

Power PROFET™ + 12V

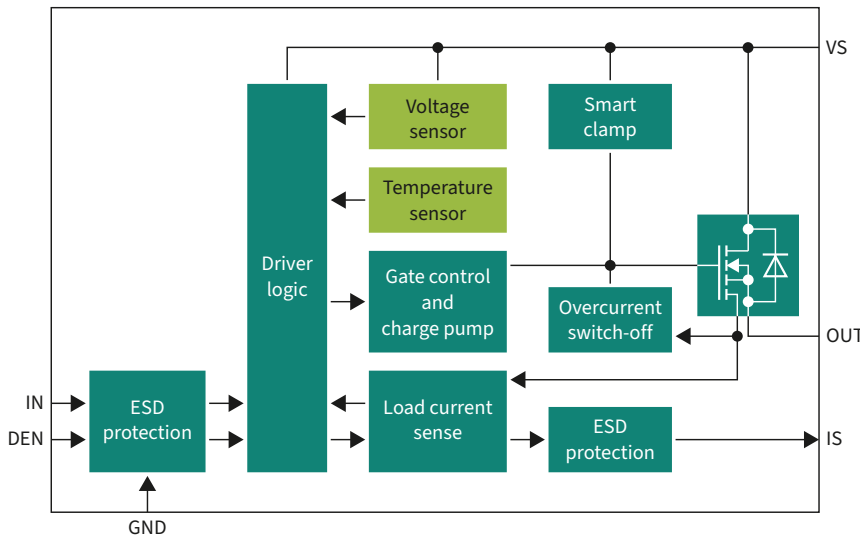
Ultra low-ohmic smart high-side switches in TOLL package

The Power PROFET™ + 12V smart high-side switch family provides a very low $R_{DS(on)}$ – one variant down to 0.6 mΩ – in a small 8-pin leadless power package. The ability to drive high current loads up to 65 amperes and its state of the art integrated protections and diagnosis features makes Power PROFET™ + 12V ideally suited to replace electromechanical relays, fuses and discrete circuits in power distribution and other high current applications in a 12 V board net.

Severe automotive requirements like reverse battery, short circuit, low battery voltage during the cranking and low impact on EMC in PWM operation are fully met. The current (dk_{ILIS}) accuracy especially at low current allows a reliable diagnosis feature at system level.

The Power PROFET™ + 12V devices are automotive qualified and PRO-SIL™ ISO 26262-ready and come with a safety application note to facilitate the usage in functional safety-related applications.

Block diagram



Key features

- Lowest-ohmic high side switches with integrated protection and diagnosis features
- Extended voltage range 3.1 – 28.0 V
- Protection: short-circuit with latch, over-temperature with latch, reverse battery, smart clamping, overpower shut-down, ground loss protection
- Load dump protection up to 43 V
- Diagnosis: load current sense output and short circuit, over-temperature, open load detection on/off state
- Diagnosis Enable Pin (DEN) for MCU input multiplexing

Key benefits

- Fully integrated solution with low stand-by current (3 μA)
- Leadless power package with good thermal performance
- Outstanding current sense accuracy $\pm 5\%$ after calibration
- Very low offset on the current sense: for high accuracy at low load current

Key applications

- Fuse and relay replacement
- Heating: rear defogger, glow plugs and PTC
- Fan and pump
- Power distribution

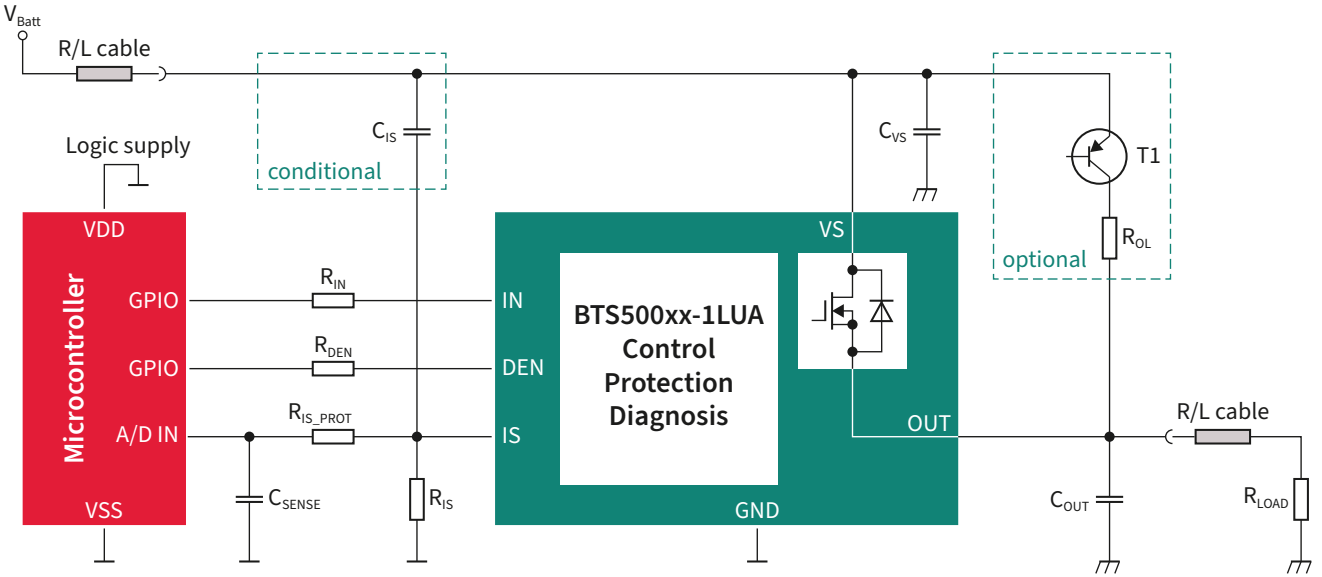


PRO-SIL ISO 26262 ready



PRODUCT BRIEF

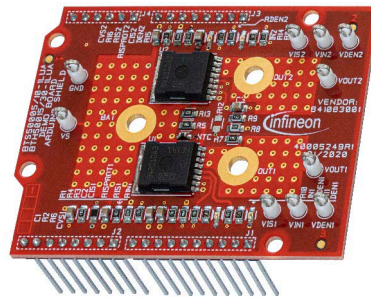
Application diagram



Product table

Product name	$R_{DS(ON)}$ (typ) [mΩ]	$R_{DS(ON)}$ (max) @ $T_j = 150^\circ\text{C}$ [A]	Nominal current (typ) [A]	Extended voltage [V]	$I_{CL(0)}$ (min) [A]	Package	SP number
BTS50005-1LUA	0.6	1.1	65	3.1 ... 28	150	TOLL (HSOF-8)	SP002055032
BTS50007-1LUA	0.7	1.4	55	3.1 ... 28	130	TOLL (HSOF-8)	SP005558027
BTS50010-1LUA	1.0	2.0	46	3.1 ... 28	90	TOLL (HSOF-8)	SP004854722

Board name	Description	SP number
BOARD BTS50005-1LUA	Arduino shield to evaluate both BTS50005-1LUA and BTS50010-1LUA (both devices on the board)	SP005420199



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