



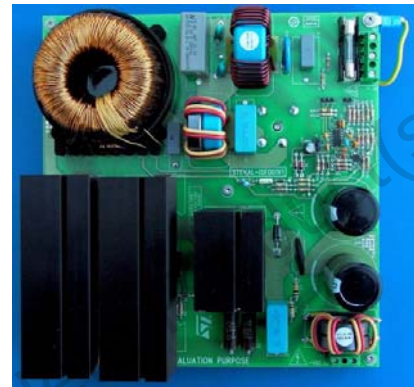
STEVAL-ISF001V1

3 kW fixed off-time PFC
based on the L6563 and STW55NM60N

Data brief

Features

- Single range input voltage from 185 V to 265 V, 50/60 Hz
- Output voltage: 400 V $\pm 5\%$
- Inductor saturation protection
- Optimized EMC input filter (in accordance with EN55014 and EN55022)
- Power factor > 0.98
- Efficiency > 95%
- THD (total harmonic distortion) below 10% starting from 1 kW
- RoHS compliant



STEVAL-ISF001V1

Description

The STEVAL-ISF001V1 demonstration board provides a compact and ready-to-use solution for the implementation of a simple PFC (power factor correction) system capable of supplying loads with a power close to the maximum delivered in most typical domestic applications.

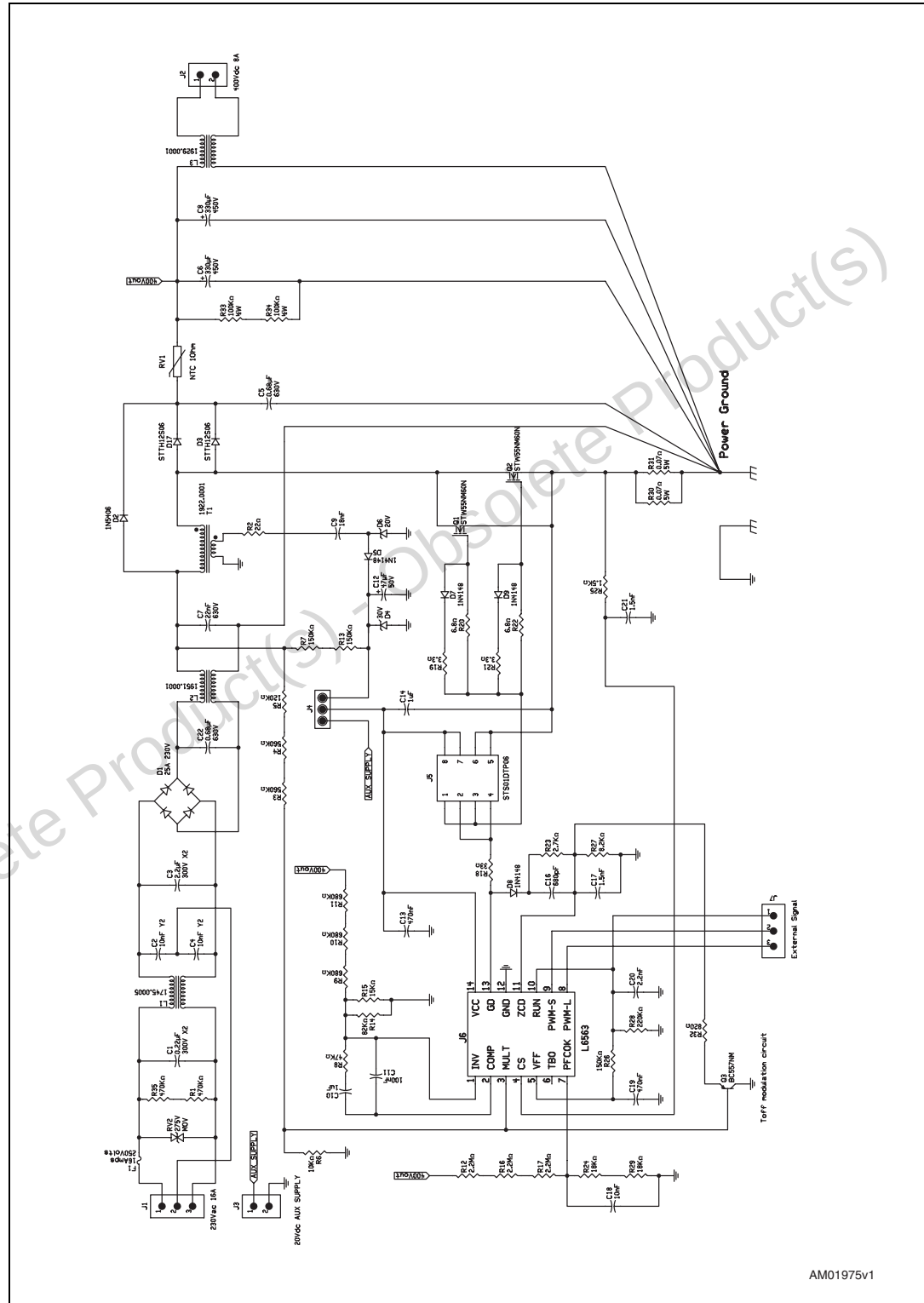
For this power range, the use of continuous mode PFC operation becomes mandatory in order to drain a current with an RMS value not exceeding the maximum allowed by the metering system, and to minimize the size of components involved in system operation.

Normally, the use of a standard continuous mode driver chip requires a more expensive and complex driver, as well as associated passive components. However, STMicroelectronics' patented solution allows the use of a simple driver, designed for transition mode operation, in fixed off-time, variable frequency, PWM modulation.

This type of modulation provides a current on the PFC boost inductor comparable to that of traditional continuous mode modulation.

1 Schematic diagram

Figure 1. STEVAL-ISF001V1 schematic diagram



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
11-Nov-2009	1	Initial release.

Obsolete Product(s) - Obsolete Product(s)

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 - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com