

HL8518

Single Channel 80mΩ High Side Switch

Description

HL8518 is a 80 mΩ RDS (ON) high side switch, providing fully protections and diagnostic functions. This device has two versions. For version A, the device reports the fault condition with the FLTn pin, open-drain structure. For version B, its ISNS pin outputs a small current proportional to the current flowing through the internal power FET. The user can connect a resistor from ISNS pin to GND. Then monitoring the voltage of this resistor, the user will know the load conditions, such as normal operation, short to ground, open load, etc.

The device limits the current flowing through its internal power FET. The current limit level can be set with an external resistor from the ILIM pin to the ground. An internal charge pump drives the gate of the power FET, allowing a typical 80 mΩ RDS (ON). When the output current is over the current limit setting, the device regulates the

power FET to clamp the output current at the setting level. When connecting the ILIM pin to the ground, the current limit is the internal default value. The active of the current limit circuit causes the power consumption of the device increases. The thermal accumulation of the device may trigger the thermal shutdown, turning off the power FET. When the power FET is turned off, the power path is disconnected, then the device temperature will decrease. When the device cools down, it will turn on the power FET again.

HL8518 is available in a HTSSOP-14L package with exposed thermal pad.

Features

- Operating voltage range, 3.5V ~ 40 V
- Very-low standby current, <math><0.5 \mu\text{A}</math>
- AEC-Q100 Qualified:
 - Device temperature grade 1: -40°C to 125°C
- Operating junction temperature, -40°C to 150°C
- 3.3 V and 5V compatible control logic
- High-accuracy current sense, $\pm 30 \text{ mA}$ at 1 A
- Programmable current limit with external resistor
- Diagnostic function can be enabled or disabled
- Tested according to AECQ100-12 Grade A,
- 1 million times Short to GND test
- Electrical transient disturbance immunity
- certification of ISO7637-2 and ISO16750-2
- Protections
 - Overload and short-circuit protection
 - Inductive load negative voltage clamp
 - Undervoltage lockout (UVLO) protection
 - Thermal shutdown/swing with self-recovery Loss of GND, loss of supply protection
 - Reverse battery protection with external circuitry
- Diagnosis
 - On- and Off-state output open and short to battery detection
 - Overload and short to ground detection and current limit
 - Thermal shutdown/swing detection
- Diagnosis reports
 - Version A: open-drain digital output
 - Version B: current sense analog output
- HTSSOP-14L

Applications

- Power switch for low wattage lamp
- High side relays and valve
- General resistive, inductive, and capacitive loads

Typical Application Diagram

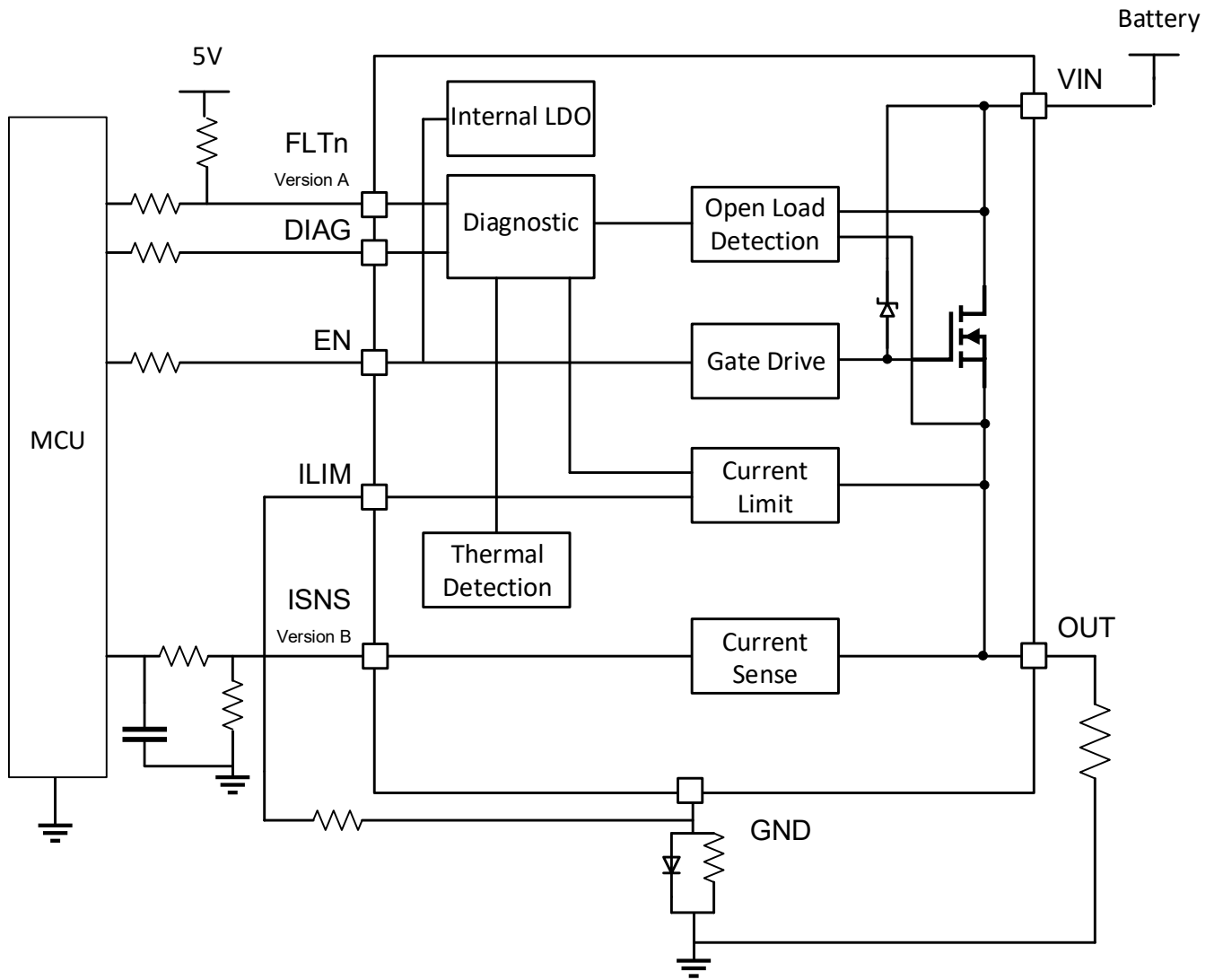


Figure 1. Typical Application Diagram

Order Information

PART NUMBER	No. of Channel	Ron	Diagnose	Package
HL8518SCAQ1	1	80mΩ	Digital IO (FLTn)	HTSSOP-14
HL8518SCBQ1	1	80mΩ	Analog Output (ISNS)	HTSSOP-14

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