

Product brief

PROFET™+2 12V

High-side switches for energy efficiency and miniaturization

The PROFET™+2 12V family of protected high-side power switches (2 mΩ to 200 mΩ) in TSDSO-14 exposed pad package provides state of the art diagnostics and protection features. The family offers benchmark form factor, the lowest $R_{DS(ON)}$ (1x 2.6 mΩ) and smallest package (TSDSO-14) pin pitch of 0.65 mm.

The whole family is compatible with the most severe reverse battery requirement on the market due to incorporating ReverseON functionality for the 1st time in the market on a single chip product. The family offers outstanding energy efficiency with reduced current consumption, state of the art current sense accuracy (k_{ILIS}), benchmark low cranking voltage capability and faster switching/slew rate with no impact on EMC.

Key features

- > Operating voltage range 3.1–28 V with 3.3 V and 5 V compatible logic input
- > Protection: current tripping, over-temperature, overvoltage, load dump, reverse polarity, short-circuit
- > Diagnosis: load current sense output

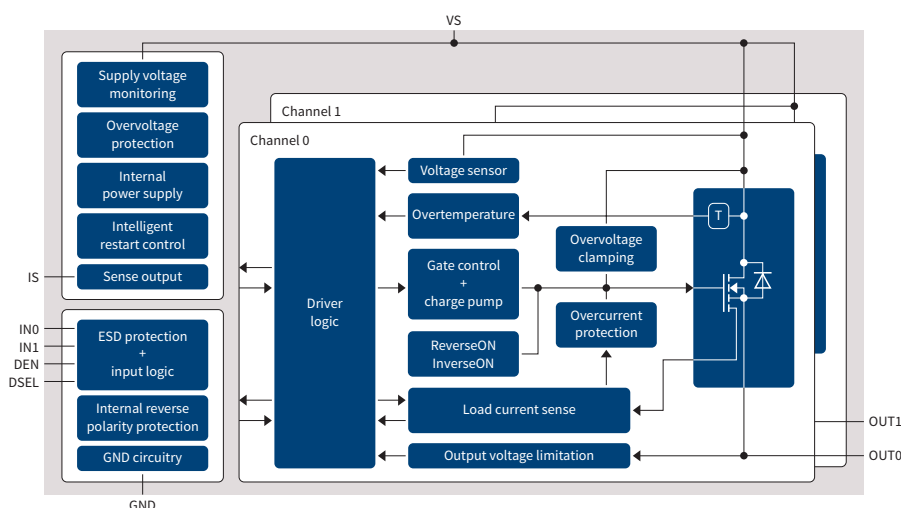
Key benefits

- > 50% reduced internal operating current consumption
- > Simplified & cost efficient ground network
- > Outstanding current sense accuracy ($k_{ILIS} \leq 5\%$ @ nominal load current)
- > Benchmark cranking voltage capability able to work down to 2.7 V
- > Smaller package size for area savings
- > Optimized for design flexibility across the family by pin to pin compatibility
- > Very low output leakage current ($\leq 0.5 \mu\text{A}$ up to 85°C)

