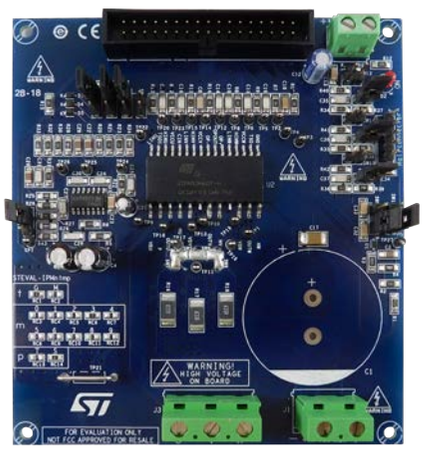
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STEVAL-IPMnG3S

Data brief

300 W motor control power board based on STGIPNS3H60T-H SLLIMM™-nano SMD IPM MOSFET



Features

- Input voltage: from 125 to 400 VDC
- Nominal power: up to 300 W
- Nominal current: up to 1.8 A
- Input auxiliary voltage: up to 20 VDC
- Single- or three-shunt resistors for current sensing (with sensing network)
- Three options for current sensing: dedicated external op-amps, internal SLLIMM-nano op-amp (single) or via MCU
- Overcurrent hardware protection
- IPM temperature monitoring and protection
- Hall sensor or encoder input
- IGBT intelligent power module:
  - SLLIMM-nano IPM (STGIPNS3H60T-H) - SMD package
- Motor control connector (32 pins) interfacing with ST MCU boards
- Universal design for further evaluation withbread board and testing pins
- Very compact size
- WEEE compliant
- RoHS compliant

Product summary	
Motor control power board based on the SLLIMM-nano in SMD package	STEVAL-IPMnG3S
SLLIMM-nano SMD small low-loss intelligent molded module IPM, 3 A, 600 V 3-phase IGBT inverter bridge	STGIPNS3H60T-H

Description

The STEVAL-IPMnG3S is a compact motor drive power board based on SLLIMM™-nano SMD (small low-loss intelligent molded module) product (STGIPNS3H60T-H). 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 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, overcurrent protection and internal op-amp.

The main characteristics of this evaluation board are small size, minimal BOM and high efficiency. It features an interface circuit (BUS and VCC 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 triple current sensing options: three dedicated on-board op-amps, op-amps embedded on MCU or single internal IPM op-amp. The Hall/Encoder part completes the circuit.

