



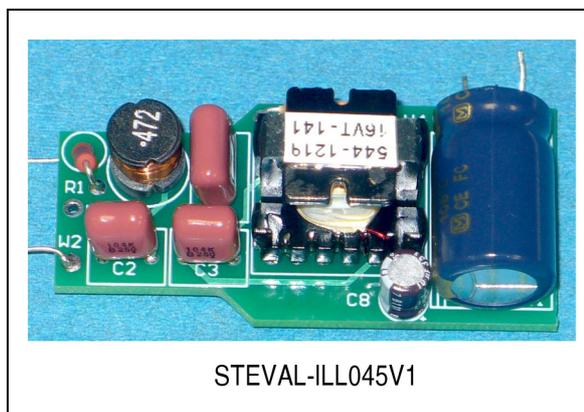
STEVAL-ILL045V1

9 W, A19 format Triac dimmable, high power factor, non-isolated LED driver based on the HVLED815PF (for US market)

Data brief

Features

- 9 W output, for light equal to a range from 40 W to 60 W incandescent
- +/-5% primary-side current regulation, no optocoupler
- Low component count - 25 parts, including the EMI filter
- Only 1 tight-tolerance component
- High efficiency, > 86%
- High power factor > 0.98 and low THD, < 20% over 90 V to 132 V range
- Fits in 28 mm tubing, 52 mm overall length
- Dimmable with common Triac dimmer
- RoHS compliant



The circuit regulates LED current over a wide range of line voltage and LED string voltage, and it is dimmable with standard Triac-based dimmers.

Description

The STEVAL-ILL045V1 demonstration board showcases ST's new LED driver chip, HVLED815PF. It solves the problem of low-cost drive circuitry for LED replacements for 40 W incandescent or equivalent compact-fluorescent lamps.

The HVLED815PF is a new integrated power controller using primary-side control to achieve LED current regulation within +/-5%. (It also has primary-side voltage regulation, used here for open load protection.)

The device incorporates an 800 V avalanche-rated FET and fits a standard SO-16 package. An internal startup circuit eliminates the need for external rapid-start circuitry.

The PFC-flyback power converter operates in transition mode for the highest efficiency and best use of components.

With the addition of a few extra components the HVLED815PF is made to draw near-sinusoidal input current from the AC line.

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
29-Jun-2012	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.

© 2012 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