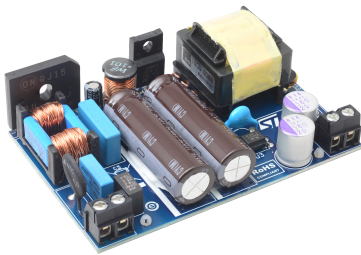


## 45W / 12V power supply based on STCH03 QR flyback controller and SRK1000B adaptive synchronous rectification controller



### Features

- Input voltage range  $V_{IN}$ : 90 V<sub>AC</sub> to 265 V<sub>AC</sub>
- Output range: 12 V - 3.75 A continuous operation
- Very low stand-by power: < 40 mW @ 230 V<sub>in</sub>
- Average full load efficiency:
  - > 88% @ 115 V<sub>IN</sub>
  - > 89% @ 230 V<sub>IN</sub>
- Active mode at 10% load efficiency:
  - > 84% @ 115 V<sub>IN</sub>
  - > 82% @ 230 V<sub>IN</sub>
- Active mode at 10% load efficiency: > 84% @ 115 V<sub>IN</sub> > 82% @ 230 V<sub>IN</sub>
- Safety: Acc. to EN60065
- EMI: Acc. to EN55022 - Class B
- Small PCB form factor: 85 x 55 X 25 mm

### Description

The **EVAL-STCH03-45W** is a 45 W / 12 V isolated power supply developed for general purpose applications. The evaluation board implements a Quasi Resonant flyback converter based on the STCH03 controller with optocoupler feedback for voltage and primary side regulation for constant output current regulation.

The secondary side rectification is based on the SRK1000B adaptive synchronous rectification controller.

The efficiency of the application is very high over entire output power range thanks to the smart power management of the STCH03 and SRK1000B controllers, the STF10LN80K5 MDmesh K5 primary MOSFET and the STL90N10F7 Power MOSFET for the synchronous rectification.

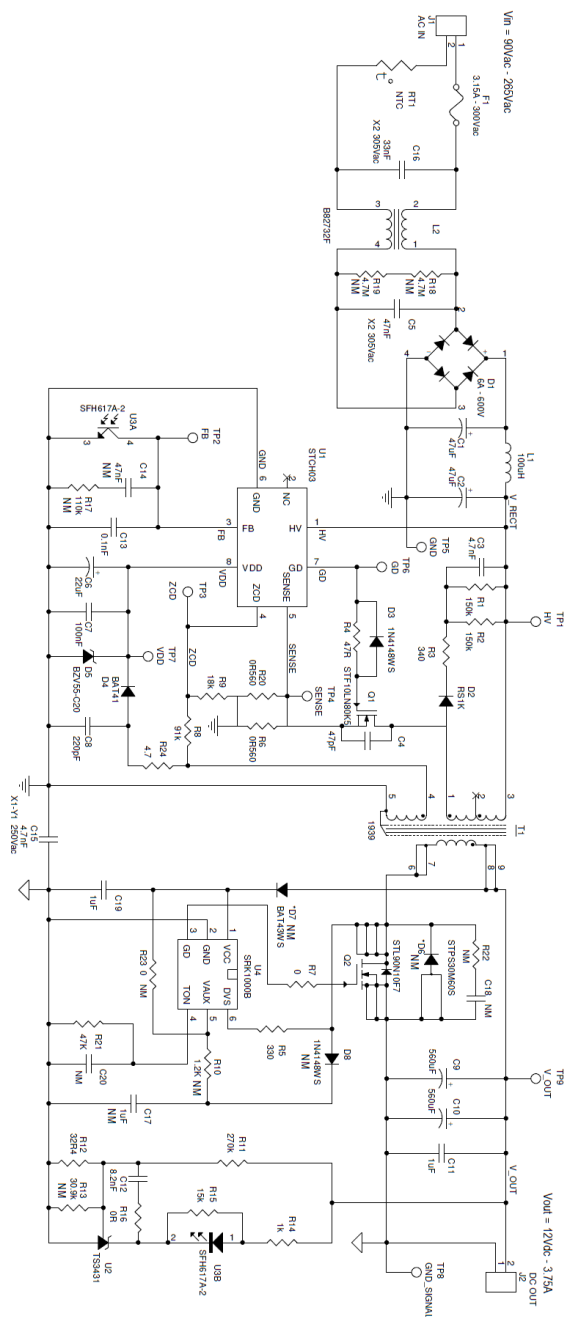
The evaluation board implements a robust output supply protected against output overvoltage, output undervoltage, output overpower and output short-circuit. The protections are auto-restart for a safe operation.

Product status link

[EVAL-STCH03-45W](#)

# 1 Electrical schematic

Figure 1. SCH-EVAL-STCH03-45W evaluation board schematic



## Revision history

**Table 1. Document revision history**

Date	Version	Changes
17-Apr-2019	1	Initial release.
08-Nov-2019	2	Primary MOSFET part number modified with the correct part number STF10LN80K5
14-Nov-2019	3	Minor changes

**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](http://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