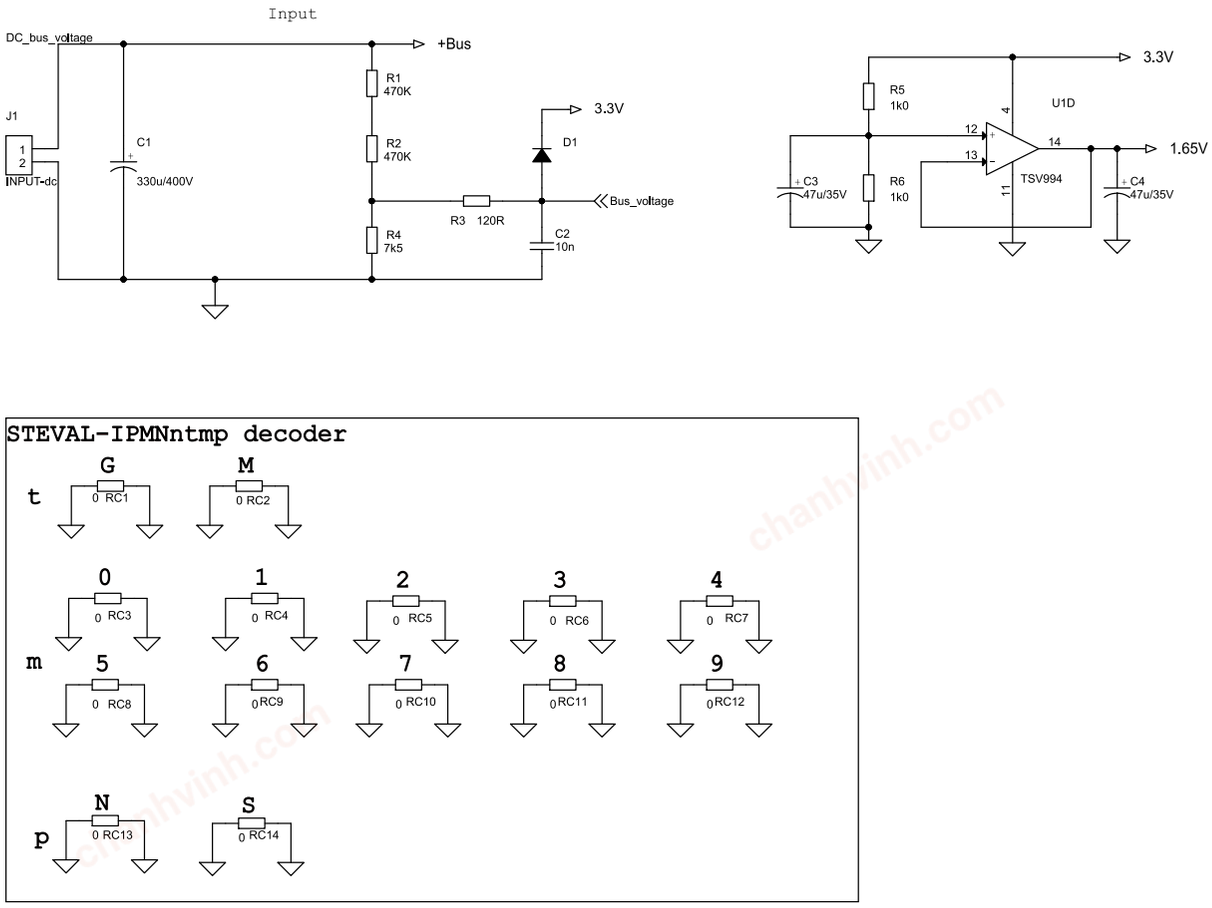
The system is designed to achieve accurate and fast conditioning of current feedback to satisfy the typical requirements for field oriented control (FOC).

The STEVAL-IPMnG3S is compatible with ST's control board based on STM32, providing a complete platform for motor control.

