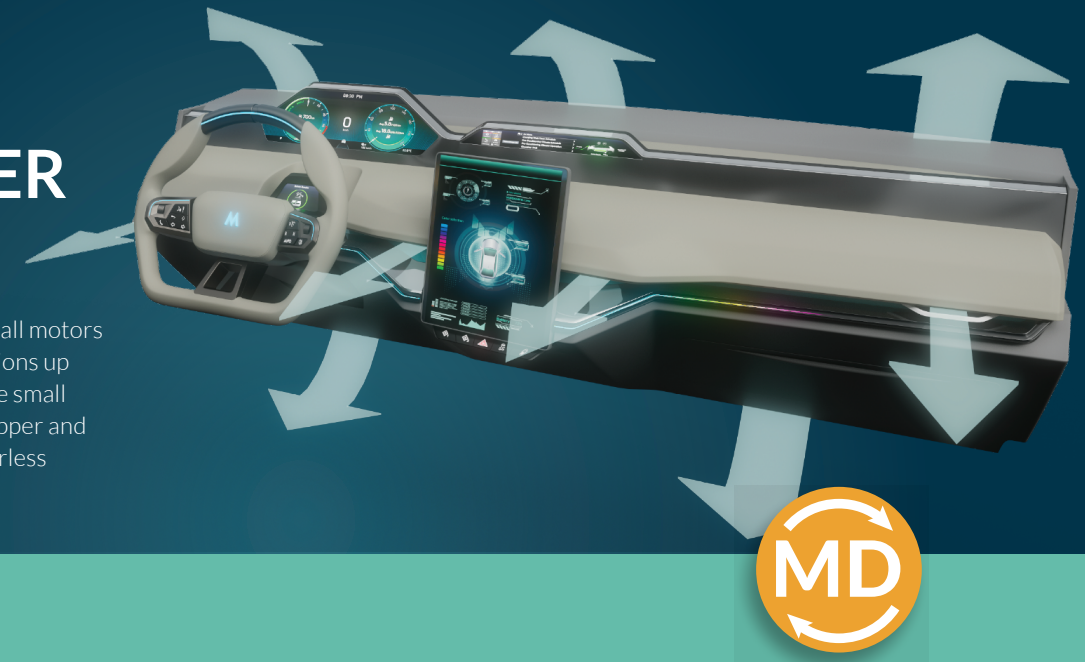
LIN MOTOR DRIVER

MLX81350-52-54

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 sensored or sensorless field-oriented control (FOC) algorithms.



Key features

Motor driver
- Driver for DC/BLDC/Stepper motor
- **Ron = 3Ω/0.8Ω** (1 half-bridge+shunt)
- 2x NFET for each half-bridge
- On-chip charge-pump for top-NFETs

Microcontroller & memory
- 3 core
- MLX16-FX, application CPU
  - **32 / 64 KB Flash** with ECC
  - 10 KB ROM, 2/4 + 3 KB RAM
  - 512 B EEPROM
- MLX4 memories:
  - 6 KB ROM, 512 B RAM

Gen3 pin-compatible SO8 / QFN24
- Compatible with Gen3 MLX81330, MLX81332 and MLX81334

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

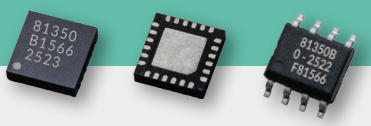
Bus interface
- LIN 2.x/SAE J2602 and ISO17987-4 compliant LIN slave

Voltage regulators
- Internal voltage regulators, directly powered from 12V battery supply
- Operating voltage Vs = 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) Tj = 175°C





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

LOCAL INTERCONNECT NETWORK



DC OR BLDC MOTOR <5 W/ 10W

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	32KB Flash MCU, QFN24, Motor drive < 0.5 A
MLX81352	32KB Flash MCU, QFN24, Motor drive < 1 A
MLX81354	64KB Flash MCU, QFN24, Motor drive < 1 A

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V2 / 11-2026 | *The datasheet specifications prevail*

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