



STEVAL-ISA052V2

Evaluation board for the PM6675AS high efficiency step-down controller with embedded 2 A LDO regulator

Data Brief

Features

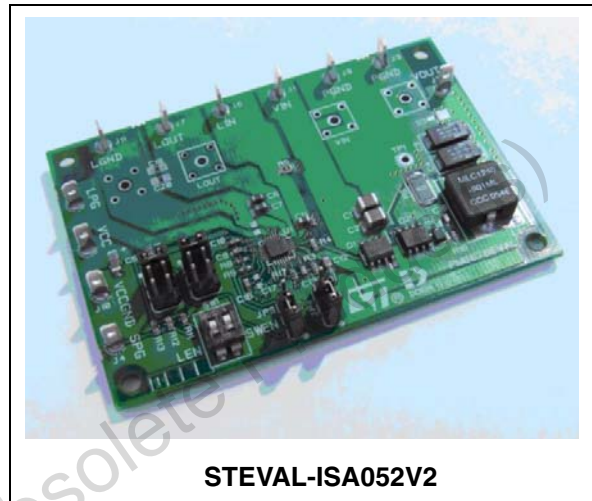
- 4.5 V to 36 V input voltage range
- 0.6 V, $\pm 1\%$ voltage reference
- 1.5 V fixed output voltage
- 0.6 V to 3.3 V adjustable output voltage
- 1.237 V $\pm 1\%$ reference voltage available
- Very fast load transient response using constant on-time (COT) control loop
- No RSENSE current sensing using $R_{DS(ON)}$ of the low-side MOSFETs
- Negative current limit
- Latched OVP, UVP and thermal shutdown
- Fixed 3 ms soft-start
- Selectable pulse-skipping at light load
- Selectable no-audible (33 kHz) pulse-skip mode
- All ceramic output capacitors application supported
- Output voltage ripple compensation
- Output soft-end

Description

This evaluation board is based on the PM6675AS device, which consists of a single high efficiency step-down controller and an independent low-dropout (LDO) linear regulator.

The constant on-time (COT) architecture assures fast transient response supporting both electrolytic and ceramic output capacitors. An embedded integrator control loop compensates the DC voltage error due to the output ripple.

Selectable low-consumption mode allows the highest efficiency over a wide range of load conditions. The low-noise mode sets the minimum switching frequency to 33 kHz for audio-sensitive applications. The LDO linear regulator can sink

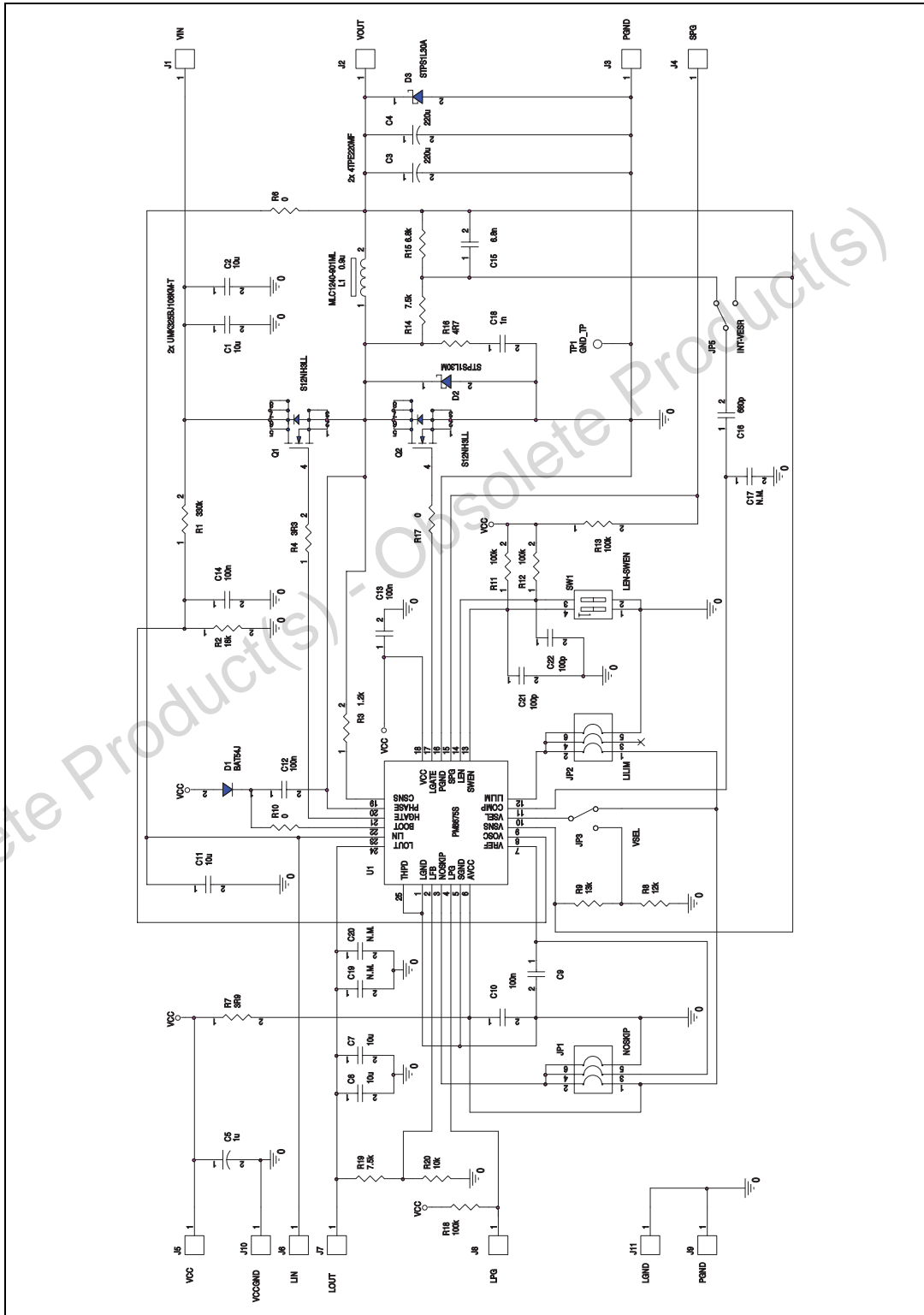


and source up to 2 Apk. Two fixed current limits (± 1 A and ± 2 A) can be chosen.

An active soft-end is independently performed on both the switching and the linear regulator outputs when disabled.

1 Circuit schematic

Figure 1. Schematic diagram



2 Revision history

Table 1. Document revision history

| Date | Revision | Changes |
|-------------|----------|------------------|
| 05-May-2008 | 1 | Initial release. |

Obsolete Product(s) - Obsolete Product(s)

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