



## EVAL6563-80W

### L6563 80W High performance<sup>TM</sup> PFC with active tracking boost function

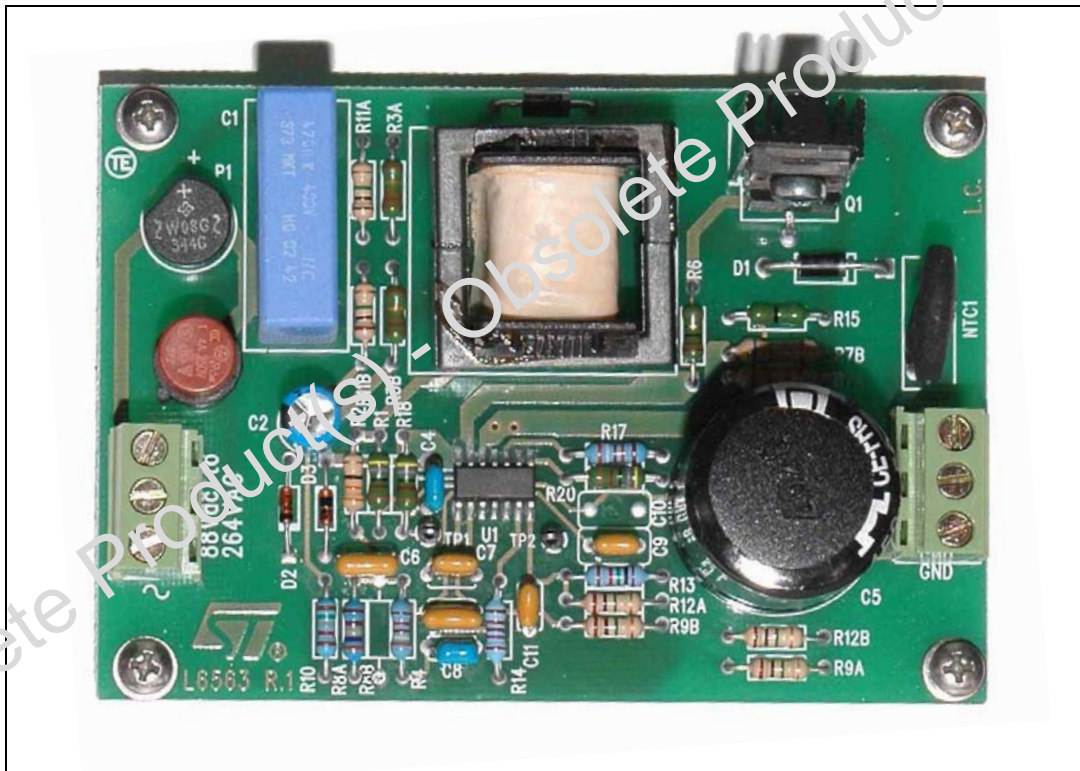
Data Brief

#### General description

L6563 is a current-mode PFC controller operating in Transition Mode (TM). Based on the core of a standard TM PFC controller, it offers improved performance and additional functions, such as active tracking boost function. In some applications it may be advantageous to regulate the output voltage of the PFC pre-regulator so that it tracks the RMS input voltage rather than at a fixed value like in conventional boost pre-regulators. This is commonly referred to as "tracking boost" or "follower boost" approach.

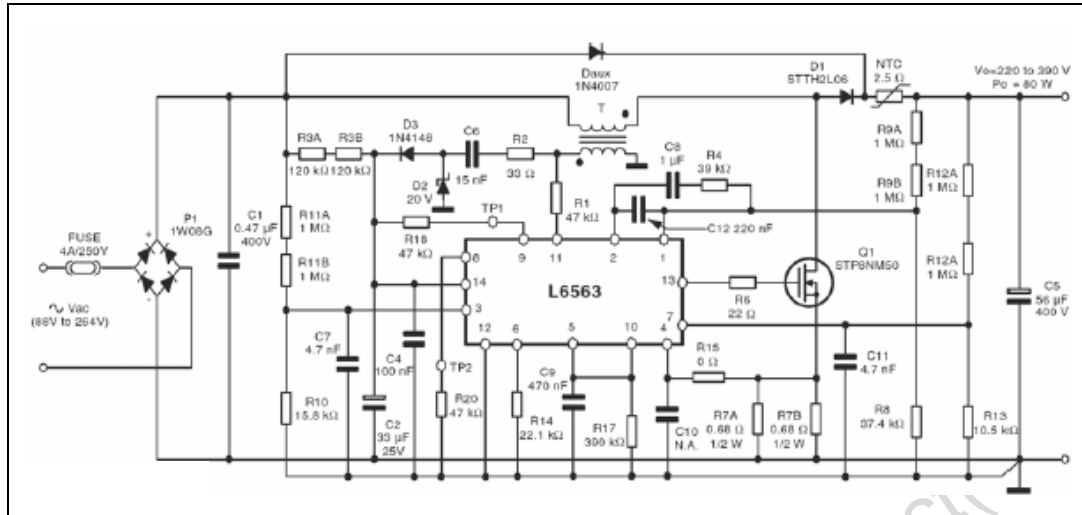
With the L6563 this can be realized by connecting a resistor between the TBO pin (pin 6) and ground. The board implements a 80 W, wide-range mains input, PFC pre-regulator.

