STEVAL-IHM024V1

100 W 3-phase inverter using the L6390 and STGDL6NC60DI for vector control

Data brief

Features

- Wide-range input voltage (110 Vac and 230 Vac)
- Maximum power-up to 100 W at 230 Vac input voltage
- Hyper-fast IGBT STGDL6NC60DI (6 A, 600 V)
- +15 V auxiliary power supply connector
- Connector for interfacing with the STM3210B-EVAL board
- RoHS compliant

Applications

- Suitable for refrigerators, compressors and dishwasher pumps

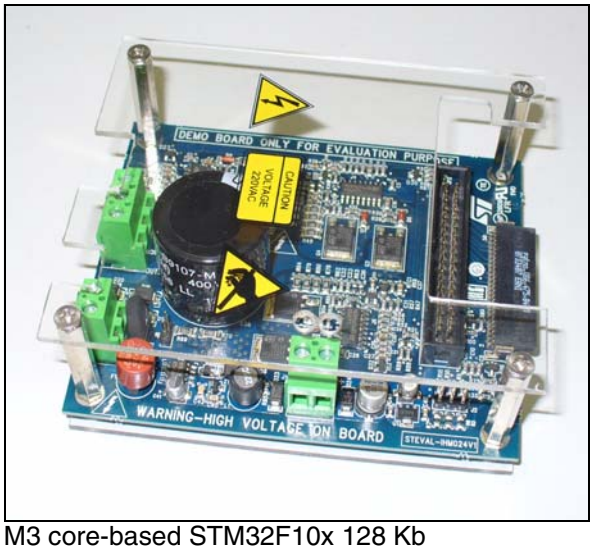
Description

The STEVAL-IHM024V1 demonstration board is a 100 W 3-phase inverter with field-oriented control (FOC) for permanent-magnet synchronous motors (PMSM).

This flexible, high-performance design consists of a 3-phase inverter bridge based on the hyper-fast IGBT STGDL6NC60DI (6 A 600 V) and on the high-voltage half-bridge gate driver L6390. The L6390 device features an integrated comparator to protect hardware against faults such as overcurrent and overtemperature, and an embedded operational amplifier suitable for advanced current sensing.

The board is designed to be compatible with a 110 Vac and 230 Vac mains input, and includes a power supply stage with the VIPer12AS-E (in buck configuration) to generate the +15 V and +3.3 V supply voltage required by the application.

Additionally, using a dedicated connector, the board can be interfaced with the STM3210B-EVAL evaluation board, which is an evaluation platform for STMicroelectronics' ARM™ Cortex-



M3 core-based STM32F10x 128 Kb microcontrollers.

