

STEVAL-ISA008V1

Low cost wide range power supply for LCD or TV, 28 W output demonstration board based on the VIPer53-E

Data brief

Features

- Input voltage
 - Vin: 90 264 Vrms f: 45-66 Hz
- Output voltages
 - $-3.3 \text{ V} \pm 2 \%$ at 1 A dedicated to panel and digital circuitry for scaling
 - 7 V ± 8 % at 0.2 A dedicated to postregulator for microprocessor
 - 12 V ± 8 % at 2 A dedicated to backlight lamp inverters, audio and SCART
 - 35 V \pm 10 % at 10 mA dedicated to tuner for TV-LCD
- Standby
 - Input power less than 1 W at 230 Vac, delivering 30 mA on 7 V
- Overcurrent protection
 - On all outputs, with auto-restart at short removal
- PCB type & size
 - Cu single side 35 mm, CEM-1, 130 x 70 mm
- Safety
 - According to EN60950, creepage and clearance minimum distance 6.4 mm
- Emc
 - According to EN50022 Class B
- RoHS compliant

Description

The STEVAL-ISA008V1 demonstration board is a 28 W switch mode power supply which can be used to supply an LCD monitor or even an LCD-TV, with 15" or 17" panels and 2 lamps for backlight together with multimedia functions such as audio. The SMPS accepts a full range input voltage (90 to 265 Vrms) and can deliver four output voltages dedicated to the scaler (3.3 V), to the mP (7 V), to the backlight and audio (12 V), and to the TV tuner (35 V).



STEVAL-ISA008V1

The standby performance is very good, and the power consumption during standby is 800 mW at 230 Vac.

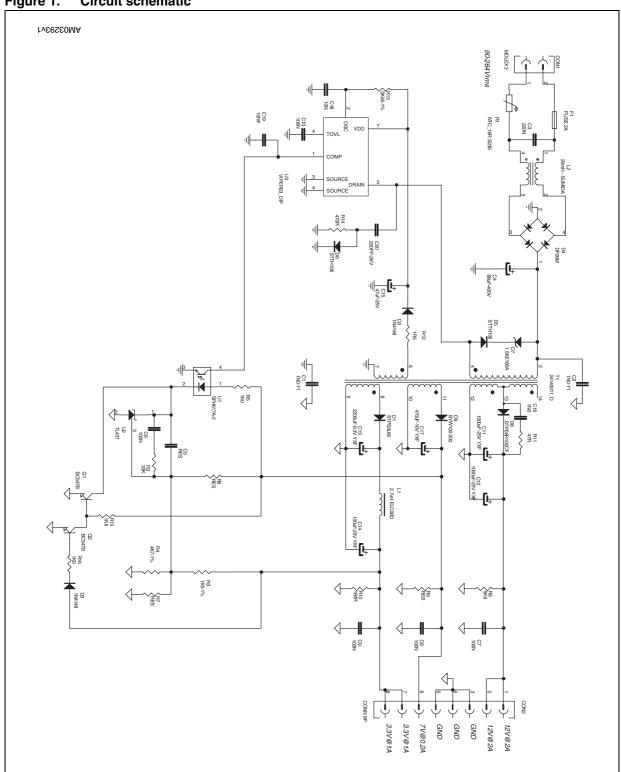
The circuit is also fully protected against faults such as output short-circuit or overvoltage.

The design pays particular attention to the final cost of the solution, so the PCB has been designed as single layer, and the circuit has no heat sink. The technology used is the standard through-holes, but can be easily changed to SMT as most of the components are available also in this technology. The circuit has been tested thoroughly in all the most relevant aspects with positive results and has been integrated with a 15" LCD-TV application without showing any problems.

Circuit schematic STEVAL-ISA008V1

Circuit schematic 1

Figure 1. **Circuit schematic**



STEVAL-ISA008V1 Revision history

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
15-Nov-2010	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.

© 2010 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 - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com

577