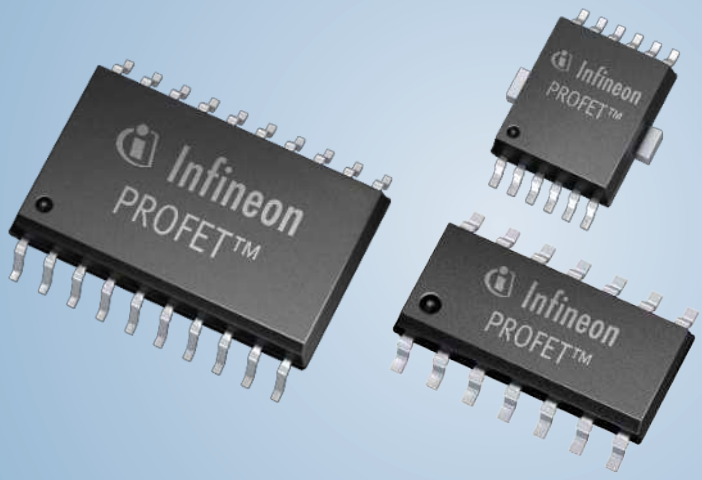


Product Brief

BTT6020-1EKA, BTT6030-1EKA, BTT6050-1EKA (Truck devices)

New Smart High-Side Switches for 24V Applications

Infineon's new pin-compatible Single Channel 24V High-Side Switches of the PROFET™+ 24V family in DSO-14 EP package provide embedded diagnostic and protective functions. The power transistor is built by a N-channel vertical power MOSFET with charge pump. The device are especially designed to drive lamps as well as LEDs in the harsh automotive environment.

The high current sense accuracy (k_{ILIS}) is able to diagnose even the smallest loads, such as LEDs. The high short-circuit robustness sets the market benchmark. Infineon is the first company to specify the short-circuit robustness of a device in the datasheet: Min. 100k SC cycles for family members of PROFET™+ 24V.

Applications

- 24V grounded high-side loads,
- µC compatible with diagnostic feedback
- Suitable for automotive and industrial applications
- All types of resistive, inductive and capacitive loads
- Suitable for loads with high inrush currents, such as lamps
- Suitable for loads with low currents such as LEDs
- Replaces electromechanical relays, fuses and discrete circuits

Diagnostic Functions

- Proportional load current sense
- Open load in ON and OFF
- Short circuit to battery and ground
- Overtemperature sense
- Current sense matching between channels
- Stable diagnostic signal during short circuit
- Enhanced k_{ILIS} accuracy with calibration

Basic Functions

- RoHS compliant & AEC qualified
- Op. Voltage range (5 – 36V)
- Low stand-by current (< 0.5µA)
- ESD protection, optimized EMC
- PWM capability up to 500Hz
- Very low leakage current in OFF
- 3.3V and 5V – compatible logic inputs
- Improved heat dissipation of DSO – package

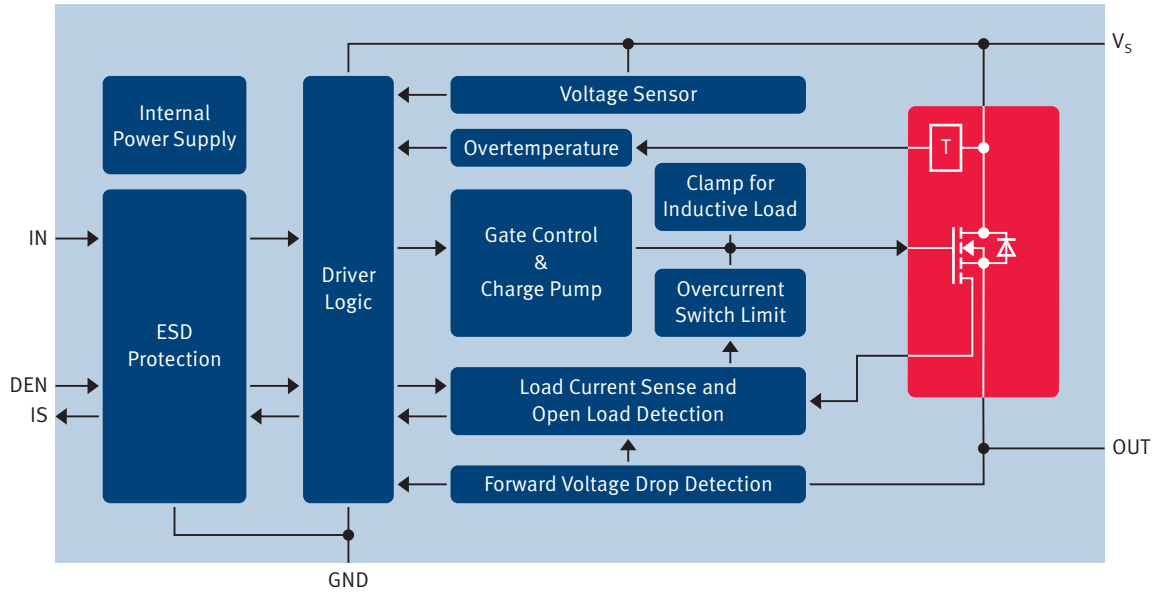
Protection Functions

- Load Dump (Min.): 65V
- Current limitation
- Thermal shutdown: Latch
- Enhanced short circuit operation
- Loss of ground/battery protection
- Stable behavior at under voltage
- Overvoltage protection
- Voltage dependent current limitation

RoHS AEC Qualified

BTT6020-1EKA, BTT6030-1EKA, BTT6050-1EKA (Truck devices)

Block Diagram (BTT6020-1EKA)



Product Summary (BTT6020-1EKA)

Type	Description	Packsge
BTT6020-1EKA for target load: 4x 21W lighting load	1x 20mΩ	PG-DSO-14-40 EP

Parameter	Symbol	Value
Operating voltage range	$V_{S(OP)}$	5 – 36V
Maximum supply voltage	$V_{S(LD)}$	65V
Maximum ON state resistance at T_j = 150°C per channel	$R_{DS(on)}$	42mΩ
Nominal load current (one channel active)	$I_{L(NOM)}$	7A
Typical current sense ratio	k_{ILIS}	3000
Minimum current limitation	$I_{LS(SC)}$	70A
Maximum standby current with load at T_j = 25°C	$I_{S(OFF)}$	500nA
Load 4x 21W (24V) / Load 4x 27W (12V)	12V	BTS5008-1EKB (PROFET™+ 12V)
	24V	BTT6020-1EKA (PROFET™+ 24V)

Published by
Infineon Technologies AG
85579 Neubiberg, Germany

© 2013 Infineon Technologies AG.
All Rights Reserved.

Visit us:
www.infineon.com

Order Number: B000-H0000-X-X-7600
Date: 08 / 2013

Attention please!
The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”). 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 your nearest Infineon Technologies Office (www.infineon.com).

Warnings
Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office. Infineon Technologies Components may only be used in life-support devices or systems 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.