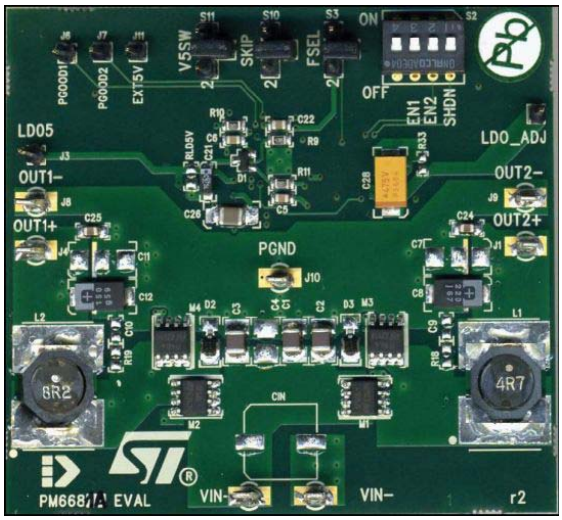
STEVAL-ISA067V1

Dual step-down controller with auxiliary voltages demonstration board based on the PM6681A for industrial system power

Data brief

Features

- 5.5 V to 36 V input voltage range
- V_{out1}: 3.3 V, I_{out1} > 2.5 A (or adjustable output voltage)
- V_{out2}: 1.8 V, I_{out2} > 2.5 A (or adjustable output voltage)
- 0.9 - 3.3 V adjustable LDO delivers 100 mA peak current
- 5 V LDO delivers 100 mA peak current
- 1.237 V ± 1% reference voltage available
- Loss-less current sensing using low-side MOSFET $R_{DS(on)}$
- Negative current limit
- Soft-start internally fixed at 2 ms
- Soft output discharge
- Latched UVP
- Non-latched OVP
- Selectable pulse-skipping at light loads
- Selectable minimum frequency (33 kHz) in pulse-skip mode
- 4 mW maximum quiescent power
- Independent power-good signals
- Output voltage ripple compensation
- RoHS compliant



STEVAL-ISA067V1

Description

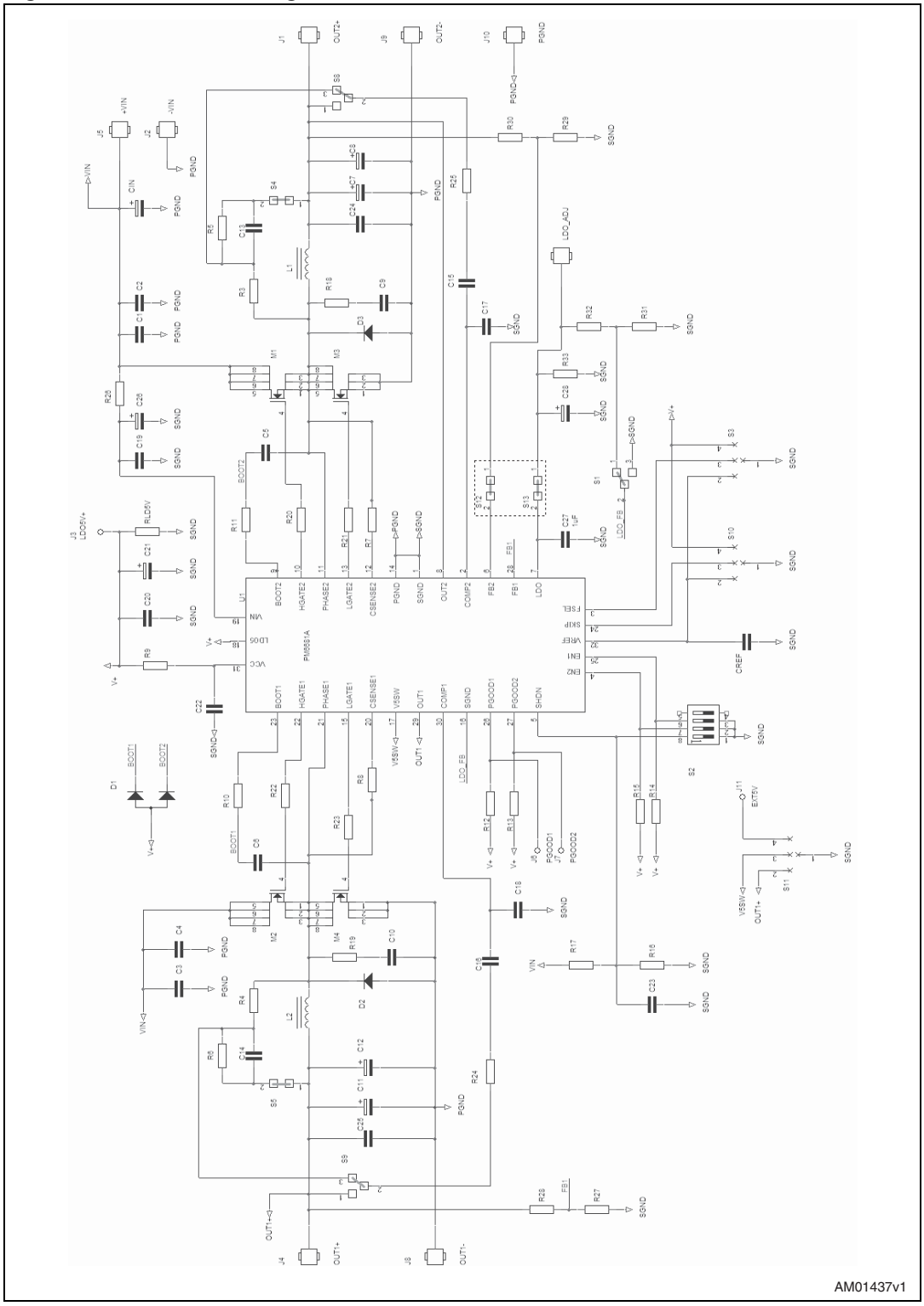
This demonstration board is based on the PM6681A, a dual step-down controller with adjustable output voltages that can be used in industrial power systems. The PM6681A demonstration board allows testing all the device's functions and provides two switching sections, with (typically) 3.3 V (OUT1) and 1.8 V (OUT2) outputs from 5.5 V to 36 V input voltage.

The typical operating switching frequency of the two available sections is 200 kHz/300 kHz, respectively. Each switching section delivers more than 2.5 A output current.

An internal linear regulator provides a fixed 5 V output voltage. Another internal linear regulator provides an adjustable output voltage (default 2.5 V). Both linear regulators can deliver up to 100 mA peak current.

1 Circuit schematic

Figure 1. Schematic diagram



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
29-Apr-2009	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.

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