

Product Brief

Power PROFET™

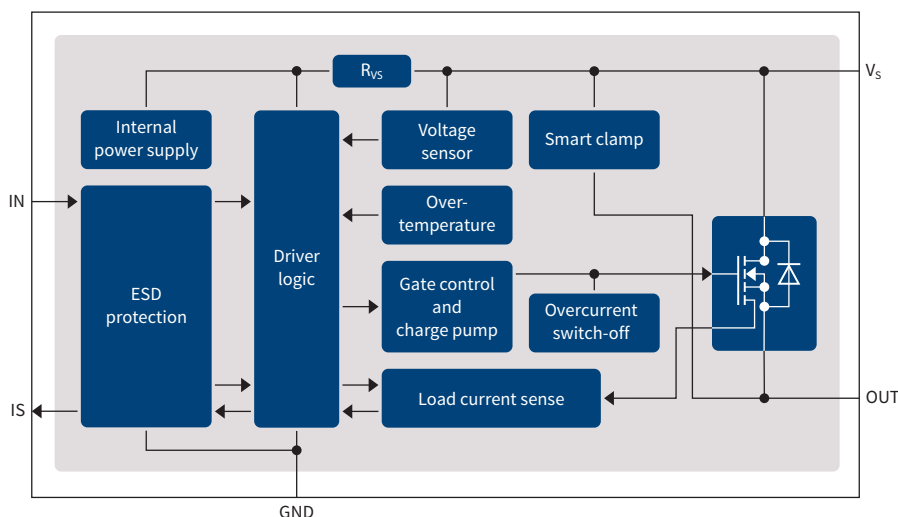
Ultra-low ohmic smart high-side power switches

Power PROFET™ is a benchmark family of ultra-low ohmic protected high-side switches (1.0 mΩ to 2.5 mΩ) with integrated protection functions and diagnostics for automotive and 12 V industrial markets. The devices are especially designed to drive high current loads of 20 to 40 A DC and to replace high current relays and fuses in a wide range of applications such as power distribution (e.g. module main switches and trailer node supply) and heating (e.g. PTC heaters and rear defoggers). Power PROFET™ switches are based on a new benchmark technology offering very high energy capability and are therefore an ideal driving solution for an increasing number of applications with high switching cycle requirements, e.g. starter relays in “start-stop” systems and electric brake vacuum pumps.

Compared with relays and fuses, these switches are immune to dust, shock and vibration, reduce power losses, improve electrical endurance, increase application availability (software reset instead of fuse replacement at car repair shop) and minimize the module size. At system level, they also optimize cost through more accurate system sizing and the reduction of mechanical components (wire harness, connector, heavy relay box).

Last but not least, the Power PROFET™ family offers 100 percent pin compatibility across all devices, along with a shared feature set and functionality that scales with the $R_{DS(on)}$ of each device. With this family-based approach, designers are free to change loads and devices without modifying the printed circuit board layout.

Block diagram



Key features

- > High-side switches with protection and diagnostic features
- > Ultra-low $R_{DS(on)}$ down to 1.0 mΩ
- > Benchmark energy capability up to 3000 mJ at I_{Nom}
- > Analog current sensing
- > Benchmark short-circuit performance specified in datasheet

Key benefits

- > Turn-key solution reducing time to market
- > Reduces power losses up to factor 7 compared to relays
- > Saves cost on system level by removing the need for freewheeling diode for many applications
- > Improved load monitoring and protection with current sense
- > Resettable device: no maintenance required as with a fuse

