

Product brief

MOTIX™ Motor Driver IC TLE9140EQW

3-Phase universal BLDC Motor Driver IC for diverse voltage applications ranging from 8~72 V

The TLE9140EQW is a 3-phase gate driver IC that can operate between 8 V to 72 V battery voltage. This new innovative IC perfectly complements MOTIX™ MCU devices allowing a scalable inverter solution from 8~72 V to maximize HW and SW re-use. The device is also compatible with diverse other Infineon or open market MCU products enabling a flexible application design.

This device is available in a TSDSO-32 (8.65 x 3.9 mm) package.

Key benefits

- In conjunction with MOTIX™ MCU
  - Easy approach and scaling for 24/48 V battery voltage applications
  - Optimized 24 V/48 V chipset comprising of MOTIX™ MCU and discrete motor driver IC using the supervision and protection functions from the SOC solution
  - Input pin is high voltage compatible which allows the device to be controlled by the output of the MOTIX™ MCU, hence additional GPIO Pins are made available for other functions
  - Maximize re-use of MOTIX™ MCU motor control software for faster time-to-market
- Product also allows for flexible MCU selection for increased flexible application design
- Max junction temp of 175°C to support challenging mission profiles
- Configurable low side freewheeling features protects the 48 V system from overvoltage damage
- Small packaging design TSDSO-32 saving space and weight (8.65 x 3.9 mm @ body size, 52 mm^2 PCB footprint)
- Development acc. to ISO 26262 achieving ASIL B

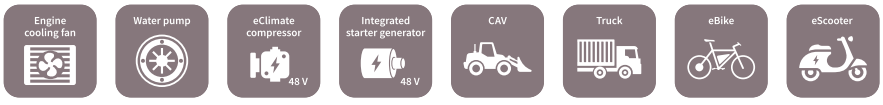
Key features

- High voltage capability/robustness up to 110 V
- Gate driving capability: ~230 µC/MOSFET up to 25 kHz
- Gate-shaping feature
- Active LS freewheeling during VSM OV
- Drain-source monitoring
- BEMF comparator
- Timeout-watchdog
- Overvoltage & undervoltage protection
- Cross-current protection
- Overtemperature protection
- Off-state diagnostics
- SPI communication
- Safe switch off path fulfilling ASIL B metric

Key applications

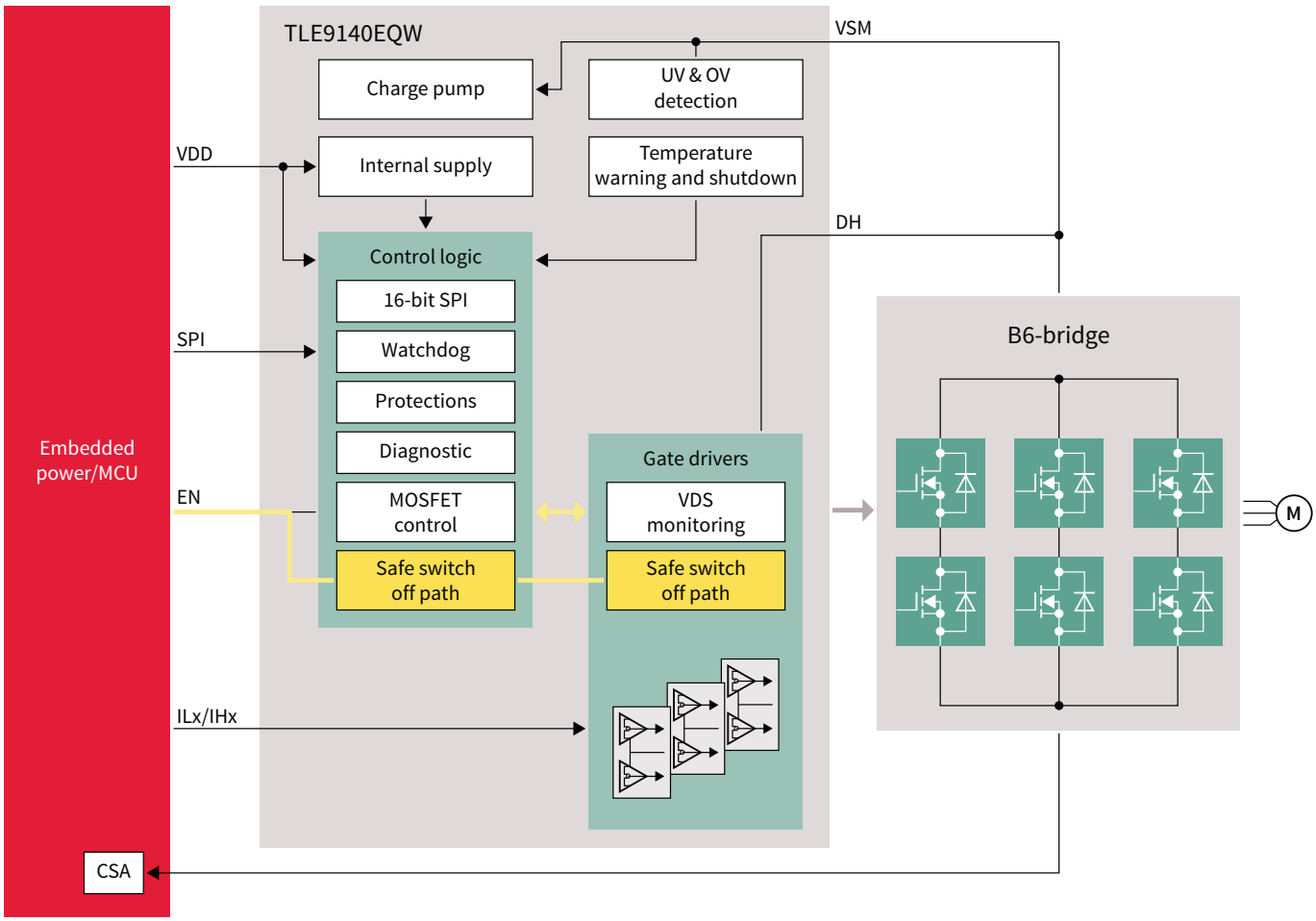
- BLDC Motor Control
  - Engine cooling fan
  - Water pump
  - Oil pump
  - eCompressor
  - eBike/eScooter
  - CAV/Truck
  - eTruck

PRO SIL ISO 26262 compliant



www.infineon.com/bldc-motor-driver-ics

Application diagram – MOTIX™ TLE9140EQW for BLDC motor control



Product table

Product variant	VSM [V]	Grade level	ASIL	SPI	Package	Driver
MOTIX™ TLE9140EQW	8 ... 72	0	B	✓	TSDSO-32	3x half-bridges (10 max 480 mA)

www.infineon.com

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