

Product Brief

NovalithIC™ BTN7030-1EPA

Smart integrated half-bridge

The BTN7030-1EPA is part of the NovalithIC™ family. It is a protected half-bridge consisting of integrated driver IC and two MOSFETs. The high side power stage is built using an N-channel vertical power MOSFET with charge pump, while the low side power stage uses no charge pump.

Interfacing to a microcontroller is made easy by the integrated driver IC which features logic level inputs, diagnosis with current sense, dead time generation and protection against overtemperature, undervoltage, over-current, cross-current and short circuit.

The BTN7030-1EPA provides a cost optimized solution targeting low current (<15 A) DC motor applications with 0 – 2 kHz.

The device is integrated in SMART7 technology.

Key benefits

- › **Easy to use and fast design-in** – Driver, MOSFETs, load current sensing and diagnostic and protection functions – all integrated in one package, promoting fast and lean design-in activities.
- › **Full flexibility** – The BTN7030-1EPA supports brushed DC motors both in half- or H-bridge configuration.
- › **Cost and board space optimization** – Compared to a discrete solution, our integrated half-bridge solution, the BTN7030-1EPA, saves PCB area and cost on a system level.
- › **Improved thermal behavior** - This device has an exposed pad which ensures better cooling.
- › **Functional safety** – The BTN7030-1EPA includes an integrated under voltage, MOSFETs' over temperature- and overcurrent protection, measured directly in the MOSFETs. In an H-bridge configuration, the BTN7030-1EPA furthermore provides a redundancy case for functional safety.

Key features

- › Path resistance of max. 62 mΩ @ 150°C (typ. 32 mΩ @ 25°C)
- › Current limitation level of 14 A @ 150°C, 17 A @ 25°C
- › Status flag diagnosis with current sense capability
- › Overtemperature shut down with latch behavior
- › Undervoltage shut down
- › Cross-current protection
- › Open load in ON and OFF detection
- › Short circuit to GND and VBAT detection
- › Driver circuit with logic level inputs
- › Operation up to 28 V (normal operation 6V – 18V)
- › Green Product (RoHS compliant)
- › AEC Qualified in PG-TSDSO-14 package

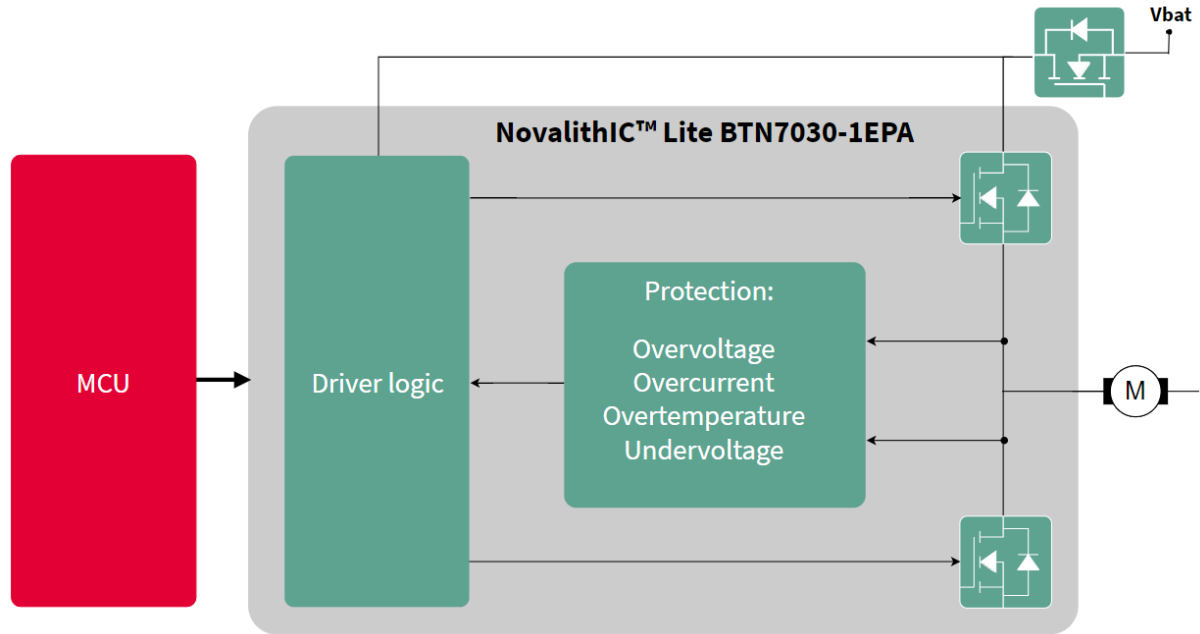
Key applications

- › Door lock
- › Trunk lock
- › Latch (in side door)
- › Solenoid drive
- › Fuel lid opener
- › Cinching latch (3rd or 5th half bridge)
- › Active suspension
- › Burglar horn
- › BCM motors
- › Door handle

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Block diagram



Product Table

Product name	Package	RDS (on) (multiple)	ID(lim) (multiple)	Iq [μA]	Diagnostics	Protection	Operating Voltage min [V]	Operating Voltage max [V]	T min [°C]	T max [°C]
BTN7030-1EPA	PG-TSDSO-14	32 (max. 62)	17.0 A 14.0 A	1	-Current sense -Open load detection -Open load in OFF detection -Overcurrent protection -Overtemperature protection	-Overtemperature -Overcurrent -Undervoltage -Cross-current -Overtolerance	3.8	28	-40	150

Evaluation Boards

Board name	Package
BTN7030 DC SHIELD	The motor control shield with BTN7030-1EPA is designed to drive DC motors in combination with an Arduino compatible baseboard.

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