



STEVAL-ISS001V2

Line interactive 450 W UPS reference design - 230 V / 50 Hz model

Data Brief

Features

- Output rating power: 700 VA / 450 W
- Input voltage: 160 Vac \pm 3% - 294 Vac \pm 3%
- Input frequency: 50 Hz
- Output voltage: 184 - 265 Vac \pm 3 Vac
- Output frequency: 50 Hz \pm 0.1 Hz
- On battery output waveform: quasi-sine (square wave)
- Transfer time: Class 3 [EN62040-3]
- Typical recharge time: 8 h
- Backup time (full load): 2.5 - 3 min.
- Battery quantity: 2 pieces
- Battery nominal voltage: 12 V
- Battery capacity: 7.2 Ah
- Battery recharge: two steps
- Operating temperature: 0 °C to +40 °C
- Storage temperature: -20 °C to +60 °C
- Size (H x W x D): 175 mm x 120 mm x 430 mm
- Weight: 11 kg
- Shipping weight: 11.5 kg
- EMI Classification: EN 62040-2



The UPS was designed with RS-232 joint signal and USB interfaces (USB for RS-232 converter). It is possible to connect the UPS to a PC using an RS-232 or USB cable and control the UPS status through the "UPS Monitor 3.0x" software that must be installed on the same PC.

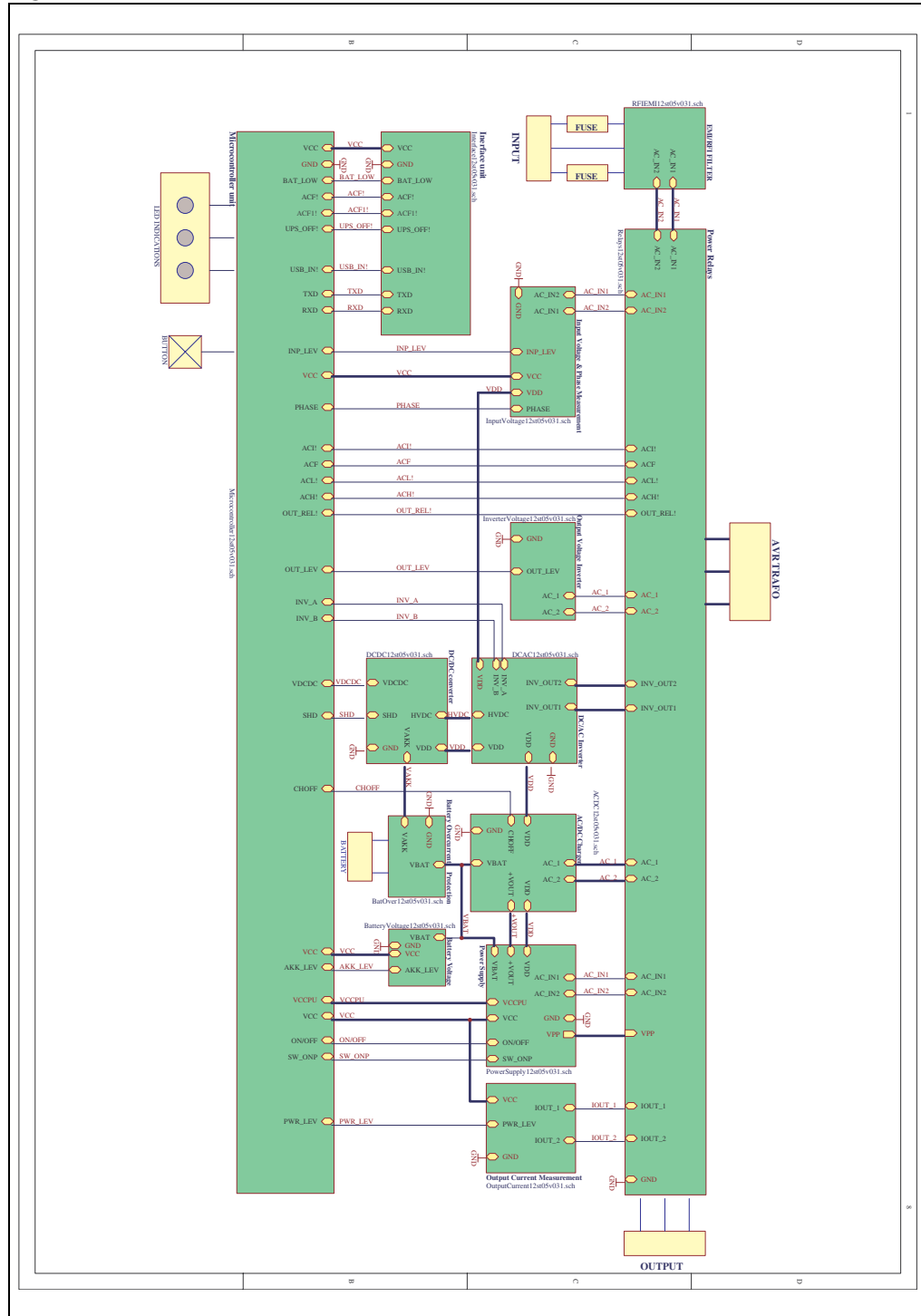
Description

This UPS reference design was built employing off-line topology with AVR boost and buck regulation of the mains. The inverter module contains the push-pull DC-DC converter and the DC-AC output full bridge generating a quasi-sine waveform.

A microcontroller controls all UPS functions. It monitors the mains parameters (input/output mains voltage and phase, output inverter voltage, battery voltage, output current and output power) in order to ensure the proper level of the output voltage.

1 Board schematic

Figure 1. Schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
14-Apr-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