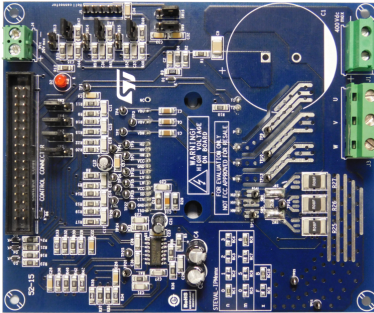


800 W motor control power board based on STGIB8CH60TS-L SLLIMM™ 2nd series IPM



Features

- Input voltage: 125 to 400 V_{DC}
- Nominal power: up to 800 W
- Nominal current: up to 4.8 A
- Input auxiliary voltage: up to 20 V_{DC}
- Single- or three- shunt resistors for current sensing (with sensing network)
- Two options for current sensing: dedicated op-amps or through MCU
- Overcurrent hardware protection
- IPM temperature monitoring and protection
- Hall sensor or encoder input
- IGBT intelligent power module:
 - 2nd series of SLLIMM IPM (STGIB8CH60TS-L – DBC package)
- Motor control connector (32 pin) interfacing with ST MCU boards
- Universal design for further evaluation with bread board and testing pins
- Very compact size
- RoHS compliant

Description

The **STEVAL-IPM08B** compact motor drive power board is based on SLLIMM™ (small low-loss intelligent molded module) 2nd series module (**STGIB8CH60TS-L**). It provides an affordable and easy-to-use solution for driving high power motors in a wide range of applications such as power white goods, air conditioning, compressors, power fans, high-end power tools and 3-phase inverters for motor drives in general.

The IPM itself consists of short-circuit rugged IGBTs and a wide range of features like undervoltage lockout, smart shutdown, embedded temperature sensor and NTC, and overcurrent protection.

The main characteristics of this evaluation board are its small size, minimal BOM and high efficiency. It consists of an interface circuit (BUS and V_{cc} connectors), bootstrap capacitors, snubber capacitor, hardware short-circuit protection, fault event signal and temperature monitoring. It is designed to work in single or three shunt configuration and with dual current sensing options: using three dedicated on-board op-amps or using op-amps embedded on MCU. The Hall/Encoder part completes the circuit.

Thanks to these advanced characteristics, the system can provide the fast and accurate current feedback conditioning necessary for field oriented control (FOC). The STEVAL-IPM08B is compatible with the ST control board based on the STM32, thus providing a total platform for motor control.

Product summary	
STEVAL-IPM08B compact motor drive power board	STEVAL-IPM08B
STGIB8CH60TS-L SLLIMM™ 2nd series IPM	STGIB8CH60TS-L

1 Schematic diagrams

Figure 1. STEVAL-IPM08B circuit schematic (1 of 6)

STEVAL-IPMnmx decoder

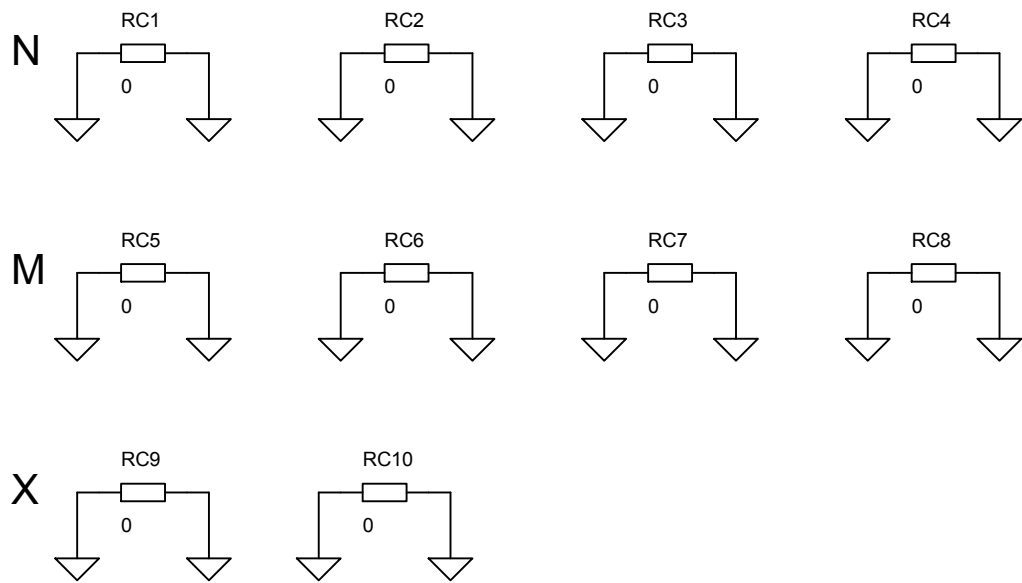


Figure 2. STEVAL-IPM08B circuit schematic (2 of 6)

