

**60 W, high power-factor flyback LED driver
based on the L6562AT and TSM101**

Data brief

**Features**

- Mains voltage range: $V_{AC(min)} = 185$, $V_{AC(max)} = 265$
- Minimum mains frequency: $f_L = 47$ Hz
- DC output voltage: $V_{OUT} = 130$ V
- Maximum output current: $I_{OUT} = 0.462$ A
- Minimum switching frequency:
 $f_{SW(min)} = 57$ Hz
- Reflected voltage: $V_R = 195$ V
- Leakage inductance spike: $V_{SPIKE} = 100$ V
- Expected efficiency: 92%
- RoHS compliant

Description

The STEVAL-ILL042V2 demonstration board is an LED power supply in high PF flyback configuration designed to drive a 60 W LED array. The board is based on the L6562AT and the TSM101 controller.

This configuration uses an isolated feedback with an optocoupler and a secondary side reference/error amplifier, the TSM101, for voltage and current regulation.

The TSM101 includes two op-amps. One op-amp is used for constant voltage control and the other for constant current control.

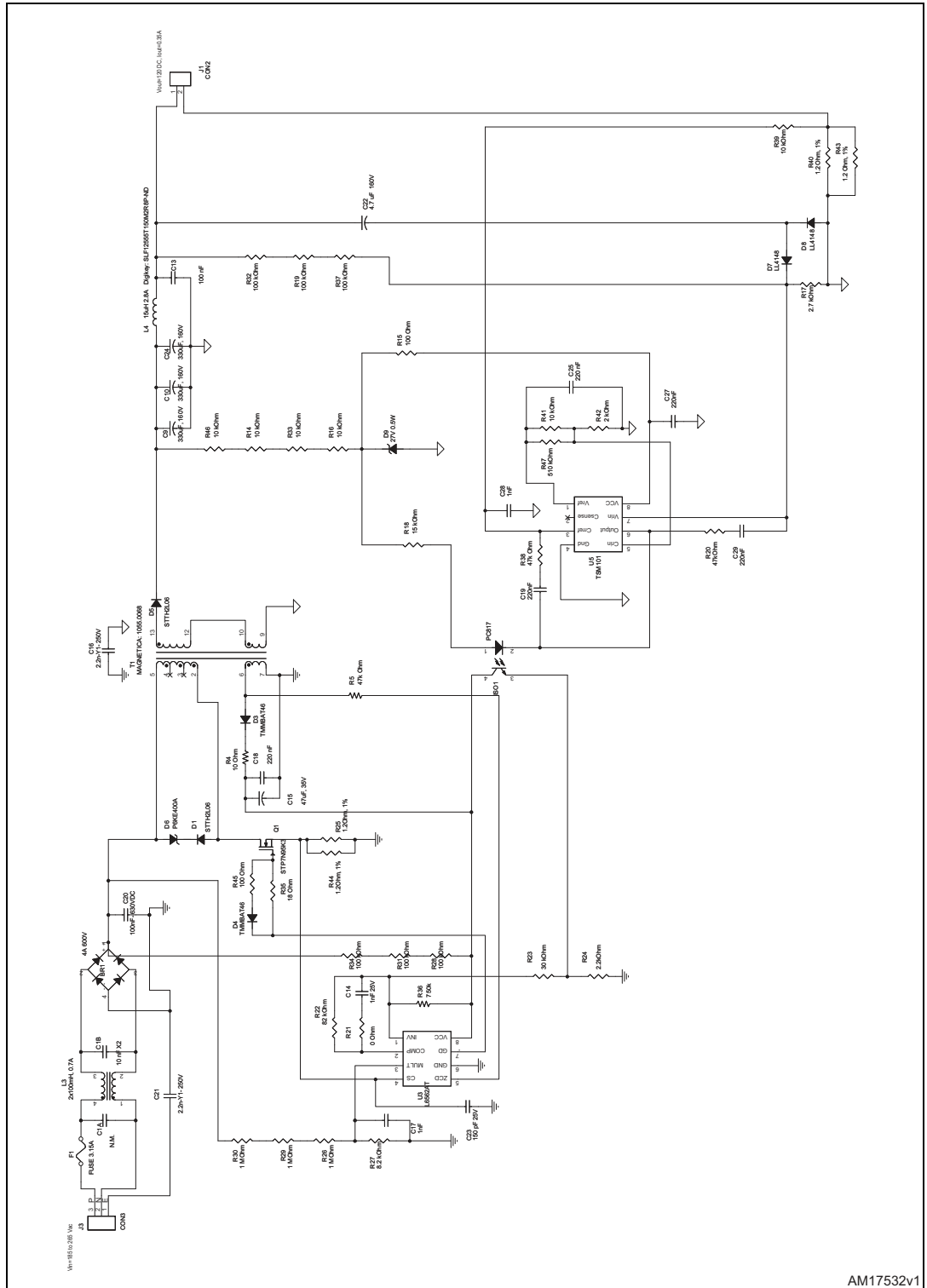
The L6562AT is a PFC controller which operates in transition mode. The highly linear multiplier includes a special circuit which is able to reduce AC input current distortion, allowing wide-range mains operation with an extremely low THD, even over a large load range.

Efficiency is high at heavy load - more than 90% can be achieved.

Designed using the L6562A and the TSM101 controllers, this system offers several advantages in terms of output current and voltage stability.

1 Schematic diagram

Figure 1. STEVAL-ILL042V2 circuit schematic



AM17532v1



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
30-Sep-2013	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.

ST PRODUCTS ARE NOT DESIGNED OR AUTHORIZED FOR USE IN: (A) SAFETY CRITICAL APPLICATIONS SUCH AS LIFE SUPPORTING, ACTIVE IMPLANTED DEVICES OR SYSTEMS WITH PRODUCT FUNCTIONAL SAFETY REQUIREMENTS; (B) AERONAUTIC APPLICATIONS; (C) AUTOMOTIVE APPLICATIONS OR ENVIRONMENTS, AND/OR (D) AEROSPACE APPLICATIONS OR ENVIRONMENTS. WHERE ST PRODUCTS ARE NOT DESIGNED FOR SUCH USE, THE PURCHASER SHALL USE PRODUCTS AT PURCHASER'S SOLE RISK, EVEN IF ST HAS BEEN INFORMED IN WRITING OF SUCH USAGE, UNLESS A PRODUCT IS EXPRESSLY DESIGNATED BY ST AS BEING INTENDED FOR "AUTOMOTIVE, AUTOMOTIVE SAFETY OR MEDICAL" INDUSTRY DOMAINS ACCORDING TO ST PRODUCT DESIGN SPECIFICATIONS. PRODUCTS FORMALLY ESCC, QML OR JAN QUALIFIED ARE DEEMED SUITABLE FOR USE IN AEROSPACE BY THE CORRESPONDING GOVERNMENTAL AGENCY.

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.

© 2013 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