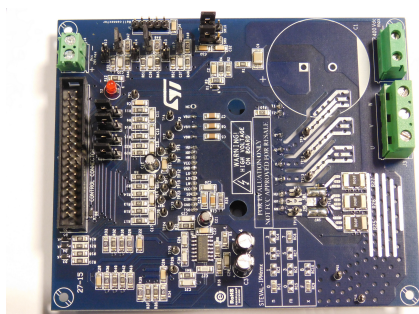


700 W motor control power board based on STGIF7CH60TS-L SLLIMM™ 2nd series IPM



Features

- Input voltage: 125 - 400 V_{DC}
- Nominal power: up to 700 W
- Nominal current: up to 4.2 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
- Uses the STGIF7CH60TS-L IGBT intelligent power module from the SLLIMM™ 2nd series IPMs
- Motor control connector (32-pin) interfacing with ST MCU boards
- Universal conception for further evaluation with bread board and testing pins
- Very compact size

Description

The **STEVAL-IPM07F** is a compact motor drive power board based on the small low-loss intelligent molded module SLLIMM™ 2nd series product (**STGIF7CH60TS-L**). It provides an affordable and easy-to-use solution for driving high power motors for 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, internal temperature sensor and NTC, and overcurrent protection. The main characteristics of this evaluation board are small size, minimal BOM and high efficiency. It includes an interface circuit (BUS and V_{cc} connectors), bootstrap capacitors, snubber capacitor, hardware short-circuit protection, fault event signaling and temperature monitoring. In order to increase the flexibility, it is designed to work in single- or three-shunt configurations and with two current sensing options: either three dedicated onboard op-amps or with op-amps embedded on the MCU. The Hall/Encoder part completes the circuit. Thanks to these advanced characteristics, the system is able to achieve fast and accurate current feedback conditioning, meeting most of the requirements for field oriented control (FOC). The STEVAL-IPM07F is compatible with ST's STM32-based control board, for a complete motor control platform.

Product summary	
STEVAL-IPM07F compact motor drive power board	STEVAL-IPM07F
STGIF7CH60TS-L SLLIMM™ 2nd series IPM	STGIF7CH60TS-L

1 Schematic diagram

Figure 1. STEVAL-IPM07F circuit schematic (1 of 6)

STEVAL-IPMnmx decoder

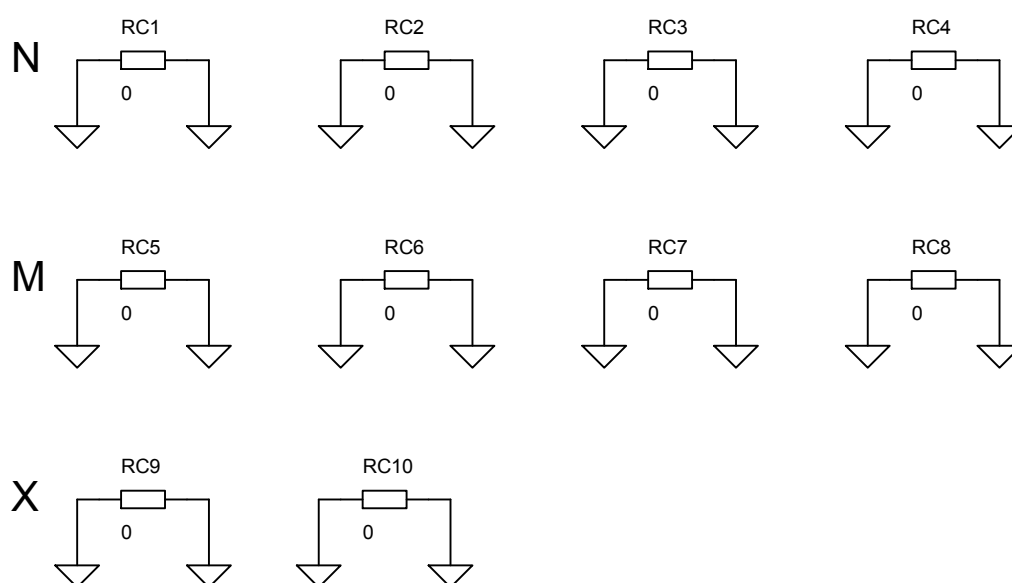


Figure 2. STEVAL-IPM07F circuit schematic (2 of 6)