#### Evaluation board



# 1 Features

Figure 1. EVAL6563 - 80W schematic



Boost inductor spec:

- E25x13x17 core, 3C85 ferrite or equivalent
- 1.6 mm gap for 0.43 mH primary inductance
- Primary: 80 turns 20x0.1 mm
- Secondary: 9 turns 0.1 mm

Figure 2. EVAL6563-80W: PCB and components layout (top view, real size: 64x94 mm)

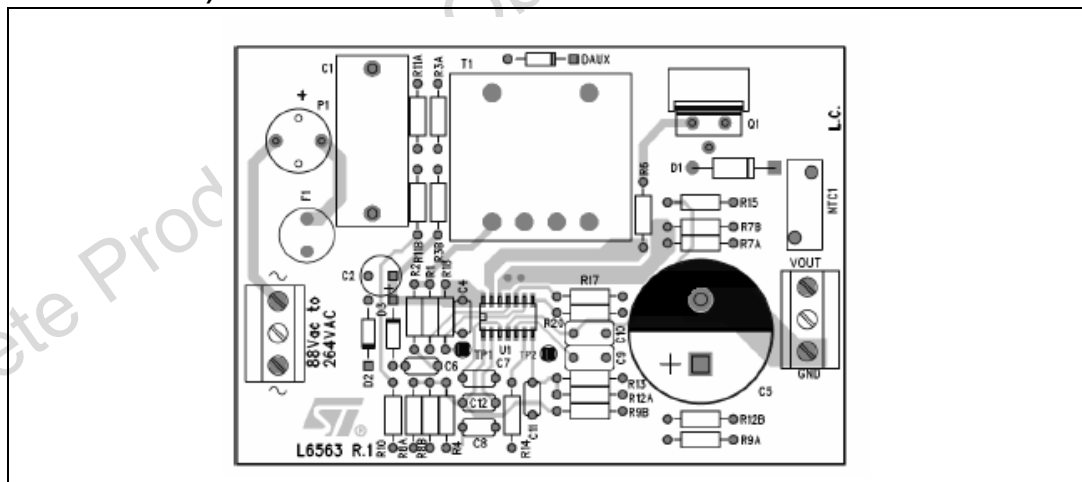


Figure 3. EVAL6563-80W: soldering side (top view)

