



STEVAL-IHM017V1

100 W 3-phase inverter for BLDC sensorless motor evaluation board

Data Brief

Features

- Wide range input voltage
- Maximum power up to 100 W
- 4.4 A, 520 V power MOSFET included
- Compatible with power MOSFETs in IPAK packages
- 15 V auxiliary power supply connector
- Programming and debugging support via 10-pin ICC connector
- Three potentiometers for runtime settings
- Start/stop button
- Reset button

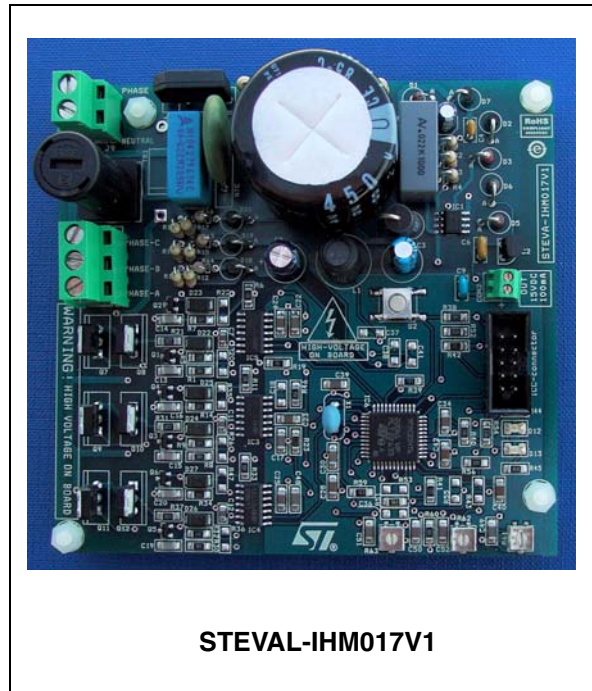
Description

This evaluation board is a complete development platform for BLDC sensorless motor applications with nominal power up to 100 W.

Based on a cost effective, flexible and open design, it includes a 3-phase inverter bridge based on the STD5NK52ZD-1 power MOSFET in the IPAK package and an ST7MC 8-bit microcontroller with 16 Kbyte internal Flash memory.

The system has been designed to drive a 3-phase brushless motor with permanent magnet rotor exploiting trapezoidal sensorless control.

The STEVAL-IHM017V1 features complete hardware for developing motor control applications based on ST7MC peripherals including motor control peripheral (MTC). It uses an in-circuit communication (ICC) standard interface to connect to the host PC via in-circuit debuggers/programmers such as the inDART-STX board from SofTec Microsystems™. The board is designed to support a bus voltage of 230 Vac and up to 100 W of input power. Also included is a power supply stage with the VIPer12A-E as the



buck converter to generate the voltage reference for the driver and the microcontroller.