1 Schematic diagrams

Figure 1. Power supply

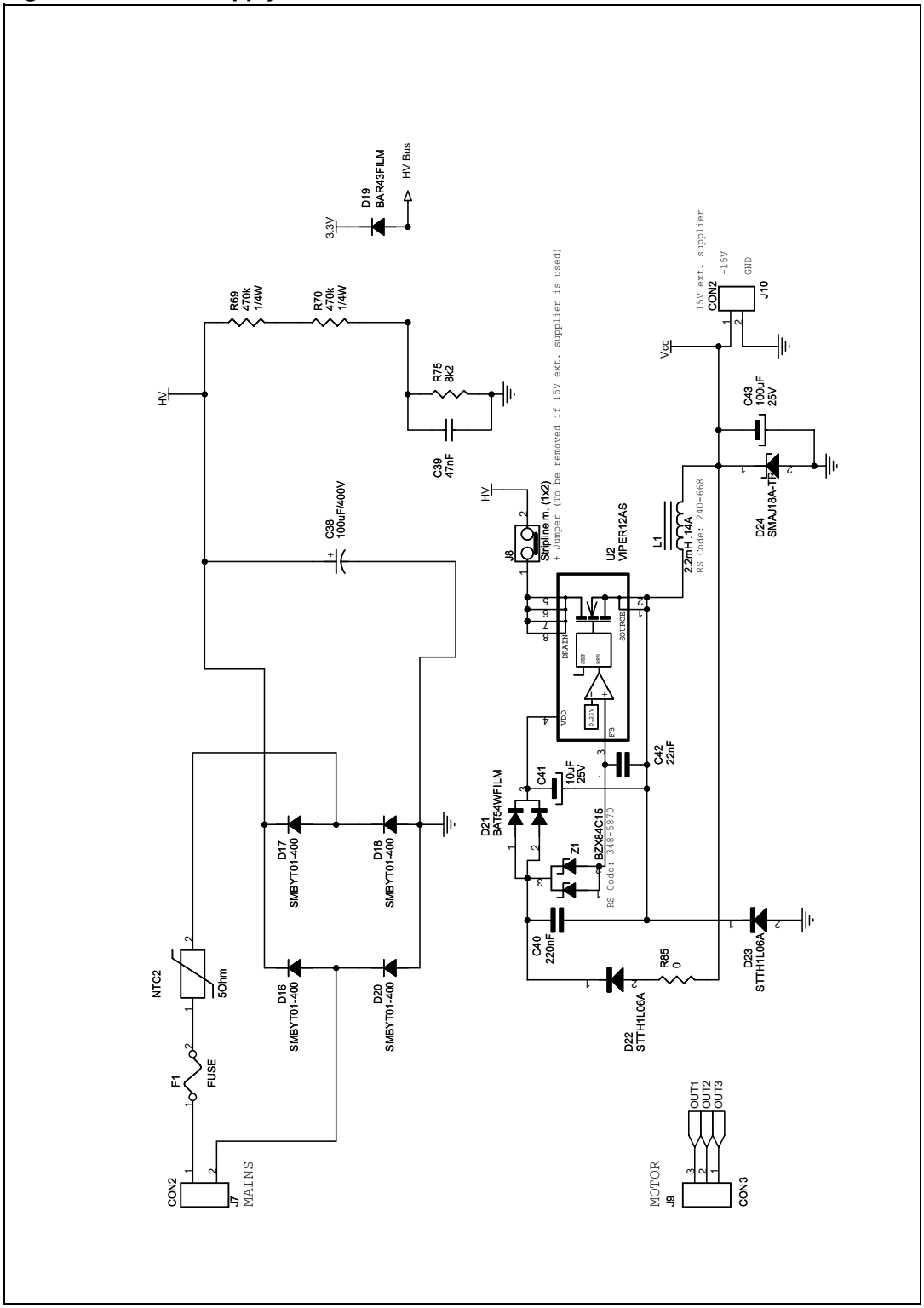
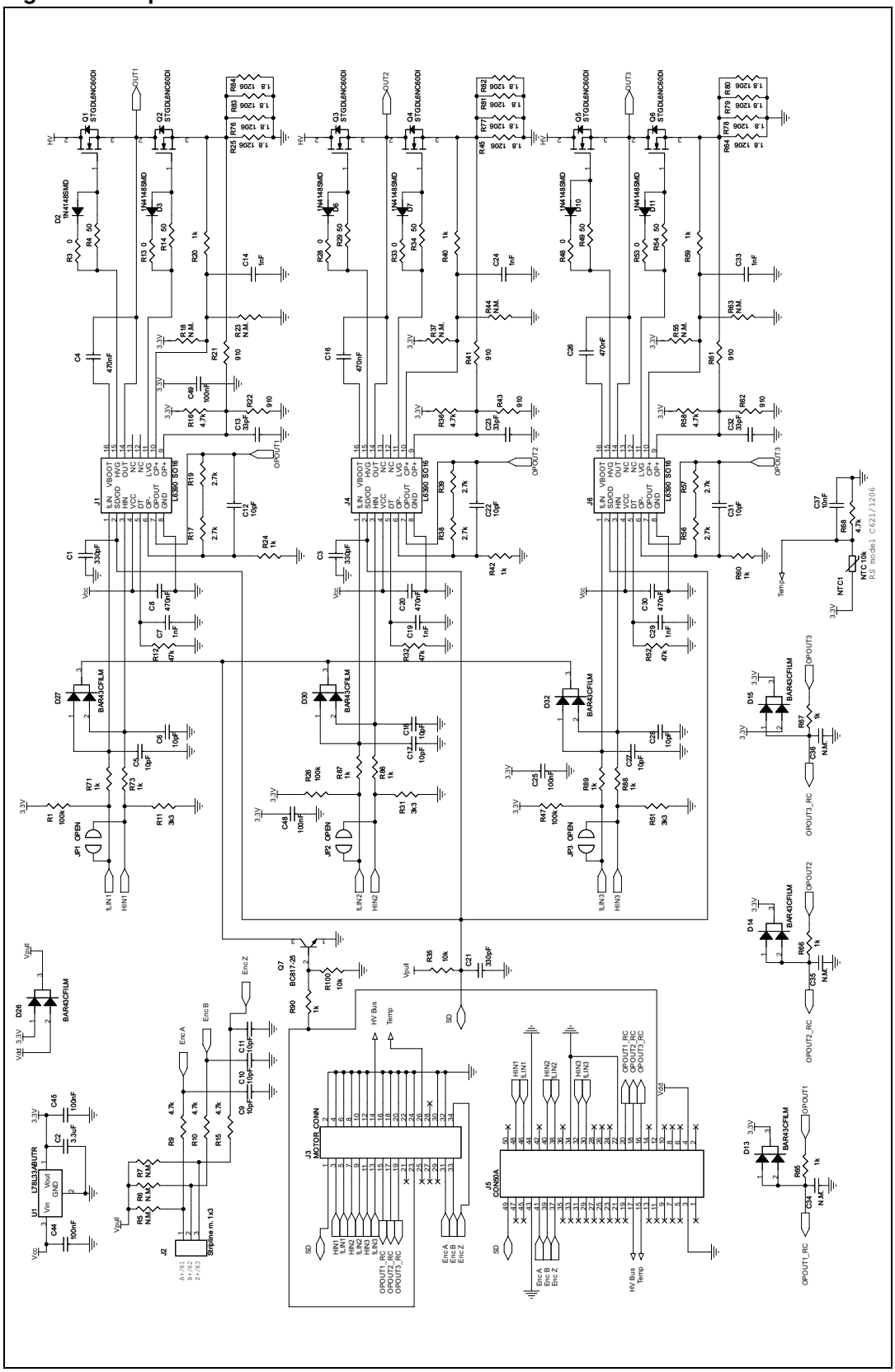


Figure 2. 3-phase inverter



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
29-Oct-2009	1	Initial release.

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