Product brief

NovalithIC™ IFX007T

Industrial & multipurpose half-bridge for motor drive applications

The IFX007T is a half-bridge with integrated driver IC for industrial & multipurpose motor drive applications. It contains one p-channel high-side MOSFET, one n-channel low-side MOSFET and a driver IC – all integrated into a single package.

By using a p-channel high-side switch, the need for a charge pump is eliminated thus minimizing EMI. Interfacing to a microcontroller is made easy by the integrated driver IC which features logic level inputs (suitable for 3.3 V and 5 V microcontrollers), diagnosis with current sense, slew rate adjustment, dead time generation and protection against overtemperature, undervoltage, overcurrent and short circuit. The IFX007T therefore provides a cost optimized solution for protected high current PWM motor drives with very low board space consumption.

Overall, the IFX007T NovalithIC™ is an easier, smaller, and cost efficient way for customers to drive their brushed and brushless industrial & multipurpose motors.

Key benefits

- **Easy to use & fast design-in** – Driver, FETs, load current sensing and diagnostic & protection functions integrated in one package, promoting fast and lean design-in activities
- **Full flexibility** – The NovalithIC™ supports BDC motors in half- or H-bridge configuration as well as BLDC motors, with PWM and freewheeling from either the high side or the low side
- **Cost optimized through system level savings** – Compared to a discrete solution, the NovalithIC™ saves PCB-area and pick & place costs, requiring less passive external components via integrated diagnosis and protection functions
- **Redundancy for safety applications** – The NovalithIC™ includes integrated protection for under voltage and overcurrent conditions, as well as overtemperature that is measured directly at the MOSFETs. In an H-bridge configuration, the NovalithIC™ half-bridge provides a redundancy case for functional safety

Key features

- Path resistance of max. 12.8 mΩ @ 25°C (typ. 10.0 mΩ @ 25°C)
- High side: max. 6.5 mΩ @ 25°C (typ. 5.3 mΩ @ 25°C)
- Low side: max. 6.3 mΩ @ 25°C (typ. 4.7 mΩ @ 25°C)
- Capable for high PWM (e.g. 20 kHz) frequency combined with active freewheeling
- Current limitation for reduced power dissipation in overcurrent
- Current limitation level of 55 A min
- Status flag diagnosis with current sense capability
- Overtemperature shutdown with latch behavior
- Undervoltage shutdown
- Driver circuit with logic level inputs
- Adjustable slew rates for optimized EMI
- Operation up to 40 V
- JESD47I qualified

Key applications

- Industrial & consumer motor drives for automation, home appliances, robotics, and medical applications: E.g., power tools, small robotics, drones, vacuum cleaners, medical motors, 3D printers, fans, pumps, and many more

RoHS

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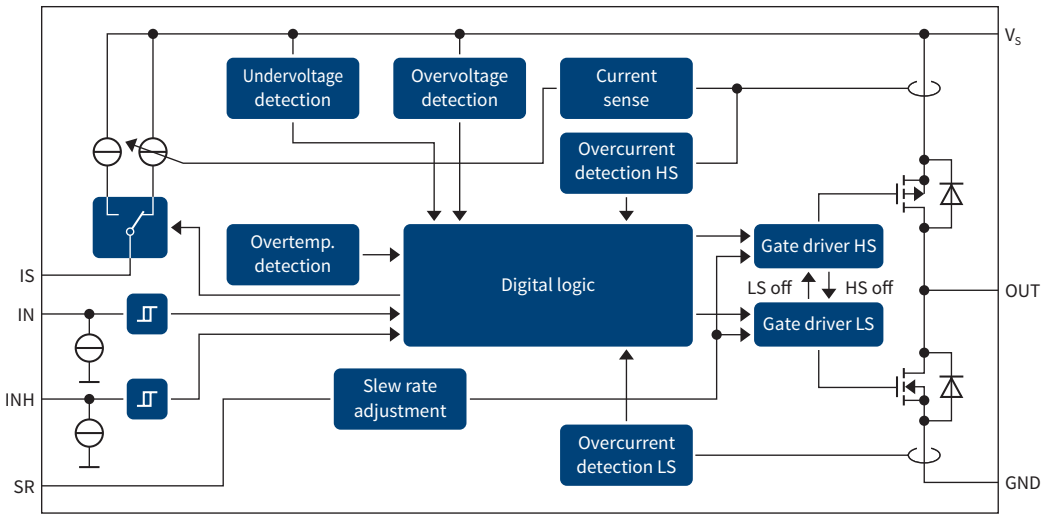
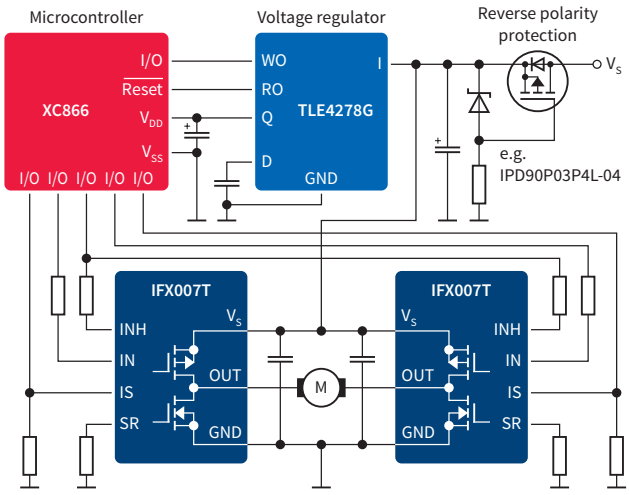
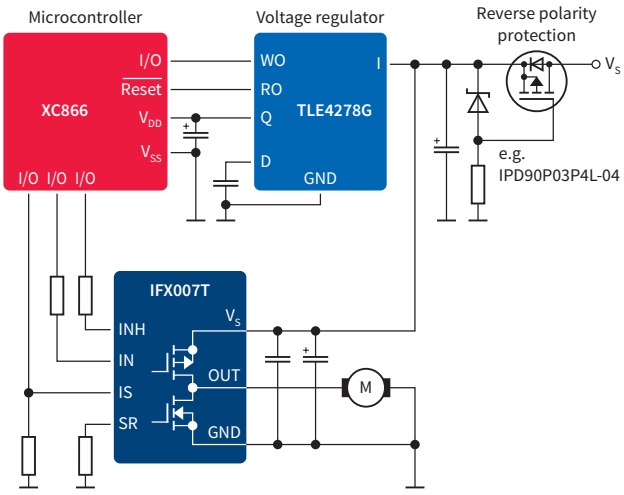
Block diagram



Application Diagram



High current H-bridge



High current half-bridge

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