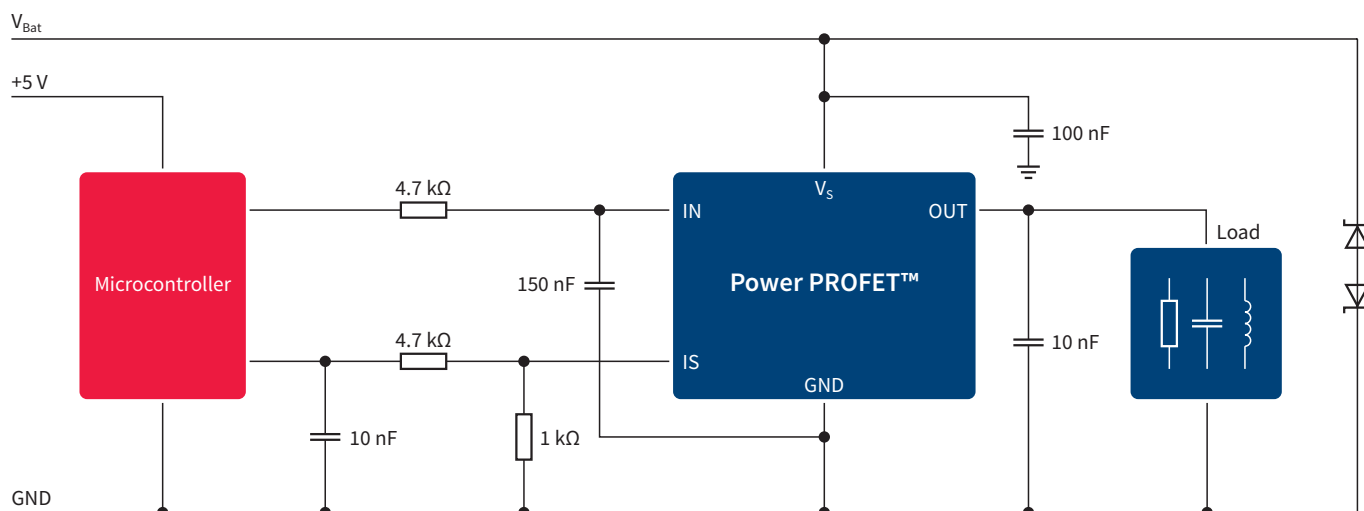
Key applications

- > Suitable for automotive and industrial applications based on 12 V high-side loads up to 40 A DC
- > Replaces electromechanical relays, fuses and discrete circuits

Power PROFET™

Ultra-low ohmic smart high-side power switches

Application diagram



Product summary

Device name	$R_{DS(on)}$ (typ at 25°C) [mΩ]	I_{Nom} [A]	Short circuit current thresh- old (min) [A]	Single energy pulse (E_{AS}) [mJ]
BTSS0010-1TAD	1.0	40	150	3000 ¹⁾
BTSS0015-1TAD	1.5	33	135	3000
BTSS0020-1TAD	2.0	29	100	1750 ¹⁾
BTSS0025-1TAD	2.5	25	70	1000 ¹⁾

1) Target value

Published by
Infineon Technologies AG
81726 Munich, Germany

© 2017 Infineon Technologies AG.
All Rights Reserved.

Please note!

THIS DOCUMENT IS FOR INFORMATION PURPOSES ONLY AND ANY INFORMATION GIVEN HEREIN SHALL IN NO EVENT BE REGARDED AS A WARRANTY, GUARANTEE OR DESCRIPTION OF ANY FUNCTIONALITY, CONDITIONS AND/OR QUALITY OF OUR PRODUCTS OR ANY SUITABILITY FOR A PARTICULAR PURPOSE. WITH REGARD TO THE TECHNICAL SPECIFICATIONS OF OUR PRODUCTS, WE KINDLY ASK YOU TO REFER TO THE RELEVANT PRODUCT DATA SHEETS PROVIDED BY US. OUR CUSTOMERS AND THEIR TECHNICAL DEPARTMENTS ARE REQUIRED TO EVALUATE THE SUITABILITY OF OUR PRODUCTS FOR THE INTENDED APPLICATION.

WE RESERVE THE RIGHT TO CHANGE THIS DOCUMENT AND/OR THE INFORMATION GIVEN HEREIN AT ANY TIME.

Additional information

For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings

Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.