



STEVAL-ILL043V1

High end, 75 W high power factor flyback LED driver based on the L6562A with two dimmable strings

Data brief

Features

- Mains voltage range $V_{ACmin} = 165V_{ac}$,
 $V_{ACmax} = 277 V_{ac}$
- Minimum mains frequency $f_1 = 47 \text{ Hz}$
- DC output voltage $V_{out} = 65 \text{ V}$
- Maximum output current $I_{out} = 1.5 \text{ A}$
- Maximum 2fL output ripple $\Delta VO\% = 1.0\%$
- Minimum switching frequency $f_{swmin} = 40 \text{ KHz}$
- Expected efficiency: 90%
- RoHS compliant

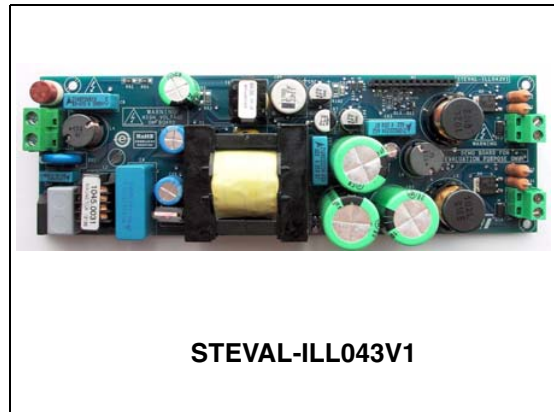
Description

The STEVAL-ILL043V1 demonstration board is a high-PF flyback configuration in order to drive a new design of the 75 W LED array based on the L6562A controller, with a much reduced BOM cost.

This configuration uses an isolated feedback with an optocoupler and a secondary side reference/error amplifier. The inverse buck converter based on the L6562A is used for constant voltage and constant current control in double dimmable channels.

The L6562A is a PFC controller operating in Transition mode. The highly linear multiplier includes a special circuit, able to reduce AC input current distortion, that allows wide-range-mains operation with an extremely low THD, even over a large load range.

The inverse buck converter shows good performance in terms of power switch control and conditioning circuitry signal for the current sensing. In fact, this topology of converter allows easy driving of the switch referred to ground by using an L6562A driver.



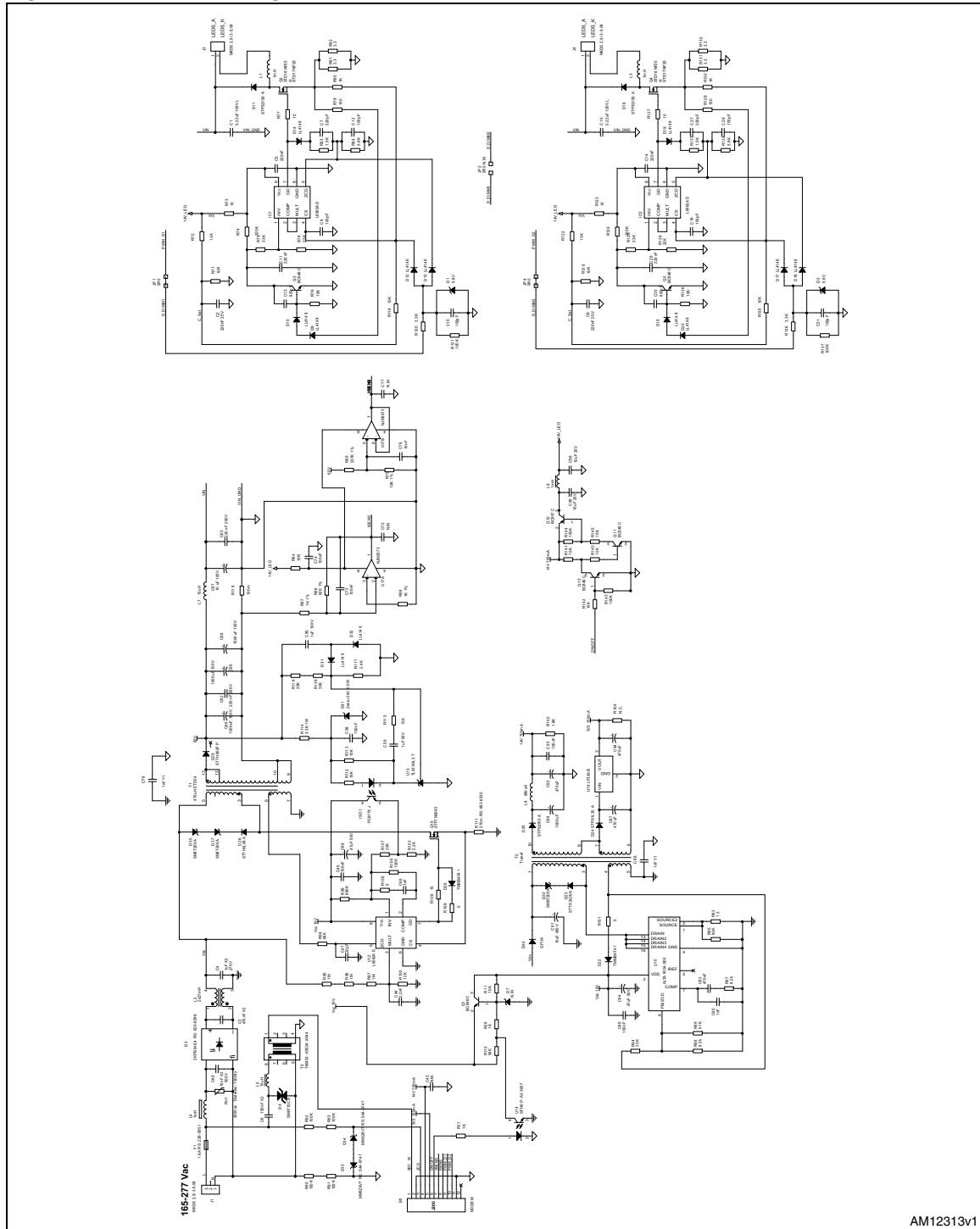
An integrated auxiliary power supply provides an energy saving action and a remote control monitoring function for the system.

This ballast designed by using the L6562A and the buck inverse converter offers more advantages in terms of output current and voltage stability.

The key benefit is the very high efficiency that, at full load, is almost 90%.

1 Schematic diagram

Figure 1. Schematic diagram



2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

3 Revision history

Table 1. Document revision history

Date	Revision	Changes
09-Jul-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

