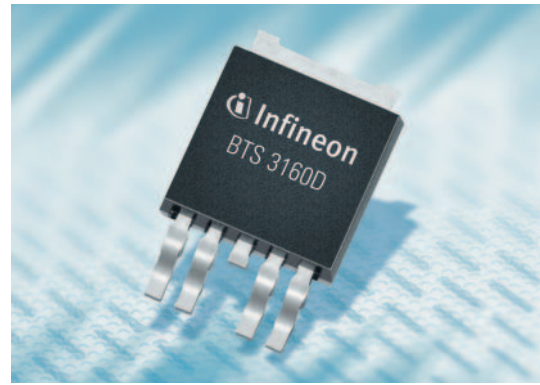


## BTS 3160D

High Current HITFET®  
Smart Low Side Power Switch  
One Channel 10 mΩ in DPAK



THE BTS 3160D is a latching one channel low side power switch in P-T0252-5-3 package providing embedded protective functions. This device has an on resistance of 10mΩ and can be driven directly from a microcontroller even with 3.3 V input signal. The device has a separated supply pin.

To fulfill automotive requirements BTS 3160D is equipped with approved HITFET® protection functions. The device also has an embedded status feedback functionality which is easy to read out.

For PWM applications the device offers a smooth turn on and off due to the embedded edge shaping function in order to reduce EMC noise.

BTS 3160D provides a cost optimized solution for your high current applications. To offer the device at a very competitive price, it is produced in chip on chip technology being driven by a control chip in Smart Power Technology.

### Applications

- BTS 3160D will help you to fulfill all requirements for your high current applications
- Interior lighting systems
- Suitable for loads with high inrush current, for example 70 W lamps
- Suitable for LEDs because of low leakage current
- Replaces electromagnetical relays, fuses and discrete circuits
- All kind of low side switching in automotive applications (AEC qualified)
- All types of resistive, inductive and capacitive loads
- General purpose power low side switches

### Features & Benefits

- 10 mΩ low side switch
- Digital switching up to 1 kHz with switching shape modulation (EMC optimized)
- Lowest  $R_{DS(on)}$  for all input voltage due to supply pin
- Direct driving with 3.3 V and 5 V microcontroller
- Overcurrent, overtemperature, overvoltage and ESD protection
- Very low leakage current
- Supply by  $V_{bb}$  line, down to 6 V
- Digital status feedback

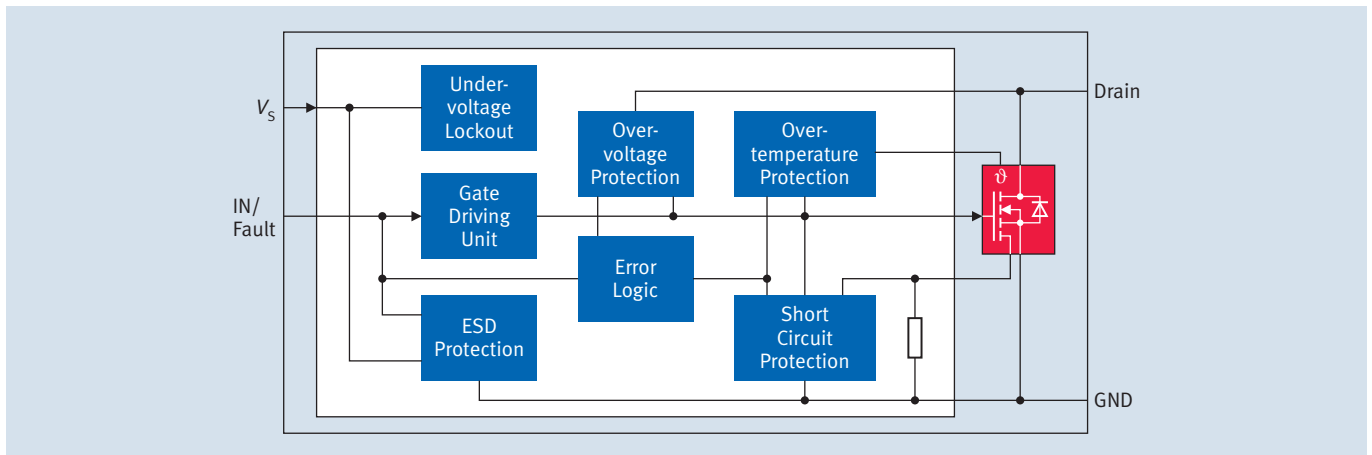
[www.infineon.com/hitfet](http://www.infineon.com/hitfet)

