

Product brief

6EDL7141

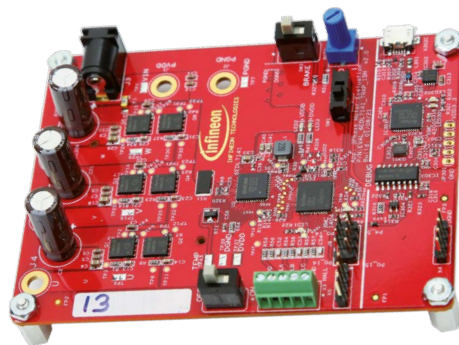
3-phase smart gate drive controller IC

The 6EDL7141 is Infineon's latest 3-phase motor control gate driver IC that enables development of high performance battery operated products using BLDC or PMSM motors. Ideal applications include cordless power tools, gardening products, and automated guided vehicles. With over 50 programmable parameters using built-in digital SPI interface, 6EDL7141 is fully configurable to drive a wide range of MOSFET's to yield the best possible system efficiency.

The 6EDL7141 is also designed for maximum flexibility. With an operating voltage from 5.5-60 V and configurable gate drive sink and source current up to 1.5 A, it has the ability to drive a wide range of MOSFETs effectively to best fit the application. It has adjustable gate driver supply voltage setting between 7 V, 10 V, 12 V and 15V even at low battery voltage thanks to built-in dual charge pumps. The 6EDL7141 also has adjustable gate driver parameters to enable control of the slew rate to minimize system EMI. All of the 6EDL7141 settings can be quickly changed with the available easy-to-use GUI.

The integrated buck regulator requires only an external capacitor and inductor to provide power for both the microcontroller and the Hall sensors in the motor, further reducing peripheral components and required PCB area. In addition, with a full suite of system protection features such as OCP, UVLO, over-temperature, and locked rotor detection, this dedicated motor controller will increase reliability and robustness in severe operating fault conditions.

EVAL_6EDL7141_TRAP_1SH
Single shunt evaluation board
for trapezoidal commutation of
BLDC motors with 40 V OptiMOS™ 5 PQFN
and XMC1404 MCU
On-board programming dongle
Featured IC: 6EDL7141

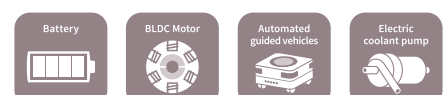


Key features

- > Integrated power supplies
- > Adjustable slew rate
- > Programmable gate drive parameters
- > 3x current shunt amplifier
- > Complete dedicated motor control protection suite

Key benefits

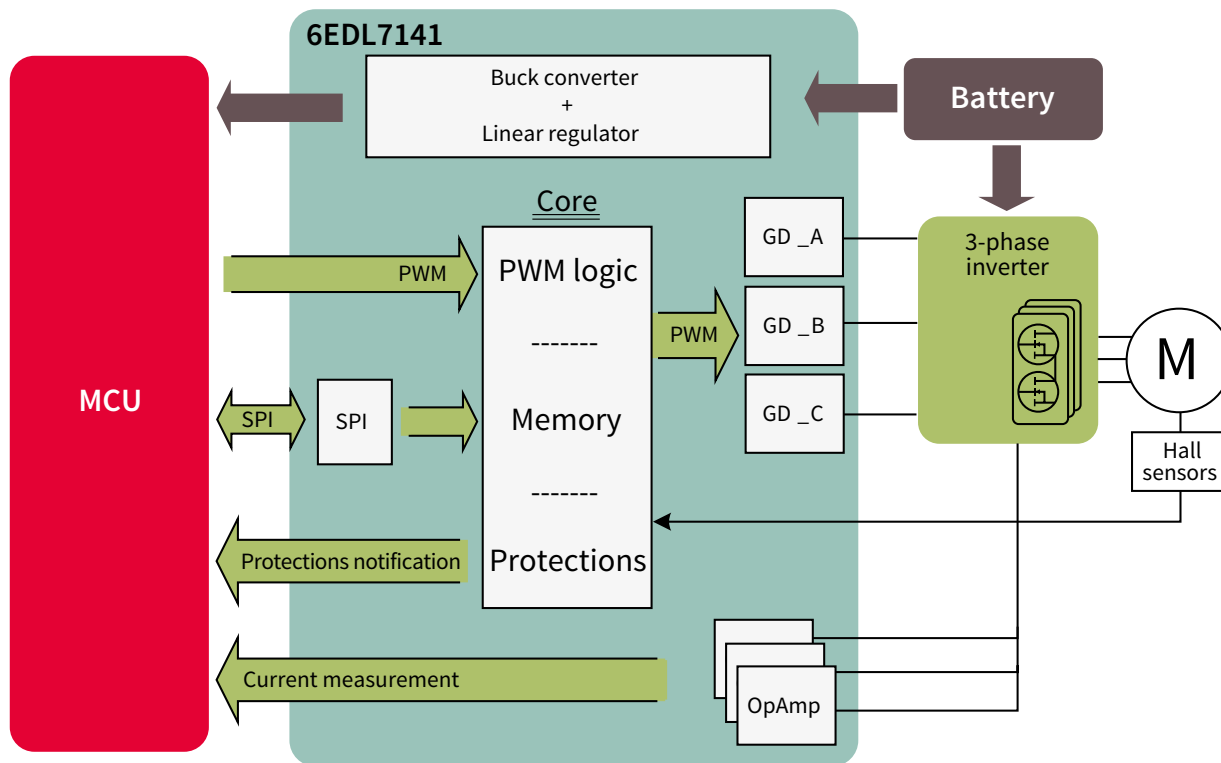
- > Reduced external components and PCB area
- > Optimized efficiency and EMI
- > Maximum flexibility to use different inverter FET's
- > Highly accurate current sense while saving external components
- > Higher dynamic range to increase signal resolution
- > Improve reliability and fault detection



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Block diagram



Product portfolio

Part number	Package	Voltage [V]	$R_{DS(on)}$ max. [mΩ]
6EDL7141	PG-VQFN-48-78	5.5 – 60 V	2.2 Ω

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