

STEVAL-ISA014V1

VIPer12A travel adaptor 3.6W output

Data Brief

Features

- Switch mode general purpose power supply
- Input: 85 to 264Vac @ 50/60Hz
- Output: 6V @ 600mA
- Output power : 3.6W
- Switching frequency 60kHz
- Current mode control
- 65% efficiency
- 9V to 40V wide range VDD voltage
- Auxiliary undervoltage lockout with hysteresis
- High voltage start up current source
- Overtemperature, overcurrent and overvoltage protection.

Reference design genaral description

The travel adaptor design presented here has been made with the aim of minimizing overall cost for a secondary voltage and current regulated adapter topology widely used in cellular phone adapters. Thanks to the VIPer12A low power consumption, it is possible to achieve 100mW standby power in a wide range of operations, as recommended by the "European Commission of Energy".



STEVAL-ISA014V1

ST Components

- VIPer12AS
- SMBY01-200

1 General circuit description

The circuit is a standard fly-back converter with secondary current and voltage regulation driving the VIPer12A feedback pin through an optocoupler.

The power losses are distributed at 6V / 600mA output power as follows:

- 400mW in the output diode
- 700mW in the VIPer12A
- 300mW in the transformer
- 380mW in the shunt resistor

Overall efficiency is 67%.

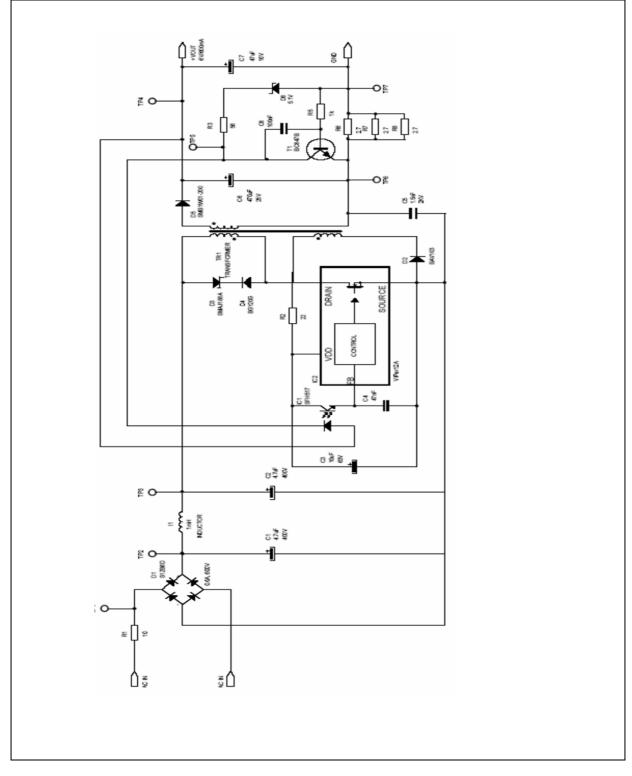
If the losses in the shunt resistor are considered as available power, the converter efficiency becomes 74%. This is possible by using a secondary controller like ST's TSM101.

In standby, the demo board consumes less than 100mW at 100Vdc and 120mW at 380Vdc.

The major contribution to the standby consumption is the VIPer12A own consumption and is independent from input voltage.

2 Board schematic







3 Revision history

Table 1.	Revision	history

Date	Revision	Changes
23-Mar-2006	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 AUTHORIZE REPRESENTATIVE OF ST, ST PRODUCTS ARE NOT DESIGNED, 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.

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.

© 2006 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

