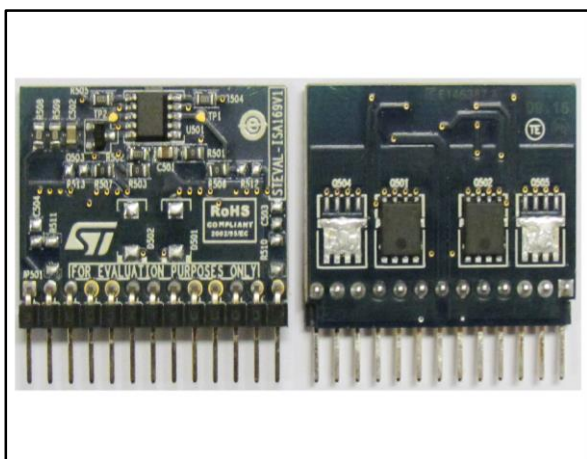


Evaluation board: SRK2001L adaptive synchronous rectification controller for LLC resonant converters with STL140N4LLF5

Data brief



Features

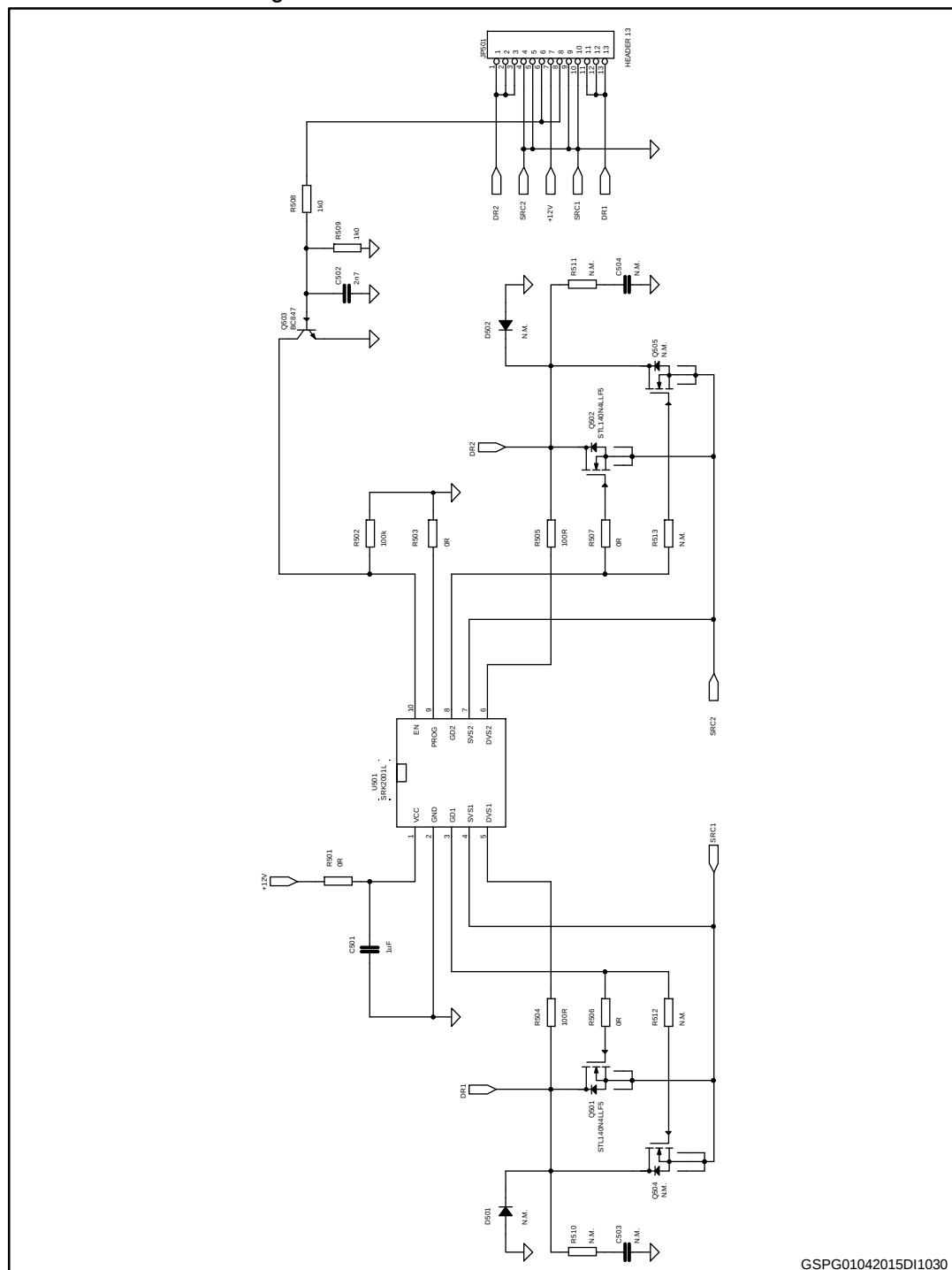
- Synchronous rectifier for LLC resonant converter, with adaptive turn-on and turn-off
- V_{CC} range: 4.5 V to 32 V
- Max frequency: 500 kHz
- Dual gate drive for N-channel MOSFETs (logic level driver)
- SR MOSFET type: STL140N4LLF5 (40 V – 3.1 m Ω) PowerFlat

Description

The STEVAL-ISA169V1 is a product evaluation board designed to demonstrate the performance of the SRK2001L synchronous rectification controller. The SRK2001L 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.

1 Schematic diagram

Figure 1: STEVAL-ISA169V1 circuit schematic



2 Revision history

Table 1: Document revision history

Date	Version	Changes
17-Apr-2015	1	Initial release.

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