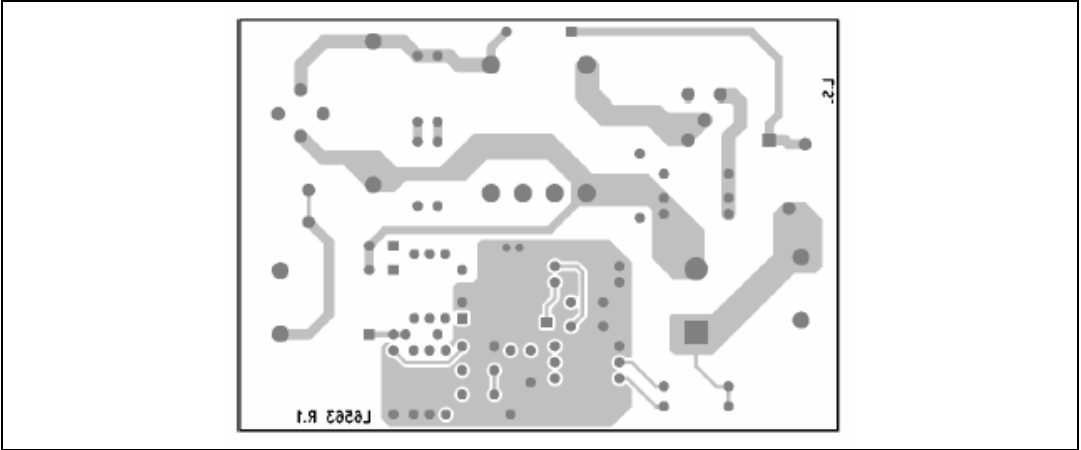


Table 1. EVAL6563 - 80W: evaluation results at full load

Vin(V <sub>AC</sub> )	Pin (W)	Vo(V <sub>DC</sub> )	$\Delta VO(V_{pk-pk})$	Po (W)	$\eta(\%)$	PF	THD (%)
90	85.3	219.4	16.6	79.64	93.4	0.999	3.7
115	84.9	244.1	15.0	80.80	95.2	0.998	4.3
135	83.7	263.7	13.9	80.16	95.8	0.997	4.8
180	83.5	307.6	14.5	80.28	96.1	0.993	6.0
230	85.2	356.7	13.0	81.33	95.5	0.984	7.7
265	85.0	390.6	12.1	80.85	95.1	0.974	9.5

Note: 1 Measurement done with the line filter shown in Figure 4.

Table 2. EVAL6563 - 80W: evaluation results at half load

Vin(V <sub>AC</sub> )	Pin (W)	Vo(V <sub>DC</sub> )	$\Delta VO(V_{pk-pk})$	Po (W)	$\eta(\%)$	PF	THD (%)
90	43.4	219.9	8.6	40.90	94.2	0.997	4.8
115	42.6	244.5	7.7	40.10	94.1	0.994	5.7
135	43.1	264.0	7.3	40.39	93.7	0.989	6.5
180	43.8	307.7	7.7	40.31	92.0	0.978	8.4
230	45.6	356.8	6.8	41.03	90.0	0.951	9.6
265	46.0	390.7	6.7	40.63	88.3	0.920	14.2

2 Measurement done with the line filter shown in Figure 4.

Figure 4. Line filter ( not tested for EMI compliance )

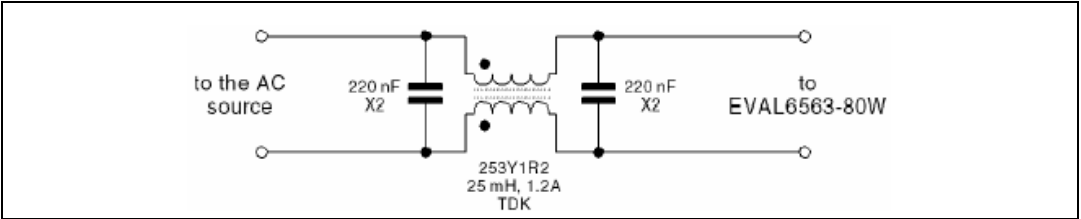
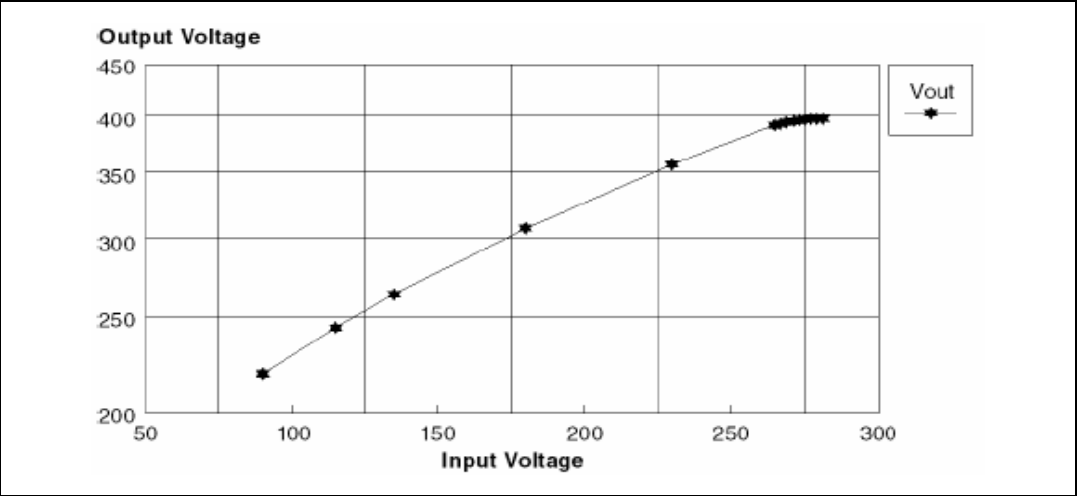


Figure 5. EVAL6563 - 80W: Vout vs. Vin ( tracking boost )



2 Revision history

Table 3. Revision history

Date	Revision	Changes
10-Jan-2007	1	First issue

**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)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[EVAL6563-80W](#)