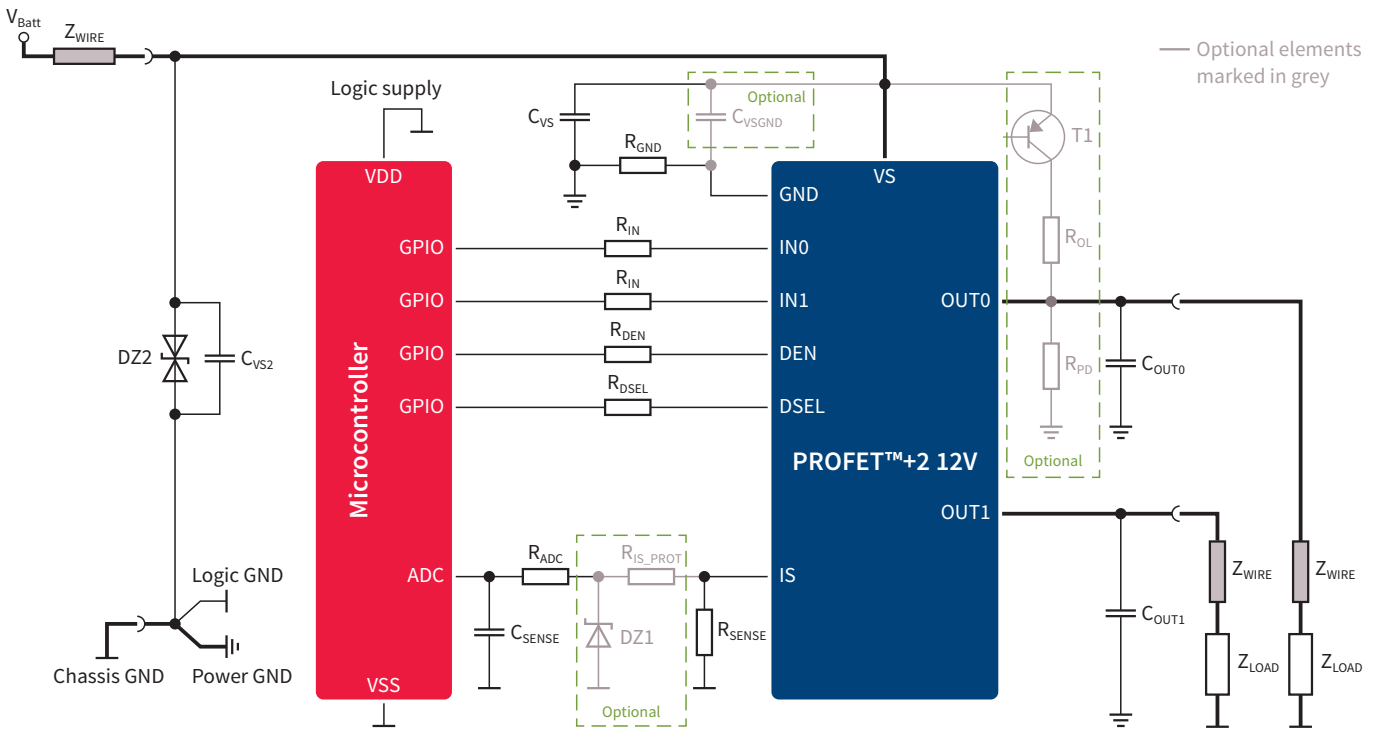
Key applications

- > Body actuation, heating and power distribution loads
- > Resistive elements, bulbs, LED modules, ECUs and motors
- > Up to 30 A nominal load current

Block diagram



Application diagram



Product table

	Product name	$R_{DS(on)}$ (typ) [mΩ]	$R_{DS(on)}$ (max) @ $T_j = 150^\circ\text{C}$ [mΩ]	Nominal load current [A]	E_{AS} [mJ]	Operating voltage range [V]	$I_{L(sc)}$ (typ) [A]	Number of channels	Load current trip	Sense enable	Open-load in OFF	Latch	ReverseON	Package
NEW	BTS7200-4EPA	66.5	120	<3	13.5 @ 2.4 A	3.1 ... 28.0	10	4	●	●	●			TSDSO-14
NEW	BTS7200-2EPA	66.5	120	<3	13.5 @ 2.4 A	3.1 ... 28.0	10	2	●	●	●			TSDSO-14
NEW	BTS7200-2EPC	66.5	120	<3	13.5 @ 2.4 A	2.7 ... 28.0	10	2	●	●	●			TSDSO-14
NEW	BTS7120-2EPA	61	110	<3	13.5 @ 4.0 A	3.1 ... 28.0	18.2	2	●	●	●			TSDSO-14
NEW	BTS7080-2EPA	20.9	39.6	3–5	36 @ 6 A	3.1 ... 28.0	36	2	●	●	●		●	TSDSO-14
NEW	BTS7040-2EPA	19	36	3–5	36 @ 7 A	3.1 ... 28.0	46	2	●	●	●		●	TSDSO-14
NEW	BTS7040-1EPA	19	36	3–5	30 @ 9 A	3.1 ... 28.0	46	1	●	●	●		●	TSDSO-14
	BTS7030-2EPA	13.5	25	3–5	38 @ 9 A	3.1 ... 28.0	60	2	●	●	●		●	TSDSO-14
	BTS7020-2EPA	12.7	23.7	5–10	42 @ 10 A	3.1 ... 28.0	71	2	●	●	●		●	TSDSO-14
	BTS7012-2EPA	11.5	21.5	5–10	42 @ 12 A	3.1 ... 28.0	73	2	●	●	●		●	TSDSO-14
NEW	BTS7012-1EPA	11.5	21.5	5–10	50 @ 17 A	3.1 ... 28.0	73	1	●	●	●		●	TSDSO-14
	BTS7010-2EPA	9.5	19.5	5–10	55 @ 13 A	3.1 ... 28.0	77	2	●	●	●		●	TSDSO-14
NEW	BTS7010-1EPA	9.5	19.5	5–10	55 @ 18 A	3.1 ... 28.0	77	1	●	●	●		●	TSDSO-14
	BTS7008-2EPA	9	16	5–10	75 @ 15 A	3.1 ... 28.0	88	2	●	●	●		●	TSDSO-14
NEW	BTS7008-1EPA	9	16.4	10–15	65 @ 20 A	3.1 ... 28.0	88	1	●	●	●		●	TSDSO-14
NEW	BTS7008-1EPP	8.8	16	10–15	70 @ 22 A	3.1 ... 28.0	77.5	1	●	●	●	●	●	TSDSO-14
NEW	BTS7006-1EPP	6.6	12	10–15	95 @ 25 A	3.1 ... 28.0	89.5	1	●	●	●	●	●	TSDSO-14
	BTS7004-1EPP	4.4	8	10–15	150 @ 30 A	3.1 ... 28.0	113	1	●	●	●	●	●	TSDSO-14
NEW	BTS7002-1EPP	2.6	4.8	> 15	315 @ 42 A	3.1 ... 28.0	133	1	●	●	●	●	●	TSDSO-14

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