

Product Brief

Low-Side Switch Shield with BTF3050TE for Arduino

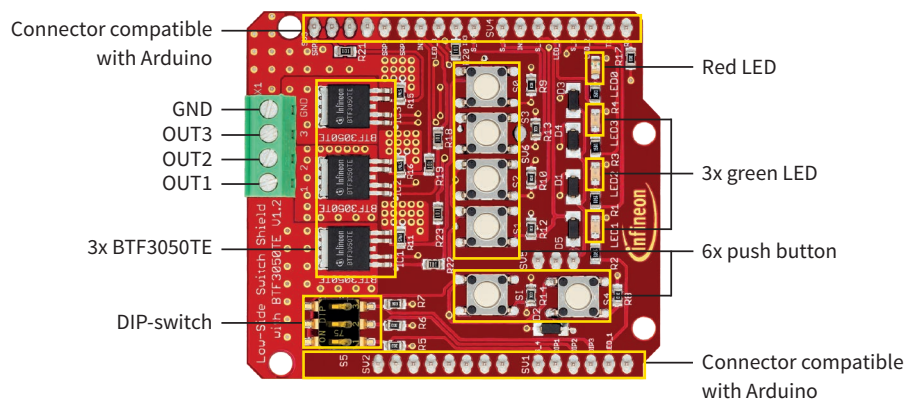
Infineon has recently expanded its low-side switch portfolio with the new generation of products, named HITFET™+. The HITFET™+ family based on a new technology provides an innovative technical concept for low-side switch applications. This new portfolio offers benchmark features for switching applications with very high PWM (up to 25 kHz). The Low-Side Switch Shield for Arduino offers fast and easy prototyping of applications with BTF3050TE.

The shield consists out of three BTF3050TE low-side switches providing three independent power channels that can be controlled via the input pins and is compatible with microcontroller boards using the Arduino form factor for example the corresponding ARM® powered XMC™ microcontroller kits from Infineon.

The BTF3050TE is automotive qualified and able to drive resistive, inductive and capacitive loads with a nominal load current of 3 A. Furthermore the smart low-side switch provides diagnosis and protection features (e.g. overtemperature, overcurrent).

This device is optimized for 12 V automotive and industrial applications.

Low-Side Switch Shield with BTF3050TE for Arduino



Key features

- › Compatible with microcontroller boards using the Arduino form factor, e.g. the corresponding Infineon XMC™ kits
- › PWM up to 14 kHz (10 percent duty cycle)
- › Driver circuit with logic level inputs
- › Fault feedback
- › Protection e.g. against overtemperature and overcurrent

Key benefits

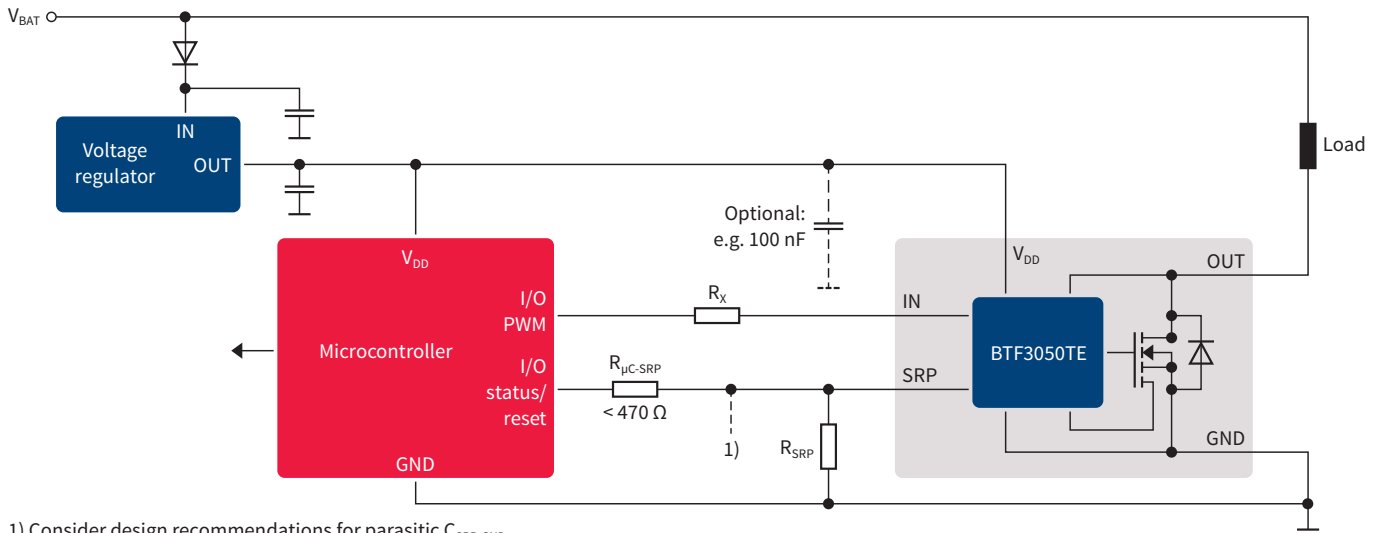
- › Fast and inexpensive prototyping of a wide range of applications
- › Easy testing of low side switch configuration
- › Latched and stable fault signal independent of the input pin
- › Overtemperature shut down with autorestart behavior
- › Double current limitation for inrush current
- › Easy control of the PWM's duty cycle

Target applications

- › Able to switch all kinds of loads
- › Nominal voltage range 8–18 V
- › Nominal current 3 A (typ) DC

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The BTF3050TE used in the Low-Side Switch Shield is a 50 mΩ high integrated single channel low-side switch which can be used in many applications. The power transistor itself is a built in N-channel power MOSFET. The whole device is monolithically integrated. This means that the power MOSFET, the driver and protection blocks are integrated in one package.



1) Consider design recommendations for parasitic $C_{SRP-GND}$

BTF3050TE is the lead product of HITFET™+ family

Product type	$R_{DS(on)}$ [mΩ]	$R_{DS(on)}$ max at 150°C [mΩ]	Nominal load current [A]	Current limitation [A]	Package	Channels
BTF3050TE	50	100	3	8	TO252-5 (DPAK 5-leg)	1
BTS3035TF	35	70	5	20	TO252-3 (DPAK)	1
BTS3035EJ	35	70	5	20	TDSO-8-31	1
BTS3050TF	50	100	4	15	TO252-3 (DPAK)	1
BTS3050EJ	50	100	4	15	TDSO-8-31	1
BTS3080TF	80	160	3	10	TO252-3 (DPAK)	1
BTS3080EJ	80	160	3	10	TDSO-8-31	1
BTS3125TF	125	250	2	7	TO252-3 (DPAK)	1
BTS3125EJ	125	250	2	7	TDSO-8-31	1

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