



## STEVAL-ISA029V1

Compact power supply for DVD/set-top box demonstration board  
with three  $V_{out}$  (-30 V, +3.3 V, +12 V)

Data Brief

### Features

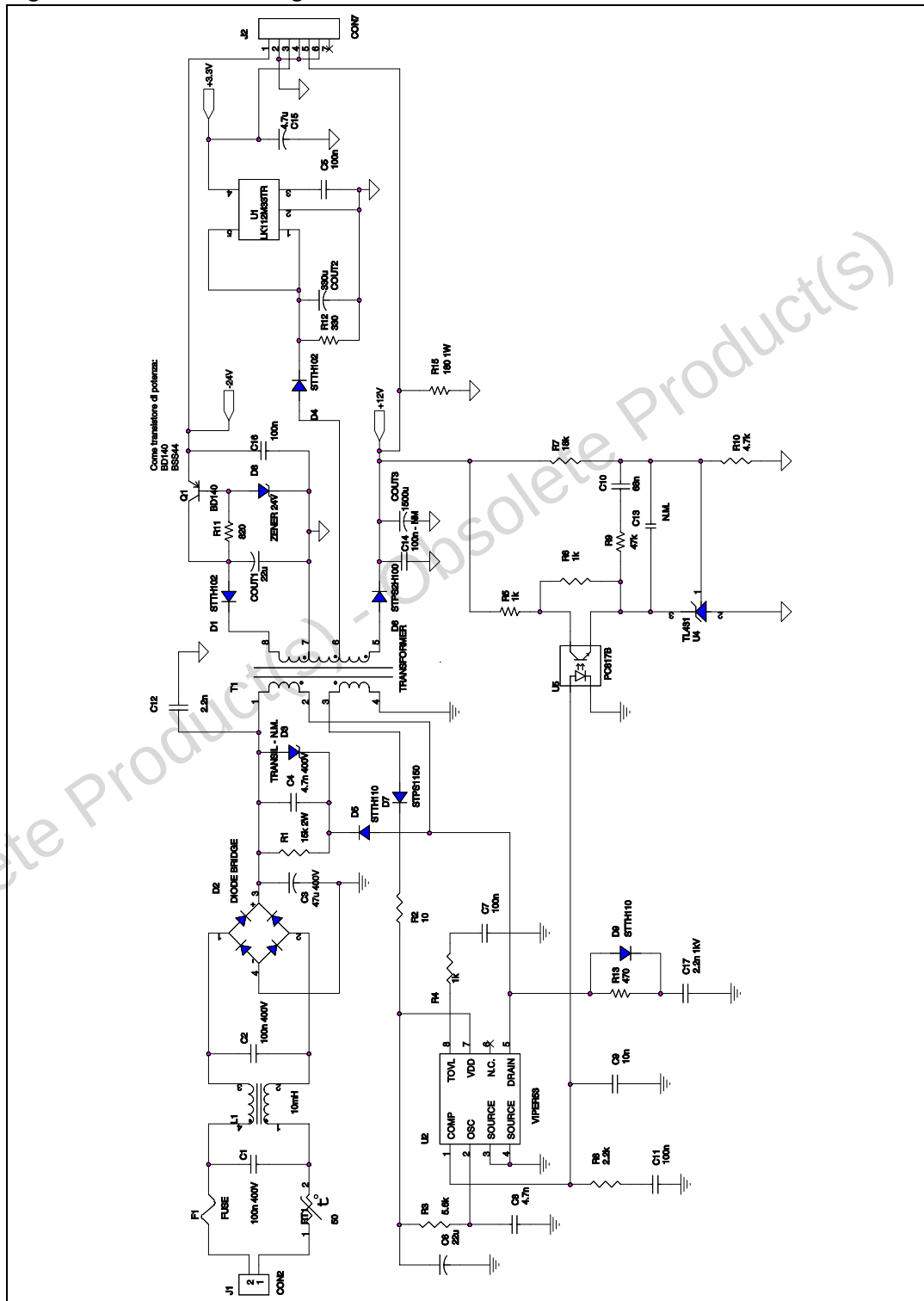
- Input voltage range: 85 V<sub>AC</sub> – 300 V<sub>AC</sub>
- $V_{OUT1}$  = 12 V ( $\pm 5\%$ )
- $I_{OUT1}$  = 1 A
- $V_{OUT2}$  = 3.3 V ( $\pm 2\%$ )
- $I_{OUT2}$  = 100 mA
- $V_{OUT3}$  = -24 V ( $\pm 10\%$ )
- $I_{OUT3}$  = 40 mA
- Safety EN60950 compliant
- EMI - conducted EN55022-B compliant

### Description

The STEVAL-ISA029V1 demonstration board is an isolated triple-output flyback converter, suitable for wide-range input voltage operation. The converter is based on the smart power VIPer53-E which, in a single package, integrates an enhanced current-mode PWM controller and a high-voltage MDmesh™ power MOSFET. The switching frequency is set to 60 kHz by means of an external RC network connected to a dedicated pin on the IC. The closed loop regulation is performed on the 12 V output using an optocoupler, which drives the COMP pin of the VIPer53-E. The 3.3 V output is post-regulated using a non-integrated low drop linear voltage regulator to achieve the required accuracy. The negative 24 V output is achieved by means of a discrete linear voltage regulator, made up of a Zener diode, a resistor and a PNP transistor.



**Figure 1. Schematic diagram**



## 2 Revision history

**Table 1. Document revision history**

| Date        | Revision | Changes          |
|-------------|----------|------------------|
| 02-Sep-2008 | 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.

© 2008 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)