

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



Features

- Input voltage range V_{IN} : 90 V_{AC} to 265 V_{AC}
- Output range: 12 V - 3.75 A continuous operation
- Very low stand-by power: < 40 mW @ 230 V_{in}
- Average full load efficiency:
 - > 88% @ 115 V_{IN}
 - > 89% @ 230 V_{IN}
- Active mode at 10% load efficiency:
 - > 84% @ 115 V_{IN}
 - > 82% @ 230 V_{IN}
- Active mode at 10% load efficiency: > 84% @ 115 V_{IN} > 82% @ 230 V_{IN}
- 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.

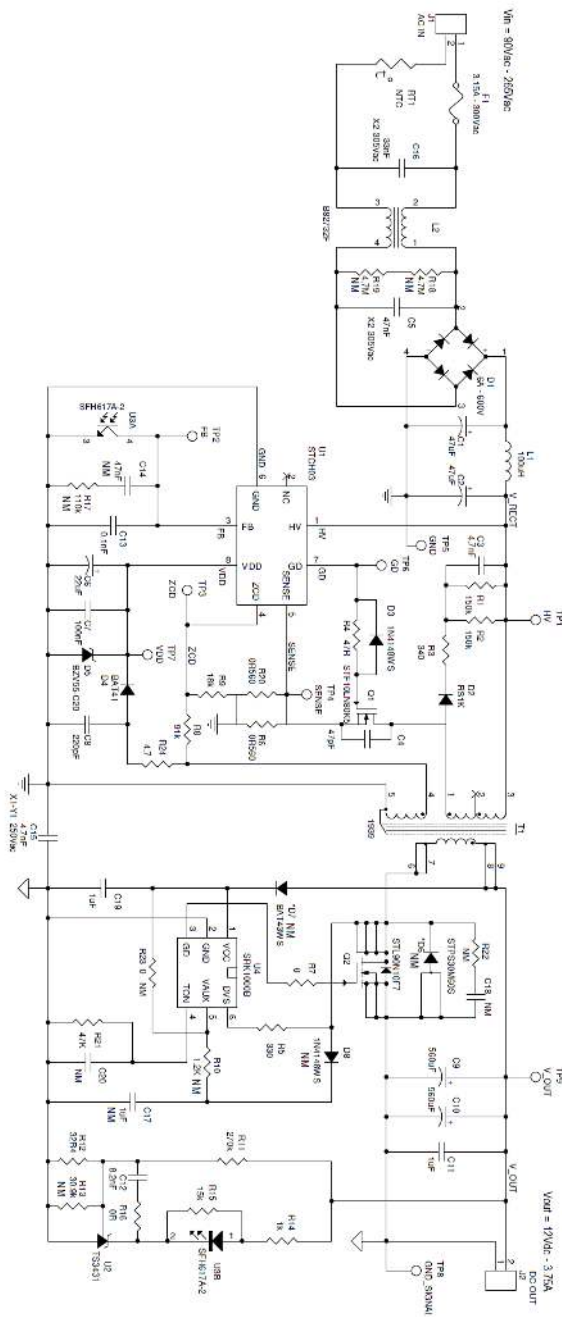
The evaluation board implements a robust output supply protected against output overvoltage, output undervoltage, output overpower and output short-circuit. The protections are auto-restart for a safe operation.

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 |

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