



# STEVAL-ISA060V1

6 W single output SMPS demonstration board  
based on the VIPER17

Data Brief

## Features

- Input voltage range  $V_{in}$ : 90 VRMS to 265 VRMS
- Output voltage  $V_{out}$ : 12 V
- Max output current  $I_{out}$ : 500 mA
- Precision of output regulation  $\Delta V_{out\_LF}$ :  $\pm 5\%$
- High frequency output voltage ripple  $\Delta V_{out\_LF}$ : 50 mV

## Description

This demonstration board is based on the new VIPER17 device and implements a standard single-output isolated flyback converter operating at fixed frequency that can be 115 kHz or 60 kHz.

The VIPER17 device integrates in the same package two components: an advanced PWM controller with built-in BCD6 technology and an 800 V avalanche rugged vertical power MOSFET.

It is very suitable for offline power conversion operating either with wide range input voltage (85 VAC - 270 VAC) up to 6 W or with single range input voltage (85 VAC - 132 VAC or 175 VAC - 265 VAC). With European range input voltage (175 VAC - 265 VAC) the device can handle up to 10 W of output power.

The proposed solution has the advantage of using few external components compared to a discrete solution, providing several protections and very low standby consumption in no-load condition.

The protections present on the device such as overload and output overvoltage protections, secondary winding short-circuit protection, hard transformer saturation and brownout protections improve the reliability and safety of the design.

The frequency jittering, that is inside implemented, helps to meet the standards regarding electromagnetic disturbance.



Moreover internal thermal shutdown and an 800 V avalanche rugged power MOSFET improve the robustness of all the system.

If brownout and overvoltage protection are not necessary, the number of external components is further reduced.



## 2 Revision history

Table 1. Document revision history

Date	Revision	Changes
09-Feb-2009	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.

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

[www.st.com](http://www.st.com)