## Automotive Power



Never stop thinking

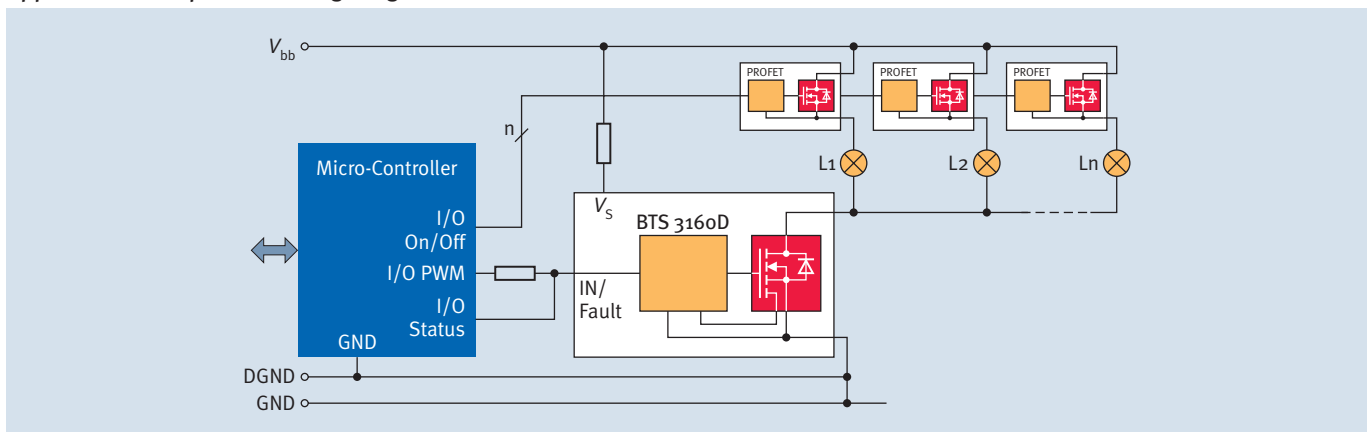
## Block Diagram



## Product Summary

| Parameter                      | Symbol                            | Value           |
|--------------------------------|-----------------------------------|-----------------|
| Sales Code                     |                                   | BTS 3160D       |
| Package                        |                                   | P-TO252-5-3     |
| Drain Voltage Internal Clamped | $V_D$                             | 40 V            |
| Supply Voltage                 | $V_S$                             | 6.0 ... 30 V    |
| Input Voltage Low / High       | $V_{INL} / V_{INH}$               | 0.8 ... 2 V     |
| ON-State Resistance            | $R_{DS(on,max)}@25^\circ\text{C}$ | 10 m $\Omega$   |
| Nominal Load Current           | $I_{Dnom}$                        | 7.8 A           |
| Drain Current Internal Limited | $I_{DSC,min}$                     | 70 A            |
| Clamping Energy                | $E_{AS@20A}$                      | 0.3 J           |
| Leakage Current MOSFET         | $I_{DSS}$                         | 2 $\mu\text{A}$ |
| Supply Current in Off          | $I_{SSS}$                         | 4 $\mu\text{A}$ |

## Application Example Interior Lighting



How to reach us:  
<http://www.infineon.com>

Published by  
 Infineon Technologies AG  
 81726 Munich, Germany

© 2007 Infineon Technologies AG  
 All Rights Reserved.

### Legal Disclaimer

The information given in this Product Brief shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

### Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

### Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.

Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.