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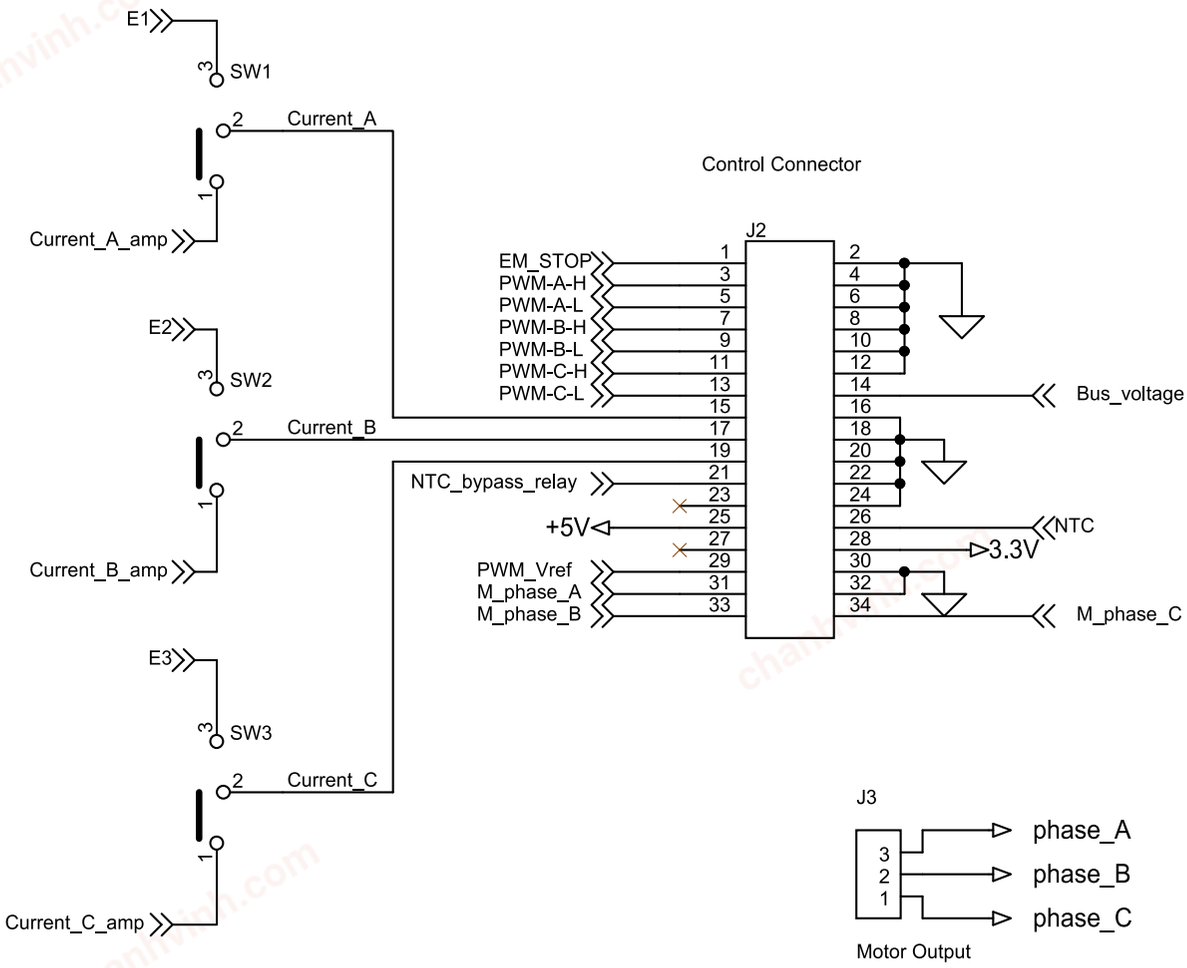
1 Schematic diagrams

