

Product brief

EiceDRIVER™ 2ED2410-EM

12/24 V smart analog high-side MOSFET gate driver

The EiceDRIVER™ APD 2ED2410-EM is a smart high-side N-channel MOSFET gate driver with two outputs controlled via logic pins designed for the new upcoming automotive power distribution architectures for 12 and 24 V board nets. Such architectures contain Autonomous Driving Assistance Systems (ADAS) and must ensure that they remain functional in the event of a failure.

The integrated boost converter allows external MOSFETs to stay continuously on and operational also at cold cranking conditions down to 3 V. Due to the efficiency of the boost converter the supply current in idle and normal mode is in the range of μA , which is beneficial if loads need to be supplied during the vehicle is parked (key off mode). Thanks to the enhanced turn-on and turn-off ability of the driver, the number of MOSFETs could be easily scaled up to manage large currents in the order of several hundred amps, while ensuring fast switch on and off within μs . For bi-directional blocking the MOSFETs could be controlled in a back to back configuration, either common mode or common source.

The 2ED2410-EM has three analog measurement interfaces and four integrated comparators for protection purposes, allowing flexible and versatile solutions for various E/E architecture requirements, for example: adjustable I-t wire protection, overcurrent protection, over/undervoltage protection and more.

The 2ED2410-EM is PRO-SIL™ ISO 26262-ready and comes with a safety application note to facilitate the usage in functional safety-related applications.

Key features

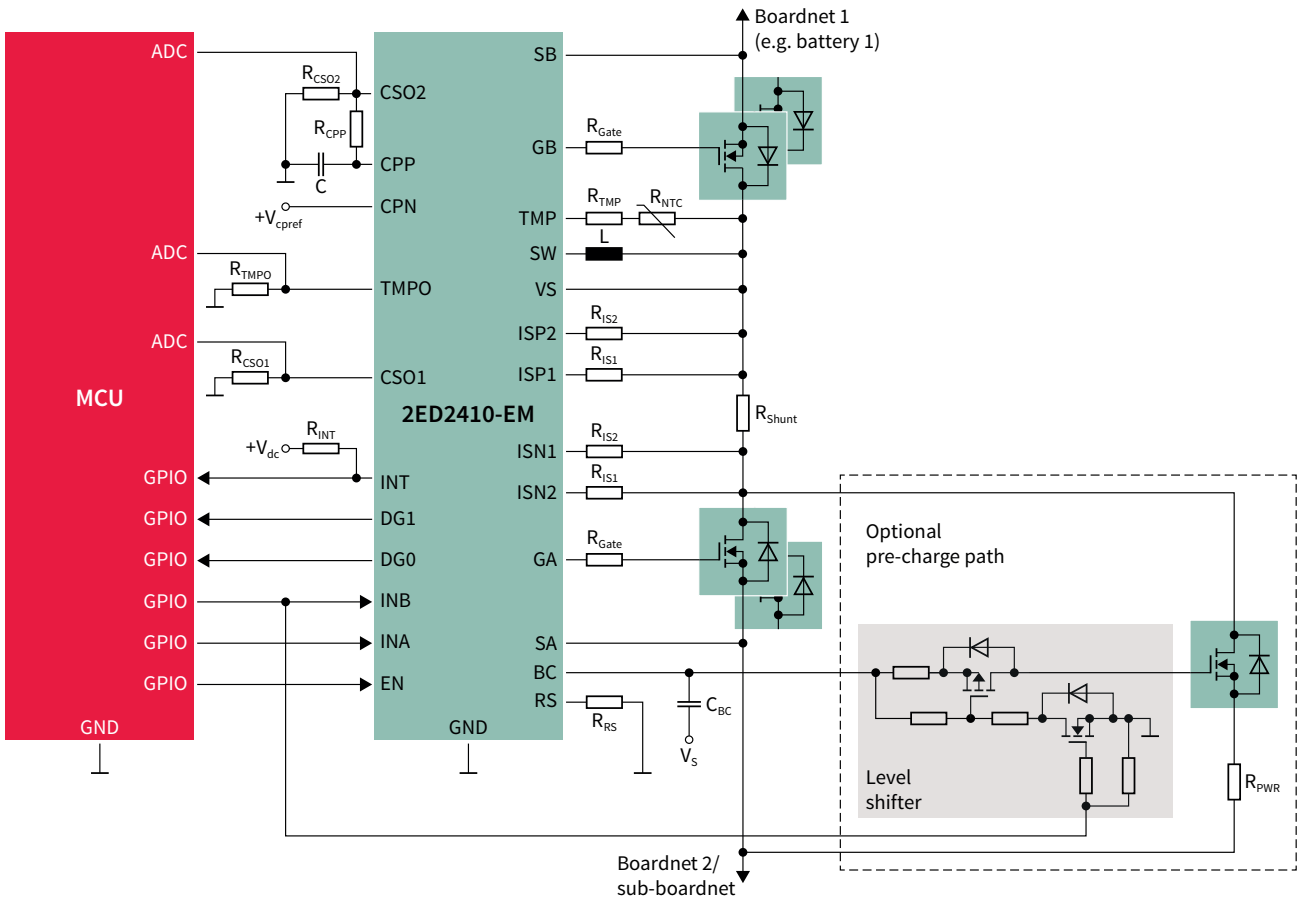
- > Extended supply voltage range: 3–58 V
- > Two high-side gate driver outputs with $3\ \Omega$ pull-down and $50\ \Omega$ for pull-up for fast switch off/on
- > Typical self-protection switch-off time including MOSFET < $10\ \mu\text{s}$
- > Channel control and diagnostic via pins
- > Two bidirectional high-side analog current sense interfaces with externally adjustable gain

