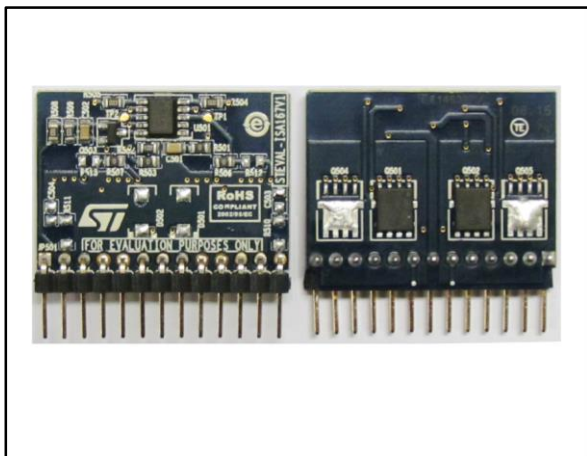


Evaluation board: SRK2001 adaptive synchronous rectification controller for LLC resonant converters with STL85N6F3

Data brief



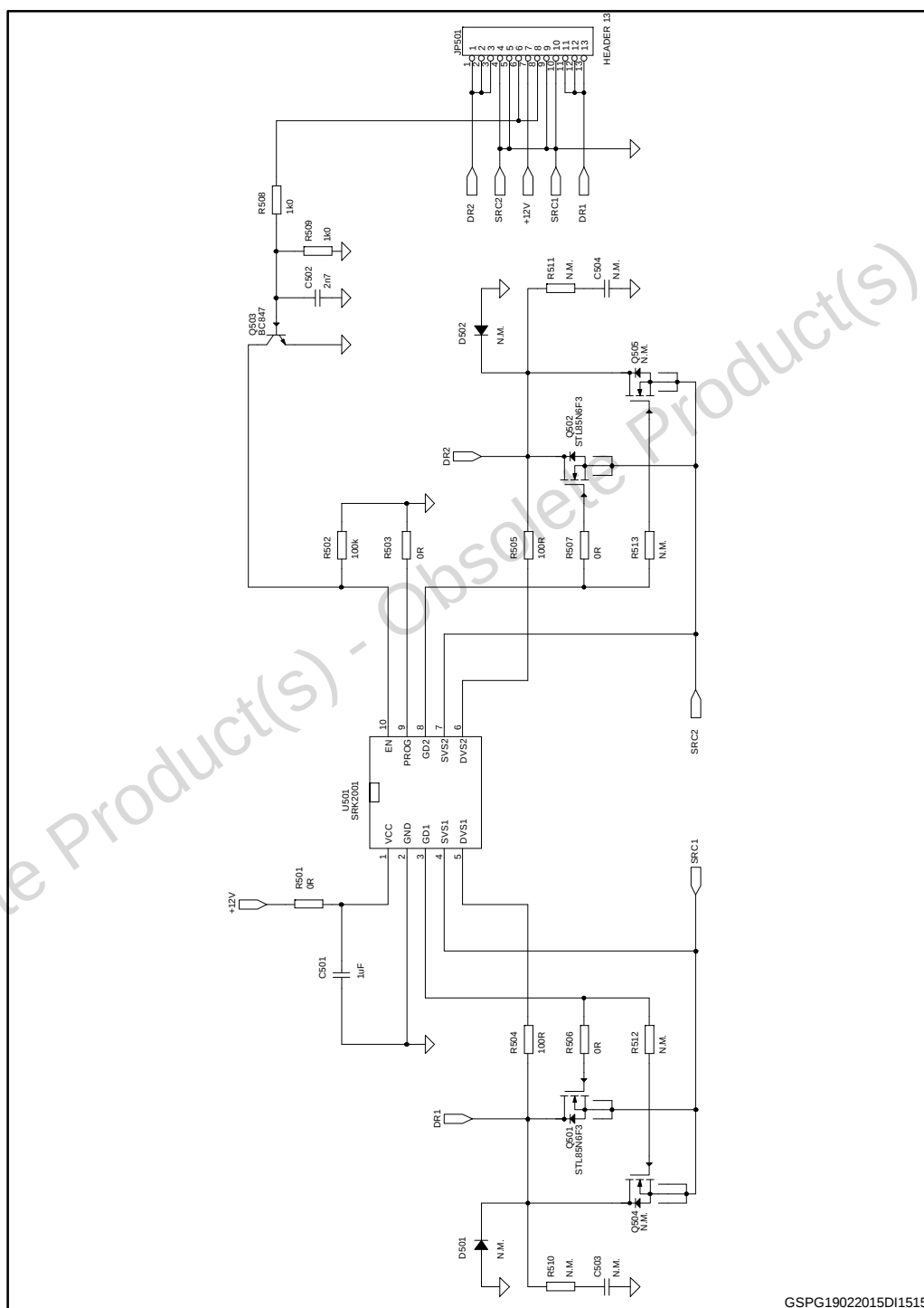
Description

The STEVAL-ISA167V1 is a product evaluation board designed to demonstrate the performance of the SRK2001 synchronous rectification controller. The SRK2001 implements a control scheme specific for secondary-side synchronous rectification in LLC resonant converters that use a transformer with center-tap secondary winding for full-wave rectification. It provides two high-current gate-drive outputs (for driving N-channel power MOSFETs). Each gate driver is controlled separately and an interlock logic circuit prevents the two synchronous rectifier (SR) MOSFETs from conducting simultaneously. Device operation is based on adaptive algorithms for both turn-on and turn-off of SR MOSFETs. During fast load transitions or during above resonance operation, a further turn-off mechanism is provided, based on a ZCD_OFF comparator that triggers the gate drive circuit for very fast MOSFET turn-off. The board includes two SR MOSFETs (PowerFlat package) and can be easily implemented in an existing converter as a substitute for rectifier diodes.

Features

- Synchronous rectifier for LLC resonant converter, with adaptive turn-on and turn-off
- V_{CC} range: 4.5 V to 32 V
- Max frequency: 500 kHz
- Dual gate drive for N-channel MOSFETs (strd level driver)
- SR MOSFET type: STL85N6F3 (60 V – 6.5 m Ω) PowerFLAT
- RoHS compliant

Figure 1: STEVAL-ISA167V1 circuit schematic



2 Revision history

Table 1: Document revision history

Date	Rev	Changes
17-Apr-2015	1	First release.

Obsolete Product(s) - Obsolete Product(s)

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. 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.

© 2015 STMicroelectronics – All rights reserved