Figure 2. **STEVAL-IPMnG3S - circuit schematic (1 of 5)**



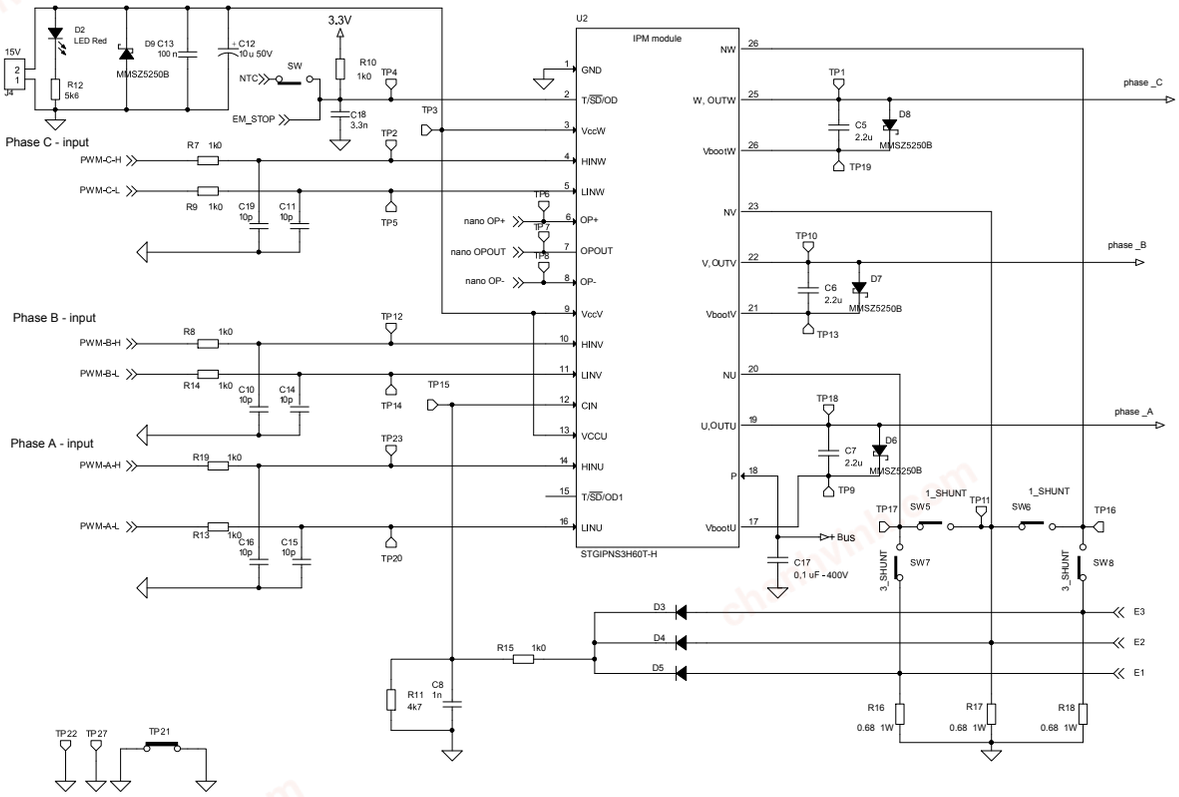
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Figure 3. **STEVAL-IPMnG3S - circuit schematic (2 of 5)**



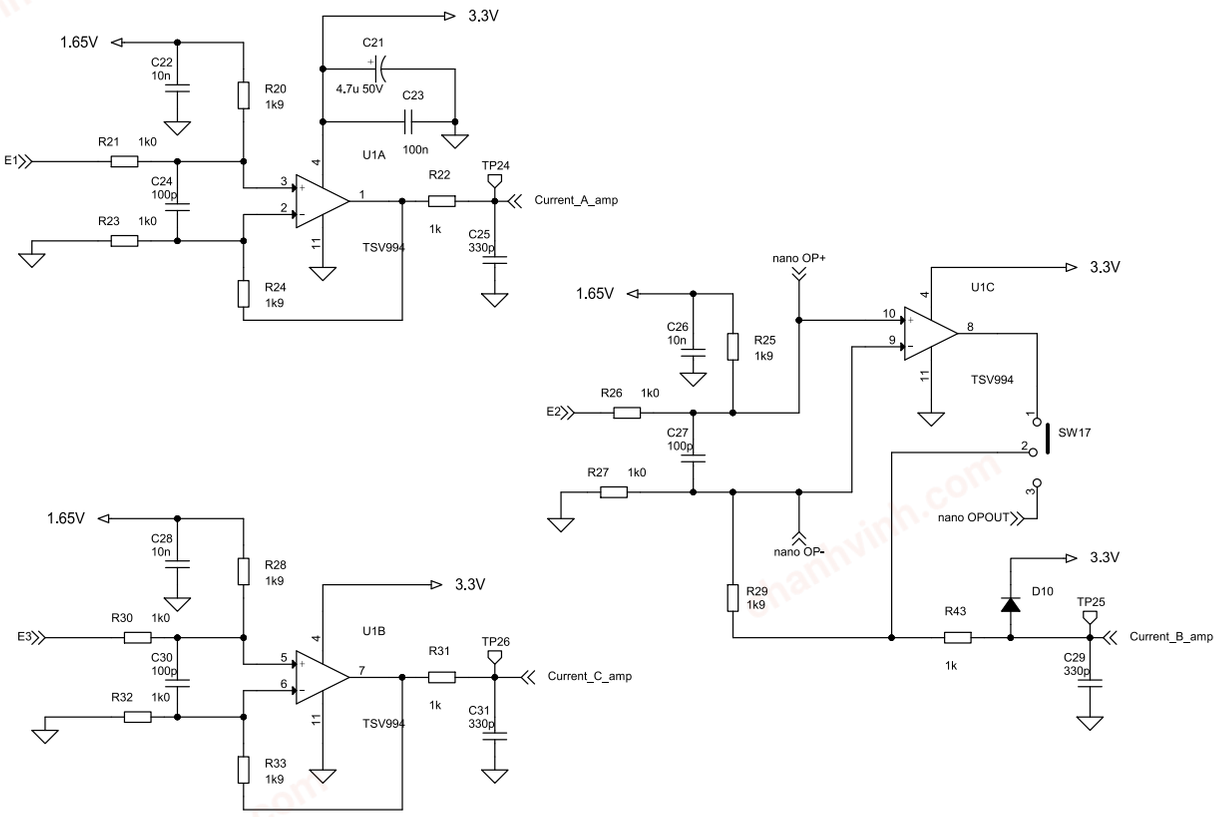
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Figure 4. **STEVAL-IPMnG3S - circuit schematic (3 of 5)**