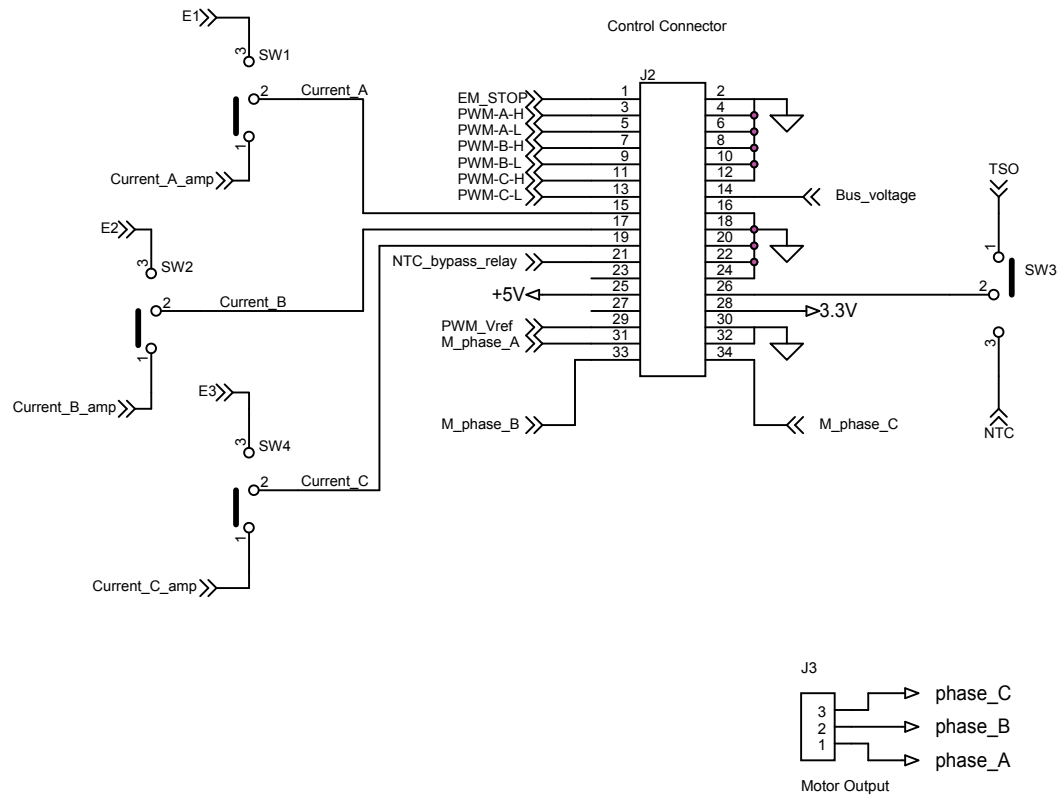


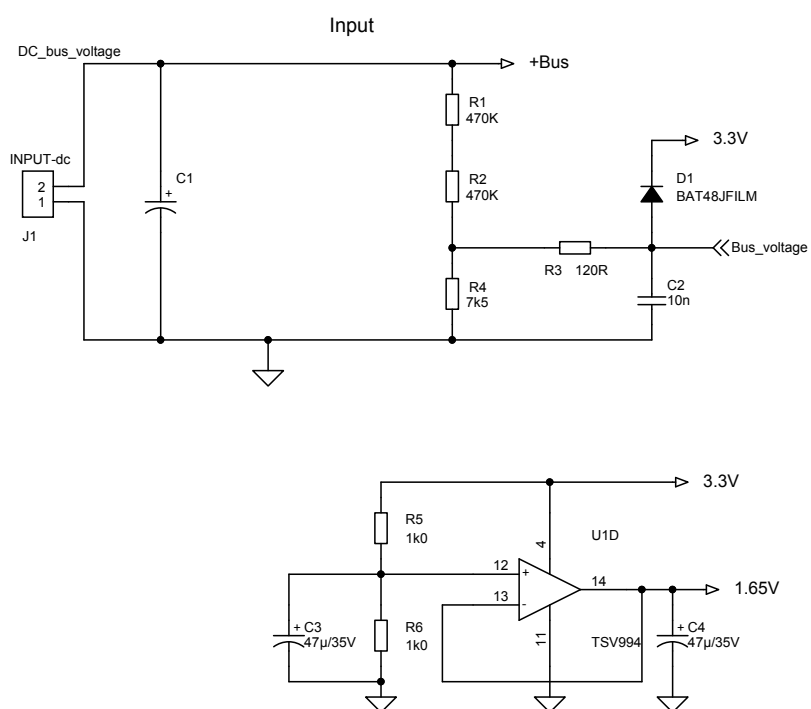
Figure 3. STEVAL-IPM07F circuit schematic (3 of 6)