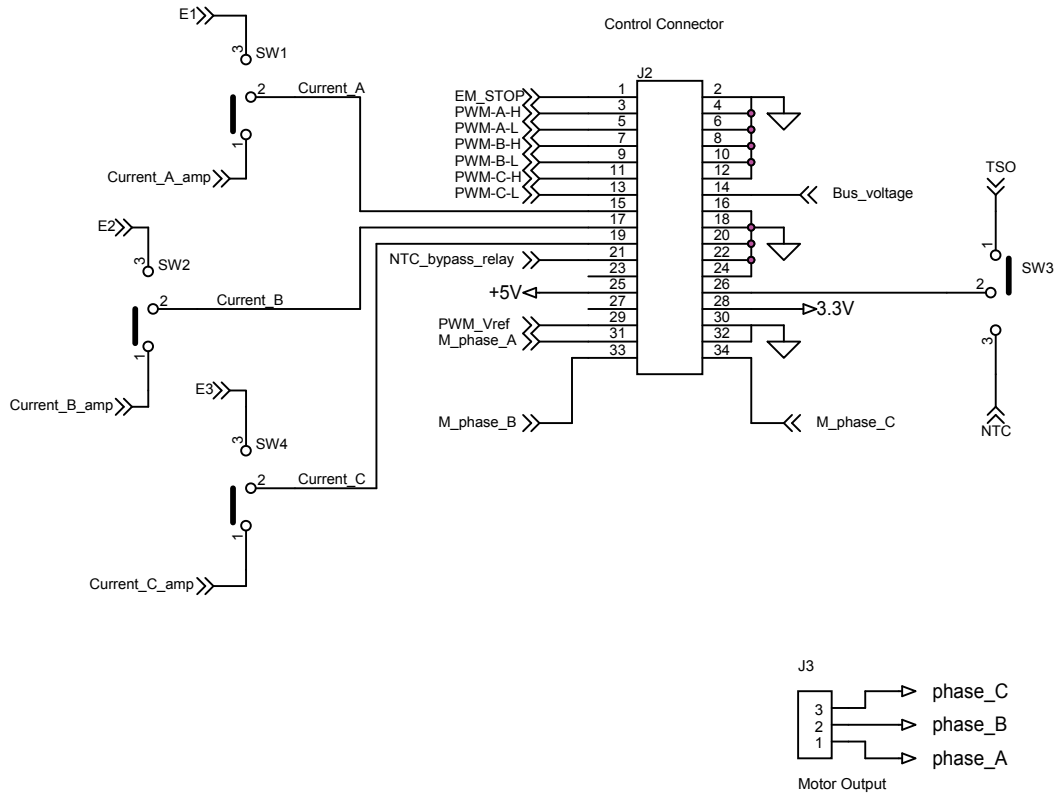


Figure 3. STEVAL-IPM08B circuit schematic (3 of 6)

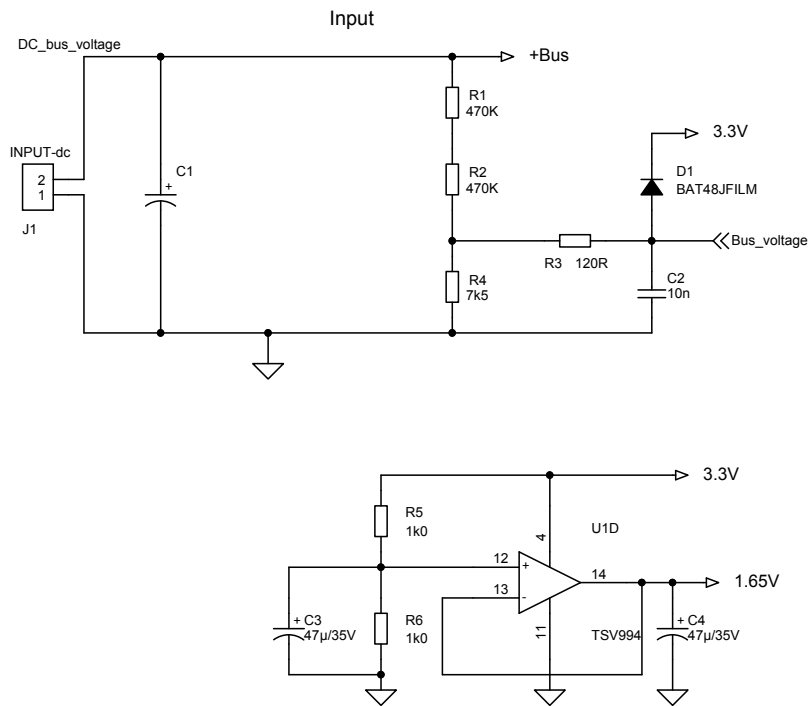


Figure 4. STEVAL-IPM08B circuit schematic (4 of 6)