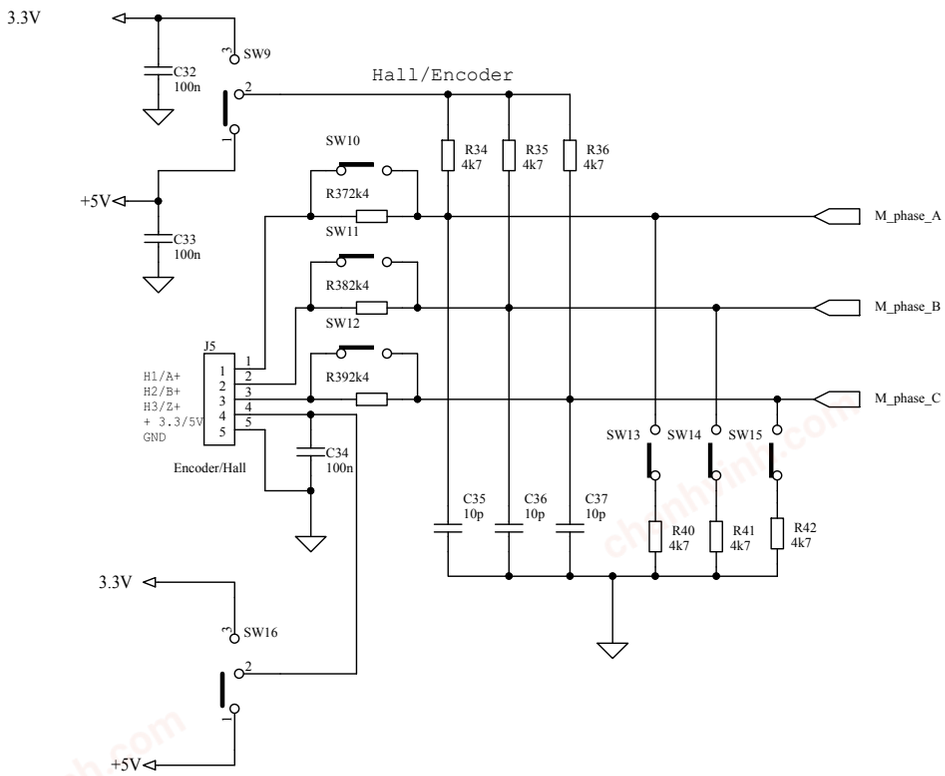
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Figure 5. **STEVAL-IPMnG3S - circuit schematic (4 of 5)**



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Figure 6. **STEVAL-IPMnG3S - circuit schematic (5 of 5)**



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Revision history

Table 1. **Document revision history**

Date	Version	Changes
10-Aug-2018	1	Initial release.

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