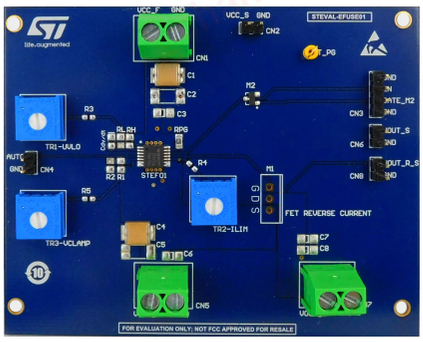
chanhvinh.com

STEVAL-EFUSE01

Data brief

Evaluation board based on the STEF01 fully programmable universal electronic fuse





Product summary	
Evaluation board based on STEF01 fully programmable universal electronic fuse	STEVAL-EFUSE01
8 V to 48 V fully programmable universal electronic fuse	STEF01

Features

- Input voltage from 8 to 48 V
- Peak output current up to 6 A
- Enable/Disable/Fault flag pin
- Adjustable undervoltage lockout
- Adjustable output voltage clamp
- Programmable V_{OUT} slew rate control
- Latch or auto-retry jumper-programmable thermal protection
- Power good monitoring flag
- Drives an optional external reverse current protection MOSFET
- CE certified
- RoHS and China RoHS compliant
- WEEE compliant (2012/19/UE RAEE II)

Applications

- Hot-swap boards
- Electronic circuit breakers
- Distributed power systems
- Industrial automation
- White goods/appliances
- Telecom power modules

Description

The electronic fuses (E-fuses) are integrated circuit protections that can replace conventional fuses or other discrete protection devices.

The STEVAL-EFUSE01 allows full evaluation of the STEF01 E-fuse and is designed to help you test and develop a power path protection to the system.

The STEF01 E-fuse integrates a control circuit and a low on-resistance MOSFET switch and provides a full set of protections, including overcurrent, overvoltage and inrush current. You can adjust UVLO threshold, clamping voltage and overload current limits through mechanical trimmers.

An external MOSFET, driven by the STEF01 gate driver pin, can be mounted to implement a reverse-current blocking circuit. The inrush current can be controlled by the output voltage ramp rate, with the dedicated soft start circuit embedded in the STEF01 device. The STEVAL-EFUSE01 evaluation board lets you easily adjust the output voltage ramp rate at the desired startup time, by changing the $C_{dv/dt}$ capacitor.

As most applications require a flag to signal that the output voltage is in the correct range, the STEVAL-EFUSE01 features a PG test point for information about the voltage drop on the pass element.

The STEVAL-EFUSE01 also features thermal latch and auto-retry thermal protection modes, selectable through a dedicated jumper configuration.

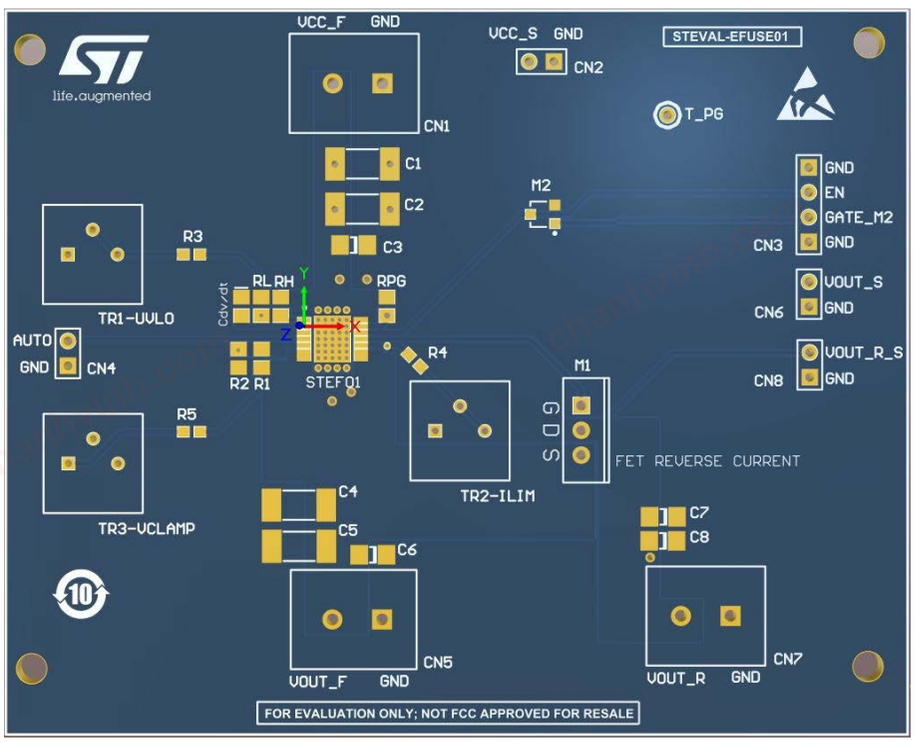
chanhvinh.com

1 STEVAL-EFUSE01 components

The STEVAL-EFUSE01 evaluation board can be set up through the mechanical trimmers and others passive components to match the application protection requirements:

