



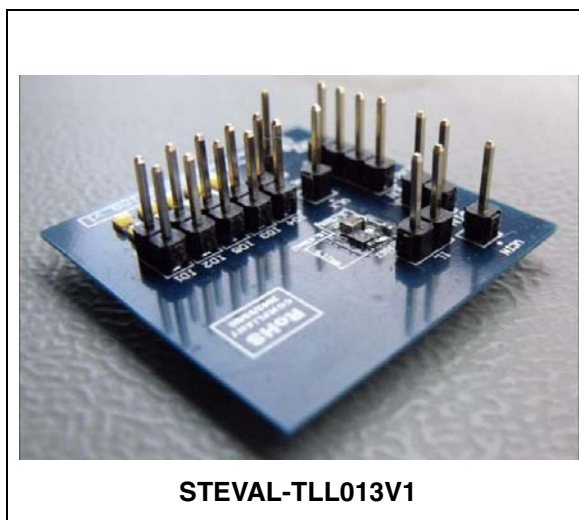
STEVAL-TLL013V1

5-channel (2 LEDs in series per channel) step-up white LED driver demonstration board based on the STLED25

Data brief

Features

- Operating input voltage range from 2.3 V to 5.5 V
- $\pm 7.5\%$ LED current accuracy
- Two LEDs in series per channel
- High-side current source
- Up to 125 mA of total LED current
- 86% efficiency at 100 mA
- PWM dimming with automatic shutdown time window
- 2.5 MHz switching frequency
- RoHS compliant



Description

The STEVAL-TLL013V1 demonstration board was designed to demonstrate the performance of the STLED25, a fixed frequency, high-efficiency, boost DC-DC converter with five parallel high-side current sources.

The STLED25 is able to provide 125 mA of total current with a maximum voltage of 7.5 V on each channel.

Each current source supports single or dual LED connections. The output voltage of the step-up converter is automatically set at 100 mV above the highest voltage required on any driver to guarantee the proper operation of the linear current sources. The device implements a self-test feature to detect any failure of the LEDs and to disable the related channel.

The failure status is reset as soon the IC is disabled. This mode of failure detection allows the device to continue operating driver channels that are operating normally, while avoiding excessive power consumption or associated thermal issues.

1 Schematic circuit

Figure 1. Application schematic

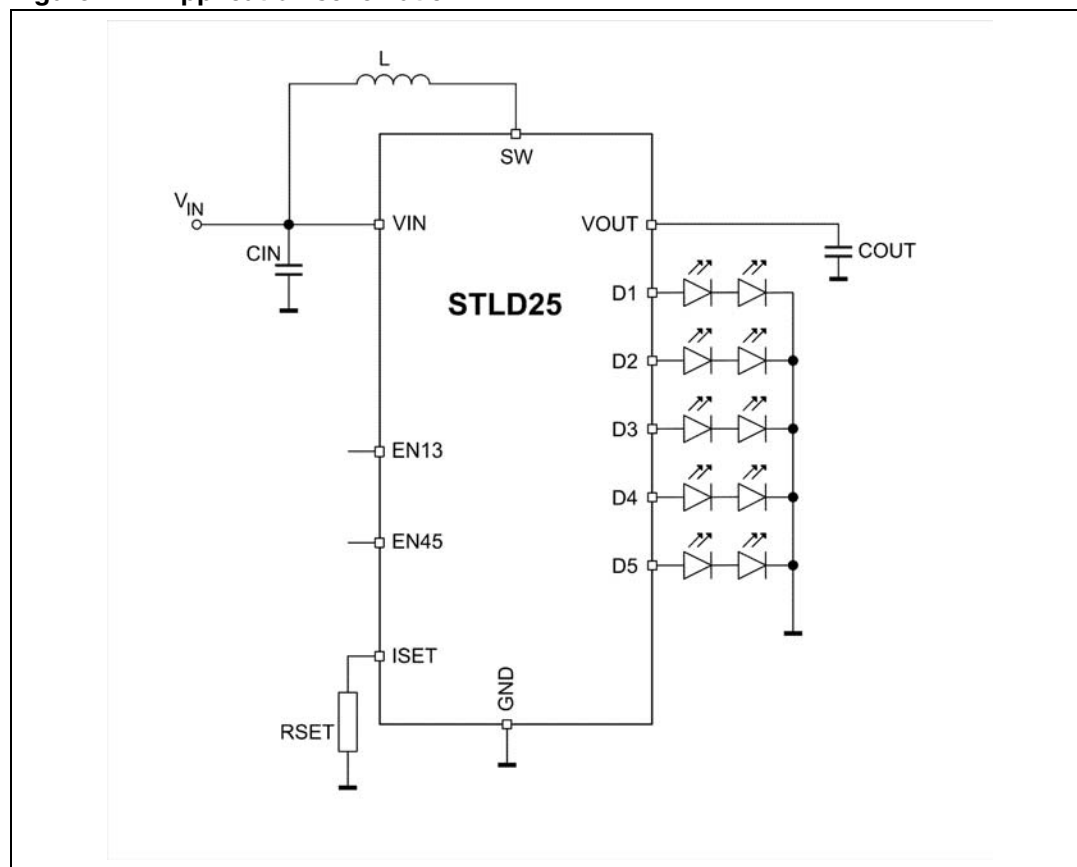


Table 1. Typical external components

Component	Manufacturer	Part number	Value	Size
C_{IN}	Murata	GRM155R60J155M	1.5 μ F	0402
C_{OUT}	Murata	GRM219R61A116U	10 μ F	0805
L	Samsung	CIG21K4R7SCE	4.7 μ H	0805
R_{SET}			25 k ⁽¹⁾	0402

1. For 20 mA per branch.

2 Revision history

Table 2. Document revision history

Date	Revision	Changes
21-Sep-2011	1	Initial release.

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY TWO AUTHORIZED ST REPRESENTATIVES, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2011 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com