Key benefits

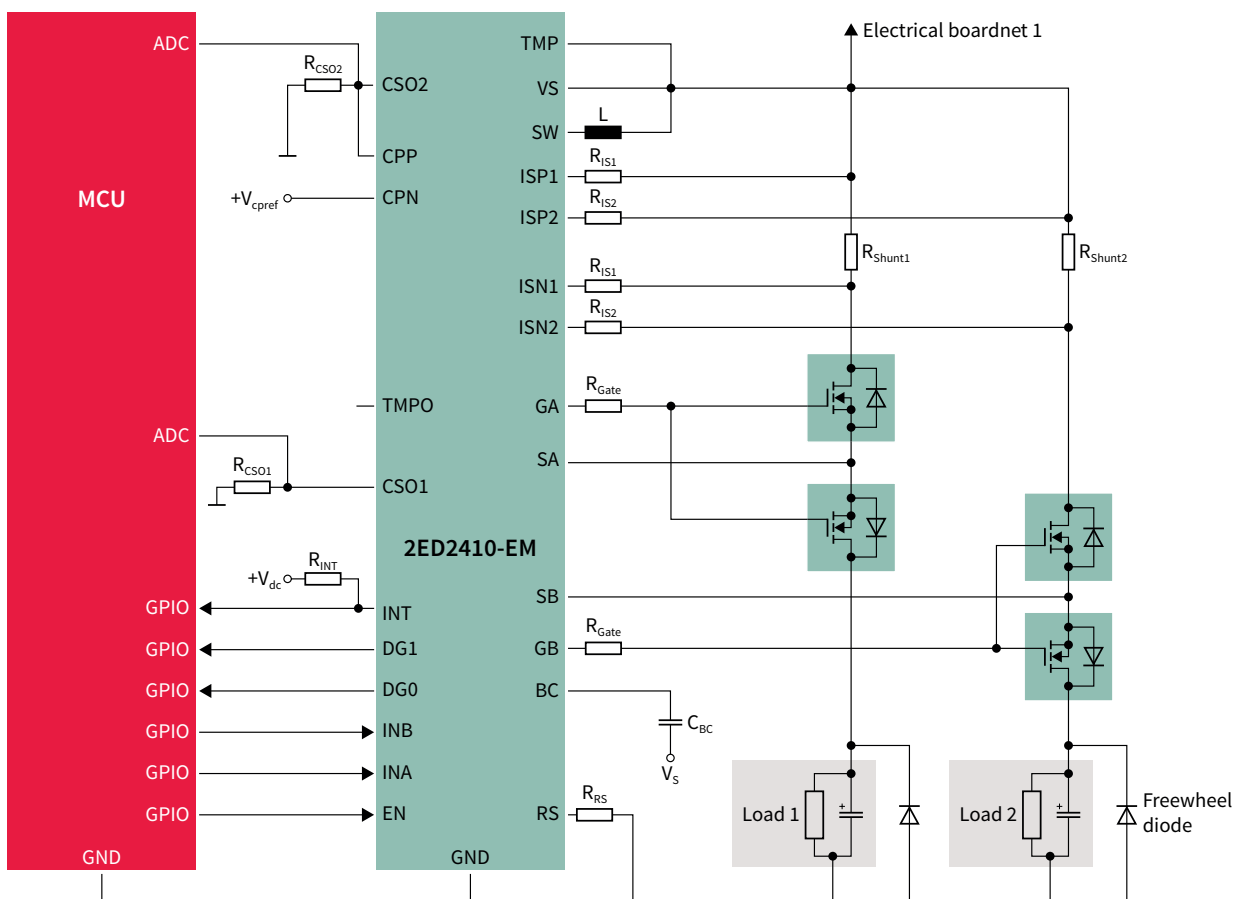
- > Low operating current in idle mode < $50\ \mu\text{A}$. Idle mode with 15 mA load current by-pass
- > Supports back-to-back MOSFET topologies (common drain or common source)
- > Adjustable overcurrent/short-circuit protection
- > Versatile comparator to implement:
 - Adjustable I-t wire protection
 - Adjustable over/undervoltage protection
 - Adjustable overtemperature protection
- > ISO 26262 ready (Safety application note) and AEC-Q100 qualification