- TR1 mechanical trimmer for the undervoltage lockout threshold setup (R3 and RL resistors must be mounted)
- TR2 mechanical trimmer for the overload current limit trip point setup (R4 must be mounted and R_{LIM} must be removed)
- TR3 mechanical trimmer for clamping voltage threshold setup (R5 and R2 resistors must be mounted)
- $C_{dv/dt}$ capacitor for soft start ramp setup
- M1 MOSFET to implement reverse current feature
- M2 MOSFET to enable/disable the device
- T_PG POWER GOOD test point
- CN4 thermal latch or auto-retry thermal protection modes jumper configuration

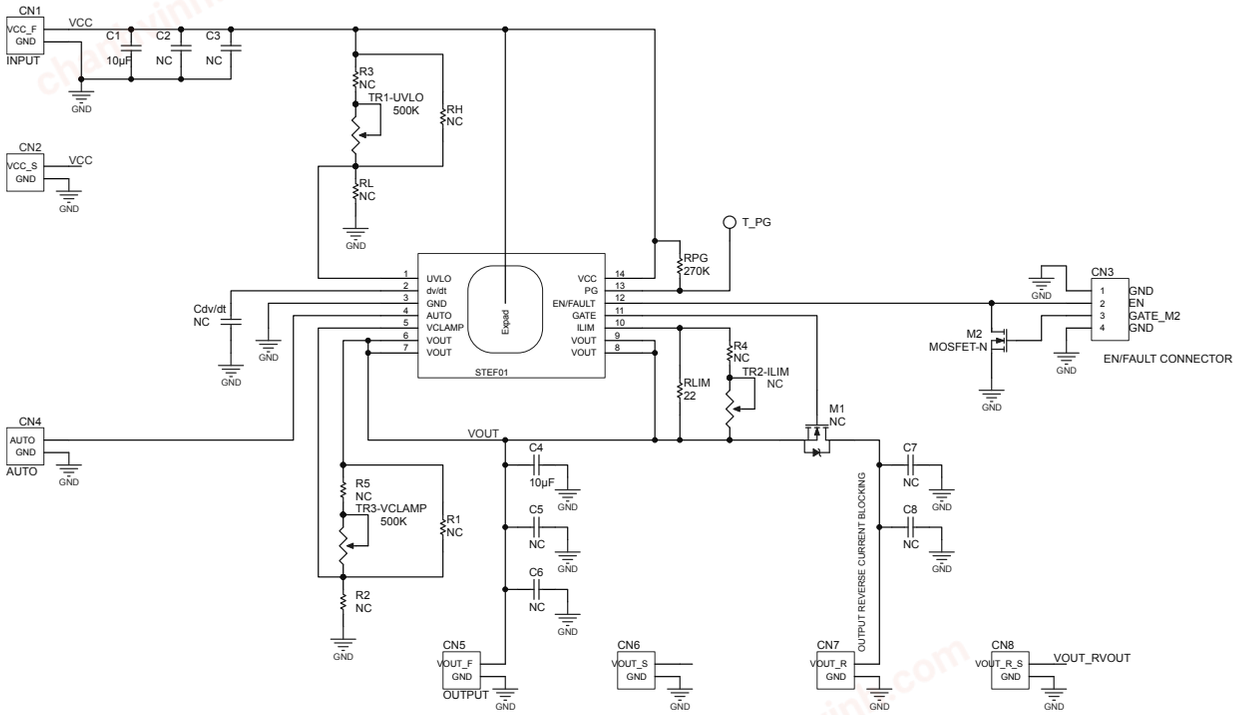
Figure 1. STEVAL-EFUSE top side components



chanhvinh.com

2 Schematic diagram

Figure 2. **STEVAL-EFUSE01 circuit schematic**



chanhvinh.com

Revision history

Table 1. **Document revision history**

Date	Version	Changes
10-May-2019	1	Initial release.

chanhvinh.com

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2019 STMicroelectronics – All rights reserved