1 Circuit schematic

Figure 1. Schematic 1/2

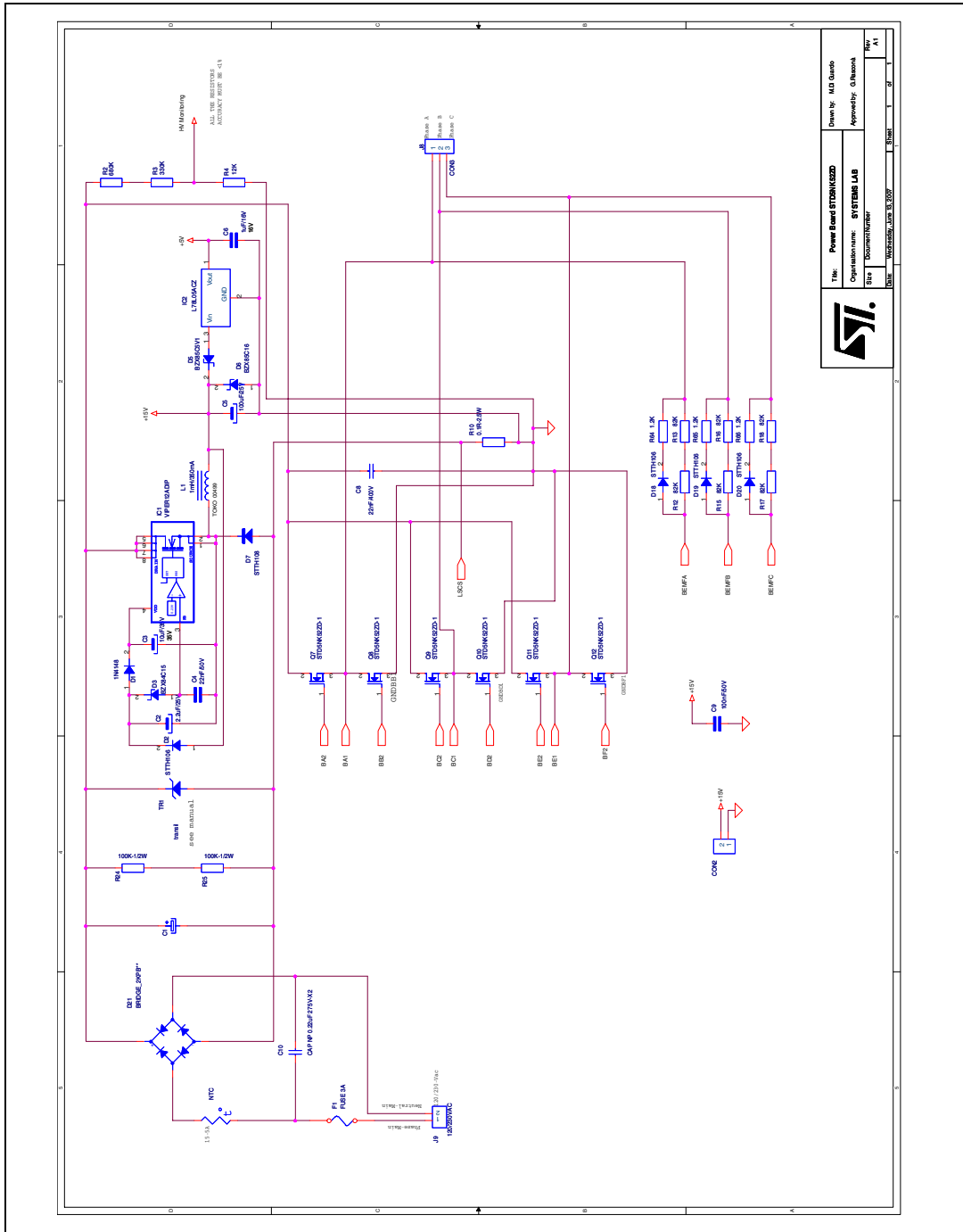
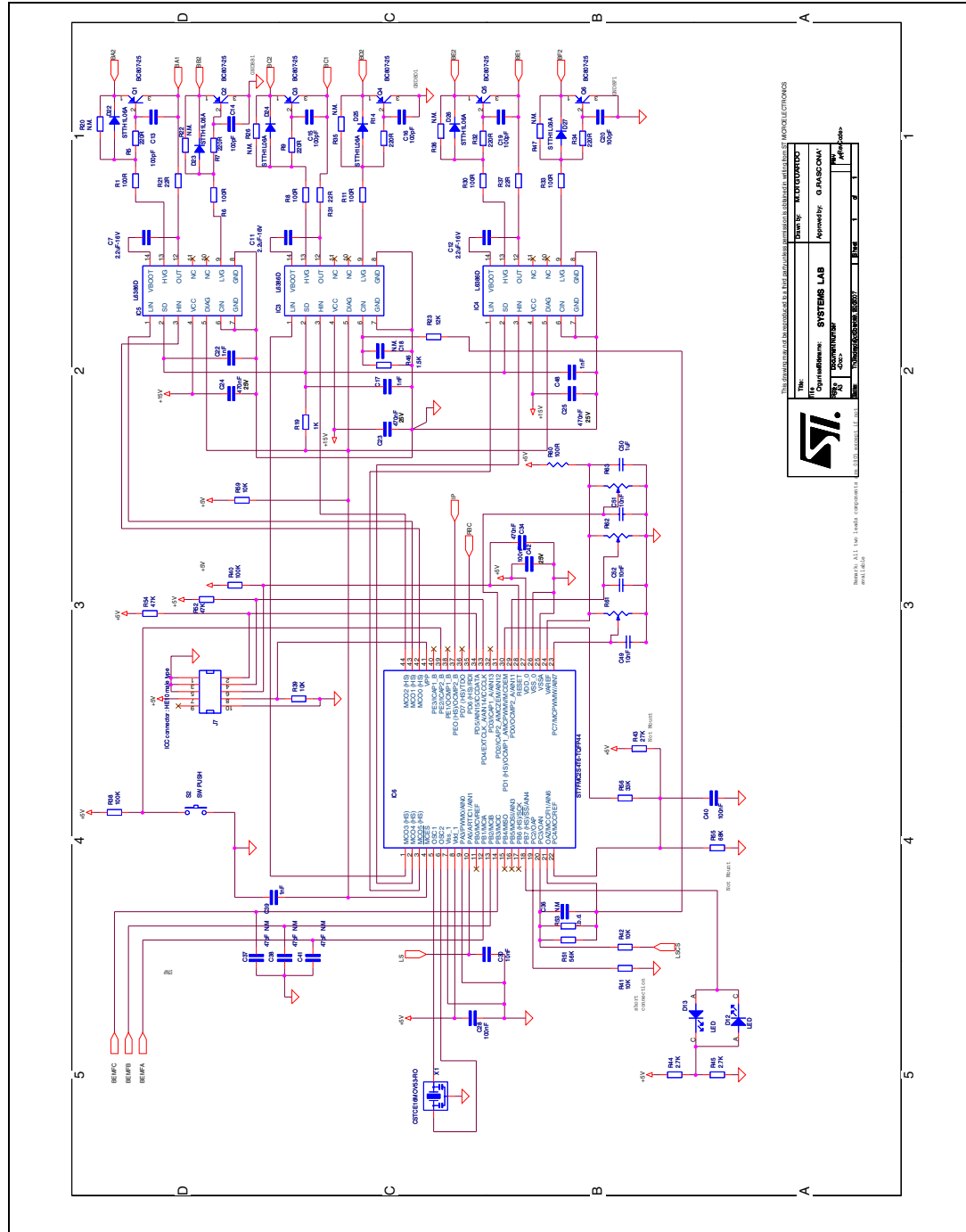


Figure 2. Schematic 2/2



STMicroelectronics logo and revision table:

Doc ID: 4486	Doc Name: STEVAL-IHM017V1	Doc Type: Evaluation Board
Doc Rev: 1	Doc Date: 2014-08-01	Doc Status: Final
Doc Author: G. PASCUAL	Doc Designer: G. PASCUAL	Doc Checker: G. PASCUAL
Doc Reviewer: G. PASCUAL	Doc Approver: G. PASCUAL	Doc Release: G. PASCUAL

STMicroelectronics logo and text: "STMicroelectronics" and "STMicroelectronics" logo.



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
23-Jan-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