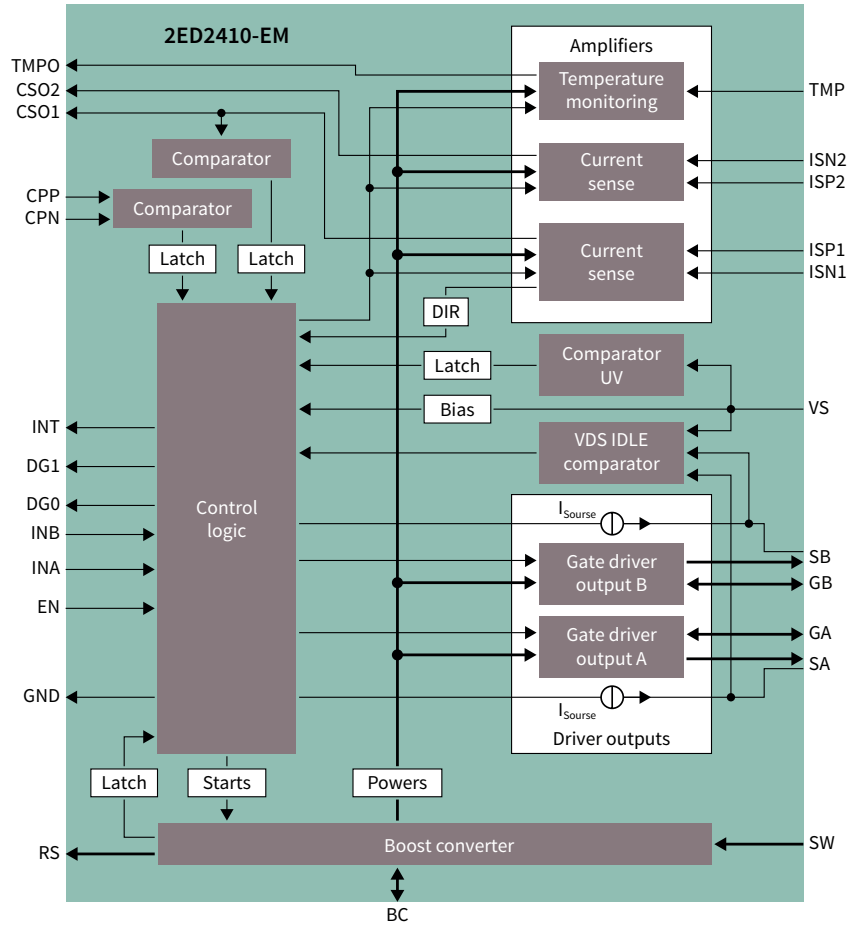
2ED2410-EM power supply protection application with I-t wire protection



2ED2410-EM dual high-side load switch application with shunt resistor



Block diagram



Product table

Type	Description	Ordering code	Package
2ED2410-EM	12/24 V smart analog high-side MOSFET gate driver	SP005072940	TSDSO-24
EB 2ED2410 3M	2ED2410-EM – 24 V evaluation motherboard	SP005750536	Board
EB 2ED2410 3D 1BCS	2ED2410-EM – 24 V evaluation MOSFET daughterboard, common source	SP005750538	Board
EB 2ED2410 3D 1BCSP	2ED2410-EM – 24 V evaluation MOSFET daughterboard, common source, pre-charging	SP005750551	Board
EB 2ED2410 3D 1BCD	2ED2410-EM – 24 V evaluation MOSFET daughterboard, common drain	SP005750540	Board
EB 2ED2410 3D 1BCDP	2ED2410-EM – 24 V evaluation MOSFET daughterboard, common drain, pre-charging	SP005750545	Board



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