Dear customer,

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The evaluation board is intended for use only by qualified and skilled technical staff for laboratory usage and shall be used and managed according to the terms and conditions set forth in the related documentation provided with the evaluation board.

The customer accepts the entire risk arising out of the use of the evaluation board for any purpose for which the evaluation board is not intended, including but not limited to any further processing or distribution of the evaluation board. Infineon will not accept any liability or product warranty for these evaluation boards. The customer undertakes to indemnify and hold Infineon Technologies harmless from any third party claims in connection with or arising out of the use and/or handling of the evaluation boards by the customer.

In case of any questions, please contact your local sales partner.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Manufactured in PRC.
CAN ICES-3 (B)/NMB-3(B)

Order number: 24VSHIELDBTT6030TOBO1

24V Protected Switch Shield with BTT6030-2EKA and BTT6020-1EKA for Arduino

Quick start guide

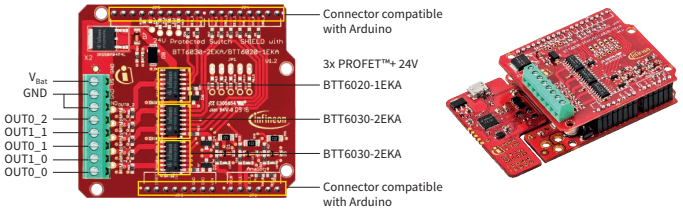
The 24V Protected Switch Shield from Infineon Technologies is a power switch evaluation board compatible with Arduino microcontroller boards and with Infineon’s XMC™ microcontroller kits using the Arduino form factor.

The target applications of the PROFET™+ 24V family are resistive, capacitive and inductive loads (e.g. truck bulbs, car bulbs, valves, supply switch for motors, relays, capacitors, LEDs).
Using the shield enables fast prototyping and makes in-expensive product evaluation easy.

The shield is equipped with three **PRO**tected high-side power MOS**FET**s out of the PROFET™+ 24V family (2x BTT6030-2EKA, 1x BTT6020-1EKA) offering five 24 V channels in total. It can be controlled either by an Arduino board (e.g. Arduino Uno, Arduino Due) or the ARM® powered Infineon microcontroller kits using the Arduino form factor. The power switches are controlled via the INx (Input) pins. The PROFET™+ 24V devices also provide a sense current at the IS pin, which can be enabled via the DEN (**D**iagnosis **EN**able) pin. For the two channel devices (2EKA) the sensed channel is selected via the DSEL (**D**iagnosis **SEL**ect) pin. For each device the sense signal (IS) is connected to an own ADC channel of the microcontroller.

The 24V Protected Switch Shield provides a fast and easy access to drive up to five 24 V loads with a nominal current of 4 A to 5 A each.

24V Protected Switch Shield with PROFET™+ 24V for Arduino



Getting started

STEP 1

Choose loads fitting the electrical requirements of the BTT60xx

- Maximum 5 channels
- Current limitation level of 88 A typical
- Nominal load current 5 A per channel

STEP 2

Choose a DC adapter

- Nominal input voltage to the power shield 8 V – 36 V DC
- Functional range 5 V – 48 V forward voltage

STEP 3

Connect the 24V Protected Switch Shield to

- E.g. XMC1100 boot kit, Arduino Uno R3

NOTE:
Find source code at:
www.infineon.com/shields-for-arduino

STEP 4

Program microcontroller board

- Example sketches and projects: www.infineon.com/shields-for-arduino
  - Select your shield (24V Protected Switch Shield)
  - In the documents section download the application example
  - Flash software to microctonroller

STEP 5

Connect the DC adapter to the power shield

STEP 6

Turn on the power

Applications

- Drive resistive, capacitive and inductive loads with PWM or DC
  - 8 ~ 36 V nominal input voltage (max. 5 ~ 48 V)
  - Nominal current up to 5 A per channel restricted due to PCB (BTT6020-1EKA nominal current: 7 A)
  - E.g. truck bulbs, valves, motors, relays ...

Features

- Compatible with Arduino microcontroller boards and Infineon's XMC™ microcontroller kits using the Arduino form factor
- Capable of PWM up to 400 Hz
- Driver circuit with logic level inputs
- Diagnosis with current sense
- Protection of load and driver circuit e.g. against overtemperature, overcurrent, ESD …

Benefits

- Fast and inexpensive prototyping of 24 V load driving
- Load diagnosis with current sense capability
- Overtemperature shut down with latch behavior

Useful links

www.infineon.com/shields-for-arduino
www.infineon.com/profet
www.infineon.com/xmc

Product summary

Type	Description	Ordering code (OPN)
24V_SHIELD_BTT6030	24V Protected Switch Shield with BTT6030-2EKA and BTT6020-1EKA for Arduino. Integrated high-side power switches and part of the PROFET™+ 24V family. The power transistor is built by an N-channel vertical power MOSFET with charge pump in one package (DSO-14). For reverse current blocking the IPD50P04P4L-11 is used.	24VSHIELDBTT6030TOBO1
BTT6030-2EKA	32 mΩ dual channel smart high-side power switch, embedded in a DSO-14 exposed pad package, providing protective functions and diagnosis.	BTT60302EKAXUMA1
BTT6020-1EKA	20 mΩ single channel smart high-side power switch, embedded in a DSO-14 exposed pad package, providing protective functions and diagnosis.	BTT60201EKAXUMA1
IPD50P04P4L-11	P-channel MOSFET intended for reverse battery protection.	IPD50P04P4L11ATMA1