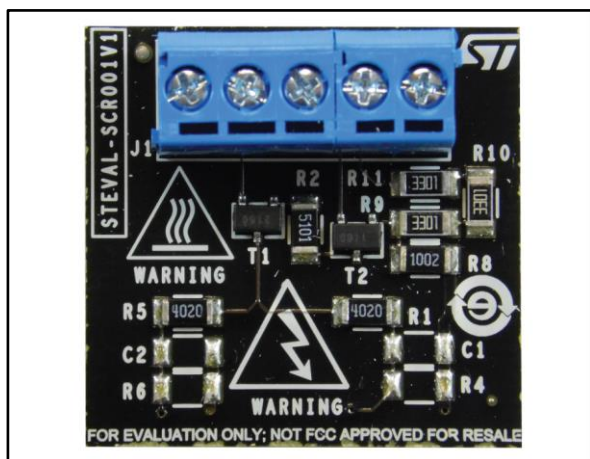


Inrush current solution with bypass SCR

Data brief



Description

The STEVAL-SCR001V1 is a low cost evaluation board for testing ST inrush current limitation solutions.

Based on an analog control circuit with only discrete components, it offers a compact and reliable alternative to relays to bypass inrush current limiting resistors in power converters.

Its drive circuit is self-synchronized to the AC line. Working in pulsed mode, it allows low gate drive consumption and no SCR reverse losses. Additionally, the 50 mA SCR [TN5015H-6G](#) provides better immunity to Electrical Fast Transients (EFT).

The power supply of the circuit can be created from a secondary winding of a PFC or an auxiliary power supply used to drive transistor and power the system MCU. With no adjustment needed when 12 V unregulated power is supplied, and only 5 wires to connect, this board can be easily implemented on existing PFC or fly-back converters.

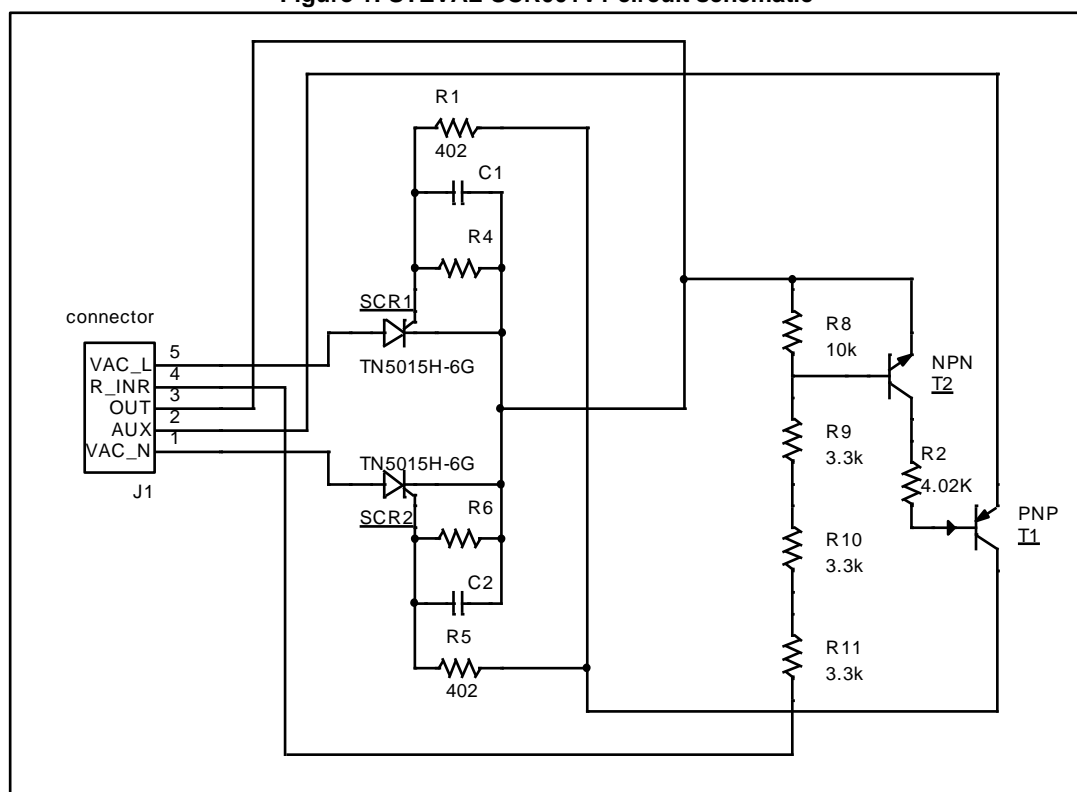
It is suitable for applications with peak current up to 5 A (at 60 °C ambient temperature).

Features

- Two high-temperature thyristors (SCR) in D²PAK package to bypass the inrush resistor
- Compact SMD solution: 26 x 26 mm (≈ 1 sq. in)
- Simple drive circuit: 2 low voltage transistors and 7 resistors (no MCU)
- Requires an unregulated power supply (12 V typ.; created from a secondary winding)
- Compatible with PFC and fly-back converter
- Suitable for applications from 50 W up to 800 W (230 V_{RMS}, T_{AMB} = 60 °C)
- Input voltage range: 90-265 V_{AC}, 50/60 Hz
- Robust and immune (2 kV IEC 61000-4-5, 2.5 kV IEC 61000-4-4) and low EMI noise (EN55014) solution
- RoHS compliant

1 Schematic diagrams

Figure 1: STEVAL-SCR001V1 circuit schematic



2 Revision history

Table 1: Document revision history

Date	Version	Changes
06-Nov-2017	1	Initial release.
05-Dec-2017	2	Fixed erroneous cover page Features and Description sections

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.

© 2017 STMicroelectronics – All rights reserved

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[STEVAL-SCR001V1](#)