



STEVAL-ISA013V1

Dual output off-line wide range 24W power supply evaluation board
for VIPer53

Data Brief

Features

- Switch mode general purpose power supply
- Input: 85 to 264Vac @ 50/60Hz
- Output: 12V @ 1A & 5V @ 2.4A
- Output power (peak) : 24W
- Switching frequency 100kHz
- Current mode control
- 75% efficiency
- Auxiliary undervoltage lockout with hysteresis
- Output short circuit protection
- Thermal shutdown protection
- Meets EN55022 Class B EMI specification
- Meets Blue Angels

Description

This evaluation board is an off-line wide range dual output general-purpose power supply capable of delivering up to 24W through two outputs, +5V and +12V. The board is configured for secondary regulation with optocoupler feedback.

Other output voltages can easily be achieved by changing the transformer and a few components on the board, as shown in the application note.

Transformers are readily available for the following configurations:

- 5V/12V
- 5V/15V
- 5V/24V



ST components

- VIPer53
- STTA106
- BYW98-200
- TL431A
- STPS5L40
- 1.5KE220A

1 General circuit description

The evaluation board operates from 90 to 264Vac input with an output power peak of 24W through two output voltages of +5V and +12V.

The AC input is rectified and filtered by the bridge BR1 and the bulk capacitor C2 to generate the high voltage DC bus applied to the primary winding of the transformer, T1.

The switching frequency is set at 100kHz through R3 and C5.

Secondary regulation is provided by an optocoupler and a programmable voltage reference (TL431).

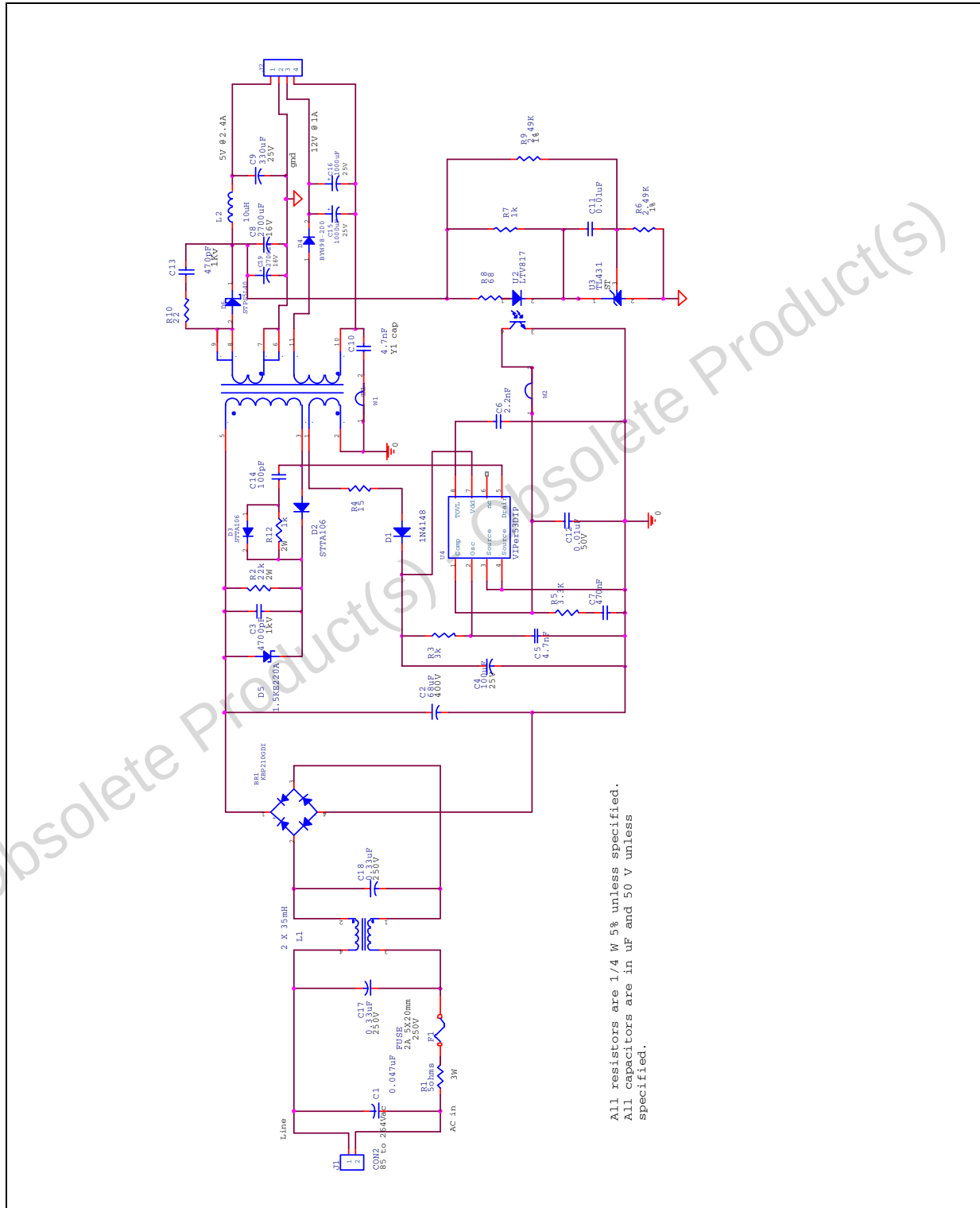
The transformer is designed and manufactured by Cramer Coil and Transformer Company, Inc.

This evaluation board has an efficiency of 78% at 115Vac at full load for both outputs.

The evaluation board consumes less than 1W total power consumption when working in burst mode during standby operation and therefore, meets Blue Angel norm.

2 Board schematic

Figure 1. Scheme



3 Revision history

Table 1. Revision history

Date	Revision	Changes
20-Jul-2007	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.

© 2007 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



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[STEVAL-ISA013V1](#)