



STEVAL-ILL013V1

80 W offline PFC and LED driver demonstration board with dimming based on the L6562A

Data Brief

Features

- 80 W LED driver
- 350 mA, 700 mA and 1 A LED current settings
- High efficiency (~90%)
- Wide input voltage range: 88 V to 265 VAC
- High power factor: 0.982 for 230 V/50 Hz AC
- Universal PWM input for dimming (external board required)
- Non-isolated SMPS
- Brightness regulation between 0 and 100%
- EMI filter implemented
- EN55015 and EN61000-3-2 compliant



This demonstration board design is compliant with standard EN61000-3-2 (limits for harmonic current emissions).

Description

The use of high power LEDs in lighting applications is becoming increasingly popular due to rapid improvements in lighting efficiency, longer life, higher reliability and overall cost effectiveness. Dimming functions are more easily implemented in LEDs, and they are more robust and offer wider design flexibility compared to other light sources.

The STEVAL-ILL013V1 demonstration board is an 80 W offline dimmable LED driver with high power factor (PF) intended for 350 mA, 700 mA and 1 A LEDs.

The converter is designed as a constant current source to achieve the best lighting performance from the LEDs, and can be used for lighting applications from low power, low voltage to high power, high voltage. This allows designers to cover a wide range of different LED systems using a single topology.

Additionally, in lighting applications where the input active power is higher than 25 W and a high power factor is required, the high PF converter can be connected as the first stage, before the modified BUCK converter.

Table 1. Jumpers settings

I_LED	JP1	JP2	JP3	JP4
350 mA	0	0	0	0
700 mA	1	1	0	0
1 A	0	0	1	1

2 Revision history

Table 2. Document revision history

Date	Revision	Changes
06-Mar-2009	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 AN AUTHORIZED ST REPRESENTATIVE, 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.

© 2009 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 - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com