

## 30 W AC-DC adapter based on the L6565

Data Brief

### Features

- Input voltage range ( $V_{IN}$ ) from 88 to 264 V<sub>AC</sub>
- Mains frequency (f<sub>L</sub>) 50 / 60 Hz
- Maximum output power ( $P_{OUT}$ ) 30 W
- Output voltage  $V_{OUT} = 15 V \pm 3\%$
- Output current  $I_{OUT} =$  from 0 to 2 A
- $V_{RIPPLE} \leq 1\%$
- Minimum switching frequency (@ 100 V<sub>DC</sub> input voltage) 60 kHz
- Target efficiency (@  $P_{OUT} = 30 W$ ,  $V_{IN} = 88 - 264 V_{AC}$ )  $\eta > 80\%$
- Maximum no-load input power  $< 0.75 W^{(1)}$



### Description

This evaluation board is an AC-DC adapter for consumer equipment, typically implemented as an external unit. For more details see [Chapter 1: Characteristics](#)

1. Compliant with European Code of Conduct on Efficiency of External Power Supplies, phase 2, 01.01.2003

# 1 Characteristics

As such, it falls within the scope of the European "Code of Conduct on Efficiency of External Power Supplies" and is required to meet efficiency standard under no-load conditions as specified in the following table:

**Table 1. No-load conditions**

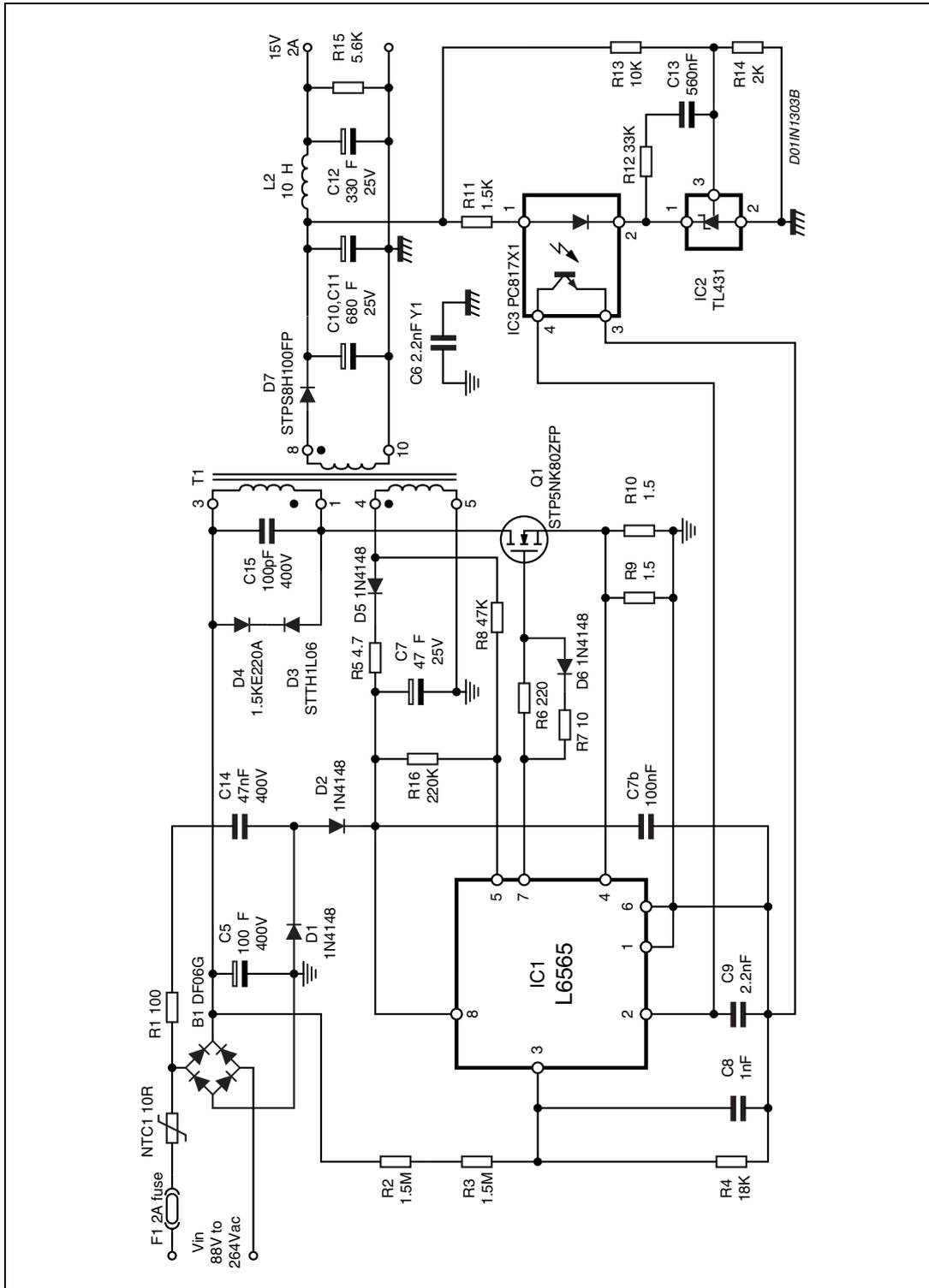
Rated input power	No-load power consumption		
	Phase 1 01.01.2001	Phase 2 <sup>(1)</sup> 01.01.2003	Phase 3 01.01.2005
≥ 0.3 W and < 15 W	1.0 W	0.75 W	0.30 W
≥ 15 W and < 50 W	1.0 W	0.75 W	0.30 W
≥ 50 W and < 75 W	1.0 W	0.75 W	0.30 W

1. Compliant with European Code of Conduct on Efficiency of External Power Supplies, phase 2, 01.01.2003

This evaluation board complies with the "Phase 2" requirements. The minimum switching frequency (60 kHz @  $V_{IN} = 100 V_{DC}$ ) has been chosen trading off between the transformer size and frequency-related losses. To provide room for the leakage inductance spike, an 800 V MOSFET (STP5NK80ZFP) is used.

## 2 Board schematic

Figure 1. Schematic



### 3 Revision history

**Table 2. Document revision history**

Date	Revision	Changes
18-Dec-2007	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.

© 2007 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](http://www.st.com)