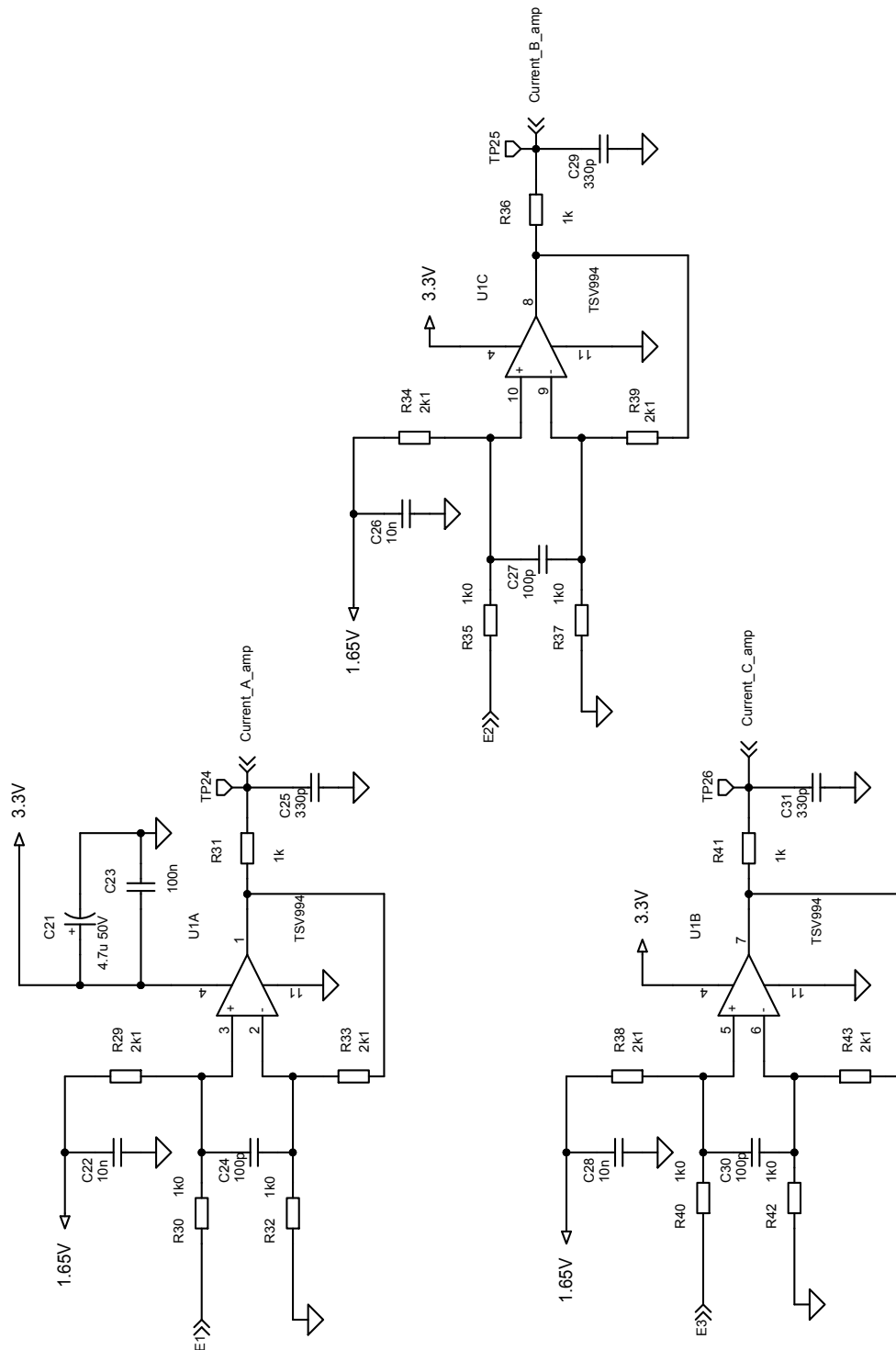
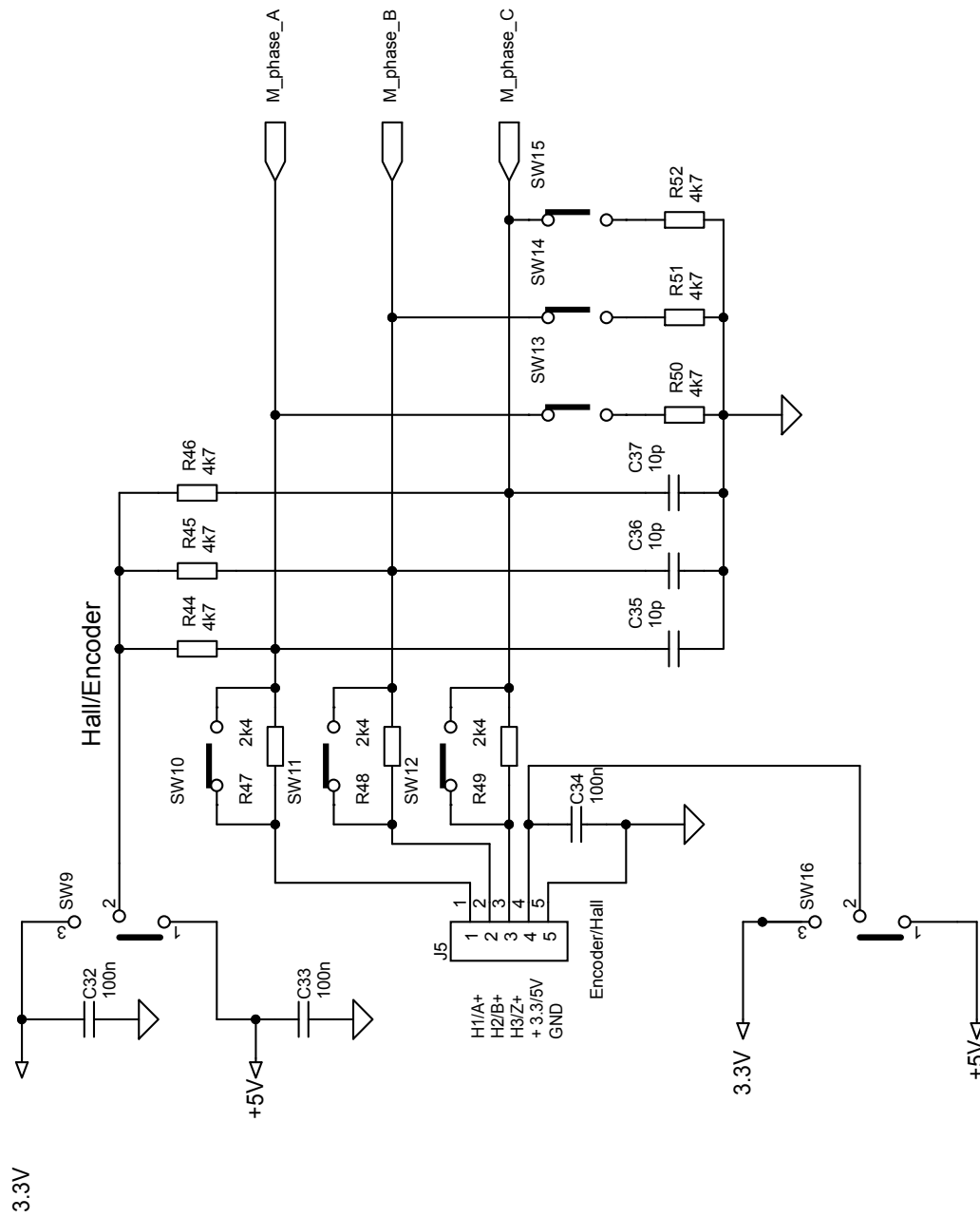


Figure 6. STEVAL-IPM08B circuit schematic (6 of 6)



Revision history

Table 1. Document revision history

Date	Version	Changes
06-Jun-2017	1	Initial release.
19-Sep-2017	2	Updated cover page features. Updated DocID number.
04-Apr-2018	3	Updated title.
13-Sep-2019	4	Updates: Figure 3. STEVAL-IPM08B circuit schematic (3 of 6) Figure 4. STEVAL-IPM08B circuit schematic (4 of 6)

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2019 STMicroelectronics – All rights reserved