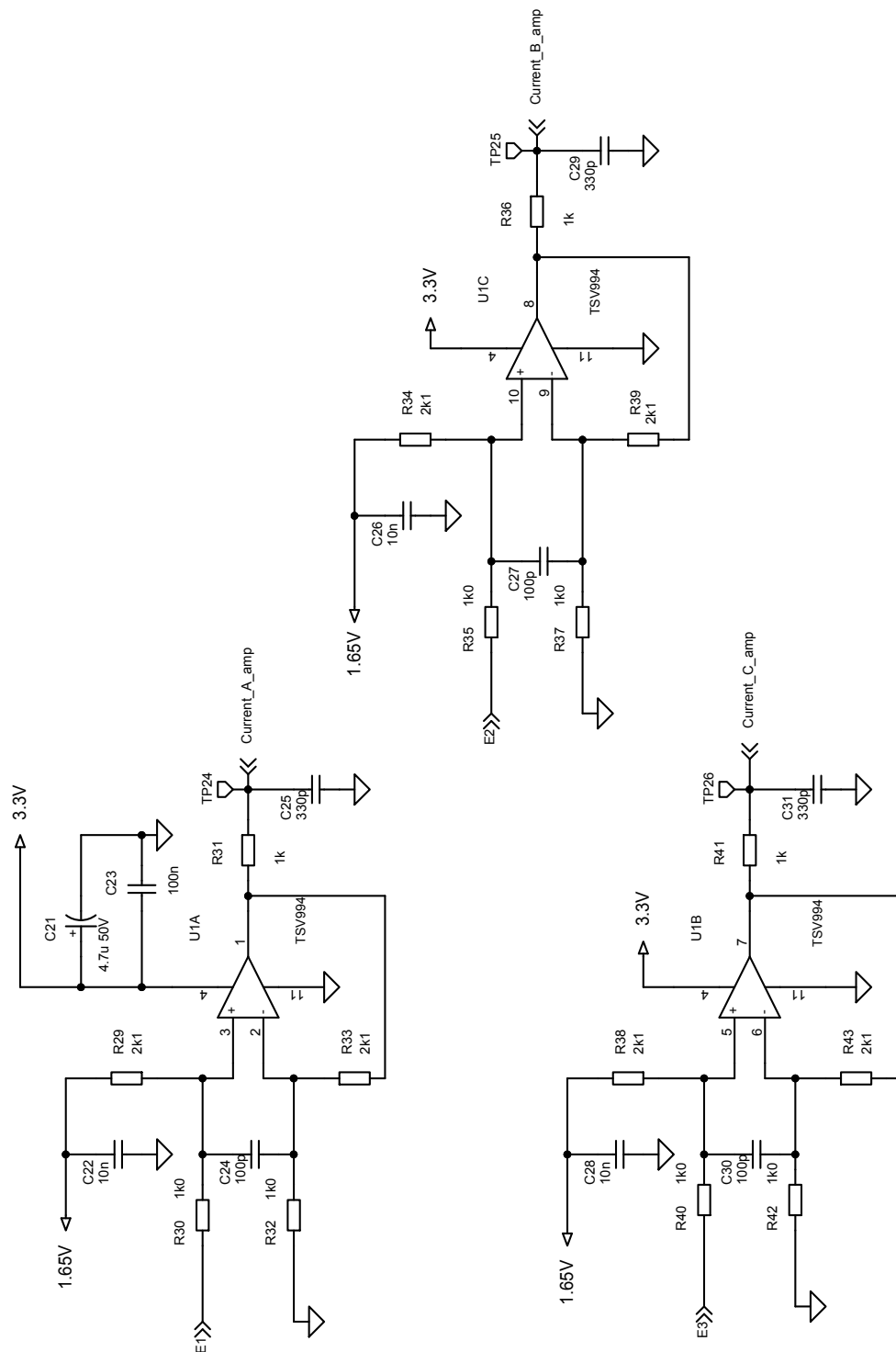
Figure 4. STEVAL-IPM07F circuit schematic (4 of 6)


