

## Product brief

# MOTIX™ Bridge BTN7030-1EPA (NovalithIC™ Lite)

The MOTIX™ 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, overcurrent, cross-current and short circuit.

The MOTIX™ 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 MOTIX™ 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 MOTIX™ 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 MOTIX™ BTN7030-1EPA includes an integrated undervoltage, MOSFETs' overtemperature- and overcurrent protection, measured directly in the MOSFETs. In an H-bridge configuration, the MOTIX™ 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  $V_{Batt}$  detection
- > Driver circuit with logic level inputs
- > Operation up to 28 V (normal operation 6–18 V)
- > Green product (RoHS compliant)
- > AEC qualified in PG-TSDSO-14 package

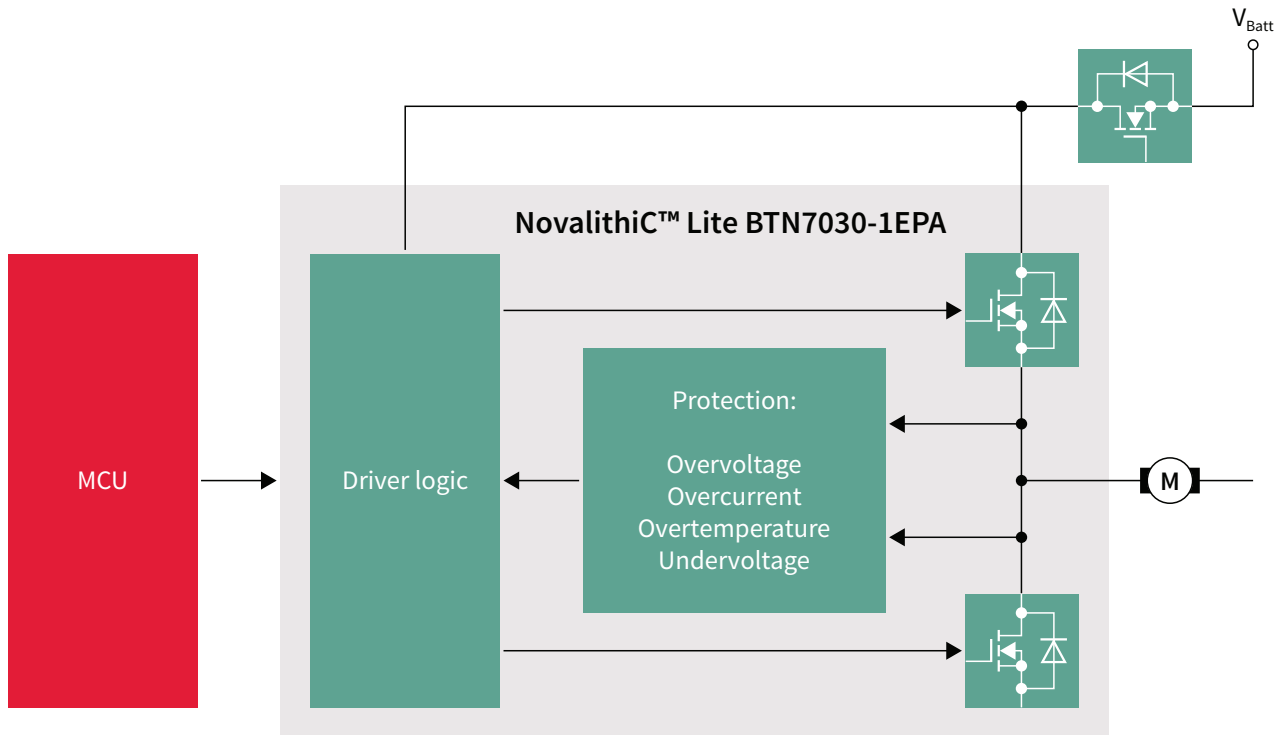
### Key applications

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

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## Smart integrated half-bridge

### Block diagram



### Product table

Product name	$R_{DS(on)}$ [ $\Omega$ ] (multiple)	$I_{D(lim)}$ [A] (multiple)	$I_q$ [ $\mu$ A]	Operating voltage min. [V]	Operating voltage max. [V]	$T_{min}$ [ $^{\circ}$ C]	$T_{max}$ [ $^{\circ}$ C]	Package
MOTIX™ BTN7030-1EPA	32 (max. 62)	17 A 14 A	1	3.8	28	-40	150	PG-TSDSO-14

### 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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