

HL8512

12V Input Voltage 5A Continuous Load eFuse

Overview

The HL8512 is a family of eFuses designed to protect circuitry on the output (OUT) from transients on power bus (IN) and large inrush current and protect the power bus from undesired output shorts and unexpected over-load condition.

When the output ramps up, inrush current is limited by limiting the slew rate of output voltage. The slew rate is controlled by a small capacitor at SS pin. An internal small current source charges the SS pin external capacitor. The output voltage tracks the SS pin voltage with a constant ratio until internal power MOSFET is fully turned on. When user leaves SS pin floating, the output typical ramps up time is 0.4ms.

Current limit level can be set with an external resistor from ISET pin to the ground. An internal charge pump drives the gate of power MOSFET, allowing a very low on-resistance which is just 28mΩ. When output current is over the current limit setting, the device regulates power MOSFET to clamp the output current at the setting level. The active of current limit circuit causes power consumption of the device increase. The thermal accumulation of the device may trigger thermal shutdown, turning off power MOSFET. After the thermal shutdown, HL8512FN01 will turn on the power MOSFET again when auto retry delay time (t_{TSD_dly}) expires; HL8512FN02 will latch off the power MOSFET unless power cycling input voltage or toggles EN pin.

The output over-voltage event is limited by internal clamping circuits to a safe fixed maximum without external components. For over-voltage protection (OVP), HL8512 provides 12V systems.

The HL8512 is available in a DFN-10L package with 3mm x 3mm size.

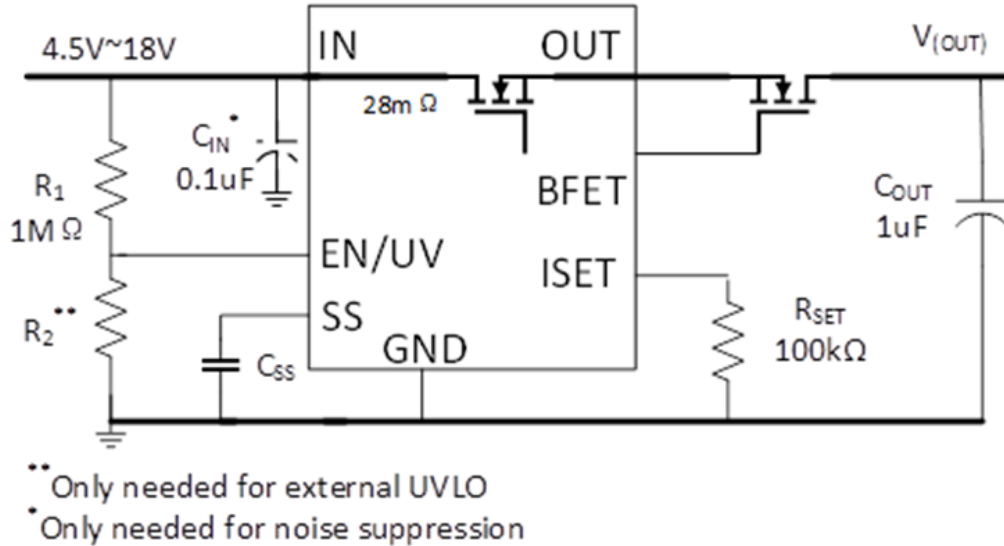
Features

- Integrated 28mΩ power FET
- Operating voltage range: 4.5-13.8V
- Output over-voltage clamp: 16.5V maximum clamp voltage
- Integrated gate driver for external reverse blocking MOSFET
- Thermal fault protection:
 - HL8512FN01: auto retry
 - HL8512FN02: latch off
- Programmable output ramps up rate
- Programmable UVLO
- Programmable, high accuracy current limit from 1A to 5A
- Meet the IEC 62368 requirements (single point failure and Annex G.9)
- DFN-10L 3mm x 3mm

Applications

- Server
- SSD
- POS
- USB Port

Simplified Application Diagram



Ordering Information

PART NUMBER	UV	OV CLAMP	FAULT RESPONSE	PACKAGE
HL8512FN01	4.3V	15V	Auto Retry	DNF-10L 3mm x 3mm
HL8512FN02	4.3V	15V	Latched	DNF-10L 3mm x 3mm

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