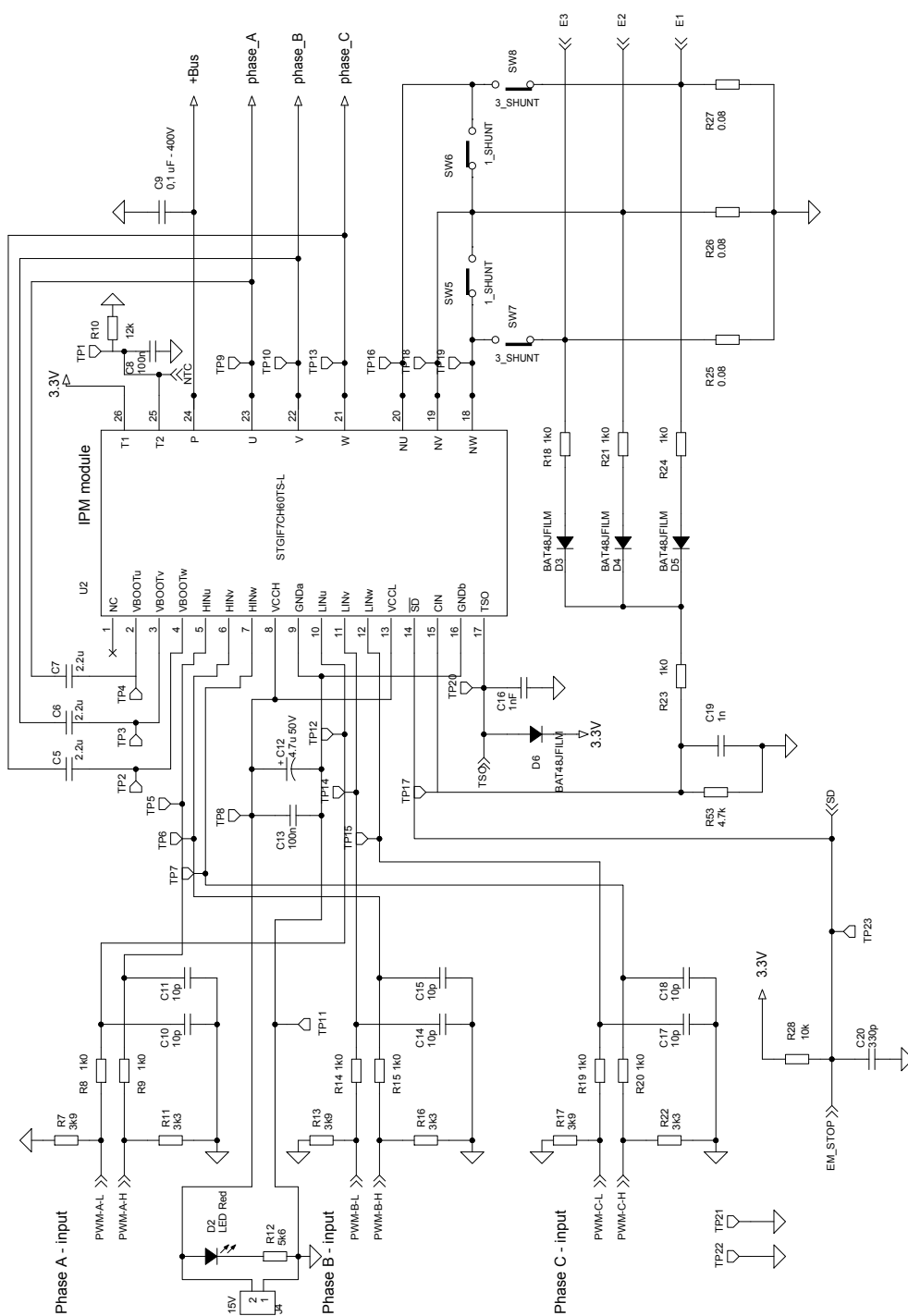
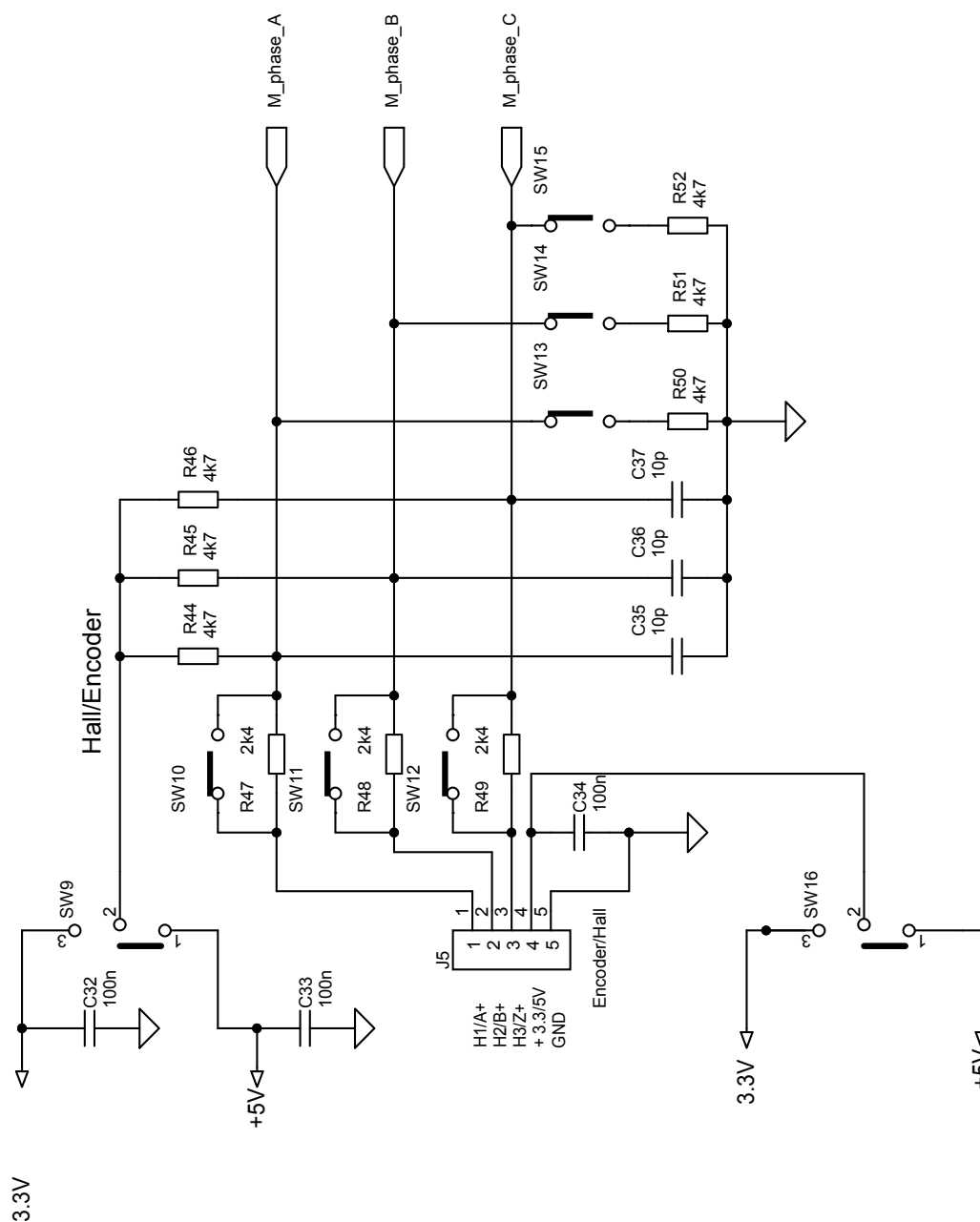
Figure 5. STEVAL-IPM07F circuit schematic (5 of 6)


Figure 6. STEVAL-IPM07F circuit schematic (6 of 6)


Revision history

Table 1. Document revision history

Date	Version	Changes
12-Nov-2015	1	Initial release.
16-Mar-2016	2	Updated figure 1 and figure 3.
04-Apr-2018	3	Updated: title, features and figure 5.
16-Sep-2019	4	Updates Figure 3. STEVAL-IPM07F circuit schematic (3 of 6) and Figure 4. STEVAL-IPM07F 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

Mouser Electronics

Authorized Distributor

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

[STMicroelectronics:](#)

[STEVAL-IPM07F](#)