

PROFET™+ Smart High-Side Power Switches



THE PROFET™+ Family are single and dual channel protected high-side power switches (180 mΩ to 20 mΩ) in the PG-DSO-8 and PG-DSO-14 exposed pad packages. They provide state of the art diagnostics and protection features. Their high short circuit robustness combined with switching load capability is benchmark in the market.

The devices are especially designed to drive lamps from 1 *5W up to 2 * 27W +5W per channel as well as LEDs in the harsh automotive environment. These are the first and second wave of Infineon's new PROFET™+ family - a portfolio of single & dual channel smart high side switches.

PROFET™+ offers 100% pin compatibility across devices in the PG-DSO-8 exposed pad package as well as devices in the PG-DSO-14 exposed pad package. PROFET™+ devices in the PG-DSO-8 package can also share the layout of the PROFET™+ devices using the PG-DSO-14 package. Based on this compatible footprint, maximum design flexibility is given to change loads and devices without major modification of the board layout.

Applications:

- 12V grounded high-side loads up to 5A DC (permanent/channel)
- Suitable for automotive and industrial applications
- Capacitive loads such as lamps
- Inductive loads such as relays and solenoids
- Resistive loads such as heater elements
- Replaces electromechanical relays, fuses and discrete circuits

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Key Features

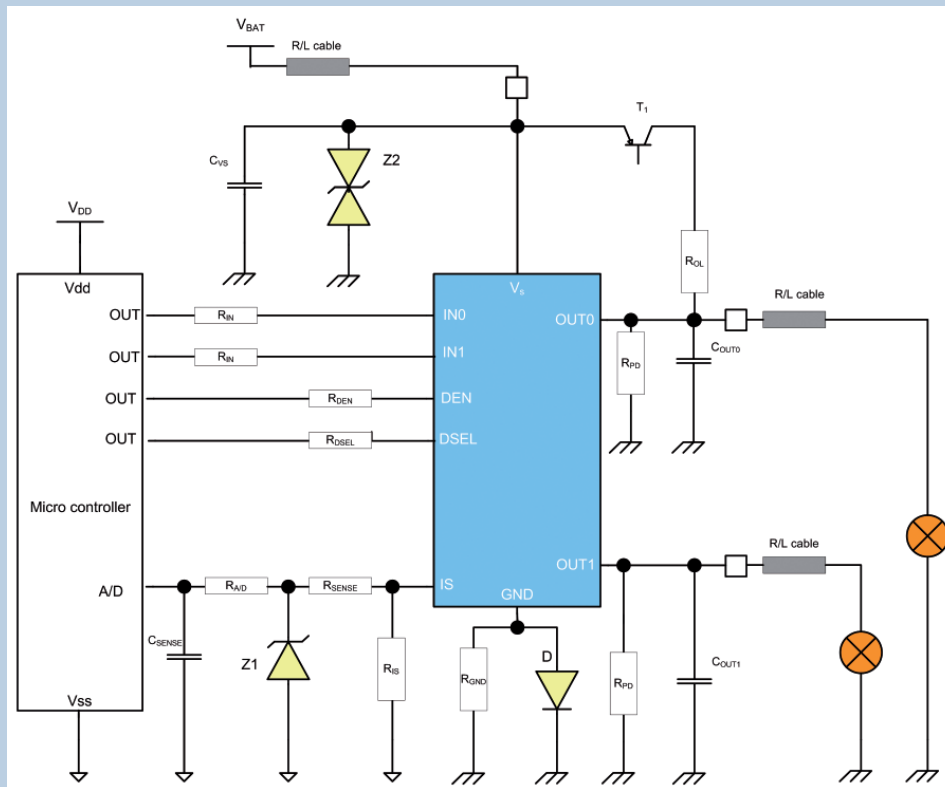
- N-channel MOSFET with charge pump
- Very low stand-by current (<0.5μA)
- PWM capability up to 200Hz (up to 400Hz for LEDs)
- AEC Qualified, ROHS and ELV compliant
- Analog current sense combined with digital fault feedback
- ESD, overvoltage, overload and overtemperature protected
- Current limitation and short circuit protection
- Open load detection and diagnosis in ON and OFF state

Key Benefits

- Best-in-class current sense accuracy
- Ultra low quiescent current - a new industry benchmark
- Enable/disable multiplexed current sense outputs - minimizes demand for A/D ports
- Short circuit robustness specified in the product datasheets
- Easy to design in - broad flexible portfolio, sharing the same features set across all PROFET™+ devices
- If you know one PROFET™+ device, you know them all!

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Block Diagram (dual-channel device)



Product Summary

Part Number	Package	Green	Channel	$R_{ON@TJ=25^{\circ}C}$ [mΩ]	Operating Voltage Range [V]	IL (SC) (min) [A]	Diagnostic
BTS 5020-2EKA	PG-DSO-14	Yes	2	20	5.0 - 28.0	50	Sense
BTS 5030-1EJA	PG-DSO-8	Yes	1	30	5.0 - 28.0	36	Sense
BTS 5030-2EKA	PG-DSO-14	Yes	2	30	5.0 - 28.0	36	Sense
BTS 5045-1EJA	PG-DSO-8	Yes	1	45	5.0 - 28.0	25	Sense
BTS 5045-2EKA	PG-DSO-14	Yes	2	45	5.0 - 28.0	25	Sense
BTS 5090-1EJA	PG-DSO-8	Yes	1	90	5.0 - 28.0	20	Sense
BTS 5090-2EKA	PG-DSO-14	Yes	2	90	5.0 - 28.0	20	Sense
BTS 5120-2EKA	PG-DSO-14	Yes	2	120	5.0 - 28.0	9	Sense
BTS 5180-2EKA	PG-DSO-14	Yes	2	180	5.0 - 28.0	8	Sense

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