



STEVAL-IHM021V1

100 W 3-phase inverter for speed FOC of 3-phase PMSM motor drive based on the L6390 and STD5NK52ZD-1

Data Brief

Features

- Input voltage wide range (110 Vac and 230 Vac)
- Maximum power up to 100 W at 230 Vac input voltage
- Power MOSFET STD5NK52ZD-1 (4.4 A 520 V)
- Compatible with other power MOSFET's in IPAK packages
- +15 V auxiliary power supply connector
- Connector for interface with STM3210B-EVAL board
- Target applications:
 - Refrigerators compressors
 - Dishwasher pumps.



Description

This demonstration board implements a 100 W 3-phase inverter with field oriented control (FOC) of permanent magnet synchronous motors (PMSM).

This board, consists in a 3-phase inverter bridge based on the STD5NK52ZD-1 power MOSFET in IPAK package and on the L6390, the latest high voltage half-bridge gate driver family featuring an integrated comparator for hardware protections implementation (e.g. against over-current, over-temperature, etc.) and an embedded operational amplifier suitable for advanced current sensing.

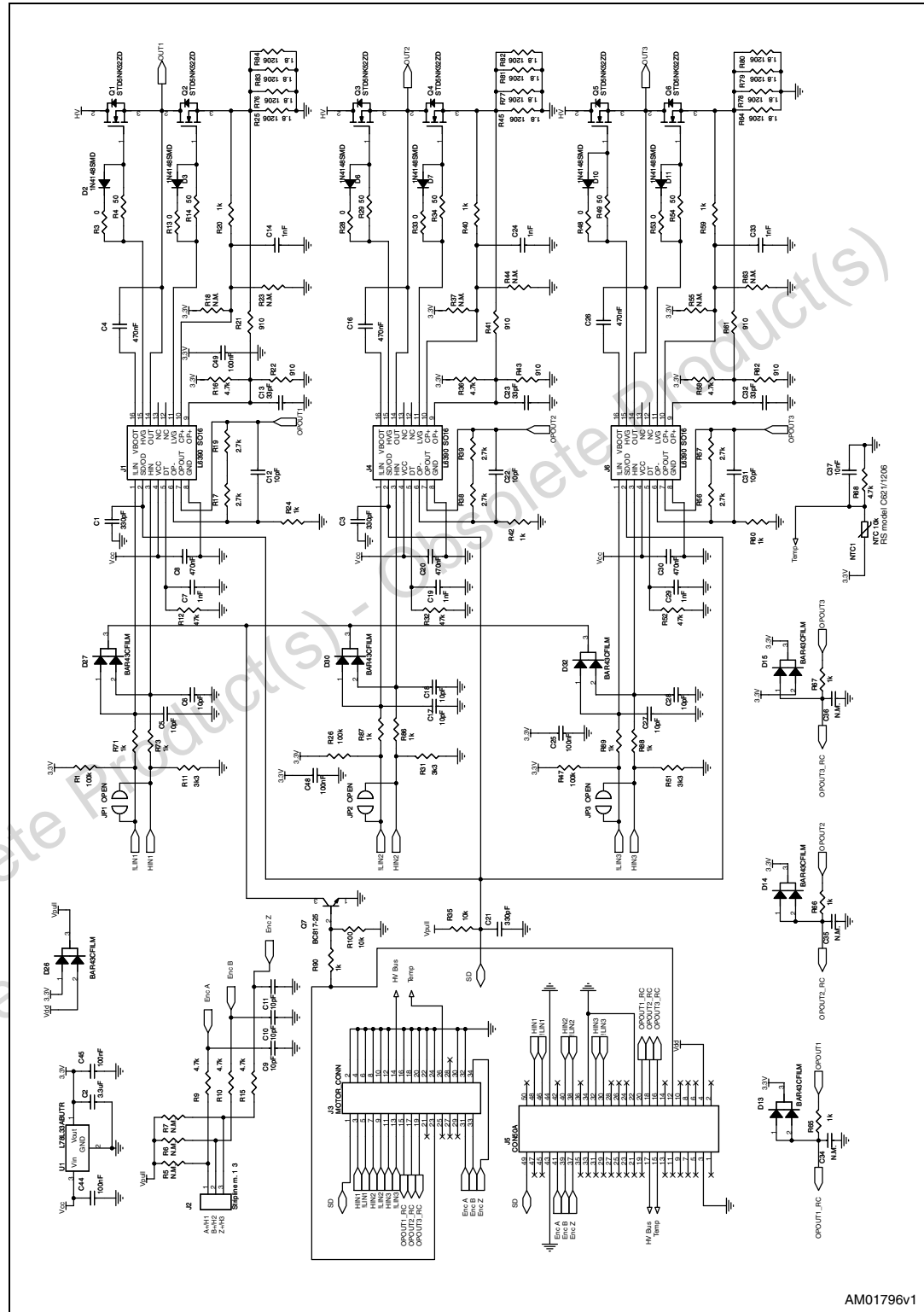
The board has been designed to be compatible with 110 Vac and 230 Vac mains and it includes a power supply stage with VIPer12AS-E (in buck configuration) to generate the +15 V and +3.3 V supply voltage required by the application.

The board can be interfaced via a dedicated connector with STM3210B-EVAL, the STM32 microcontroller demonstration board.

The previous code was: EVAL6390D.

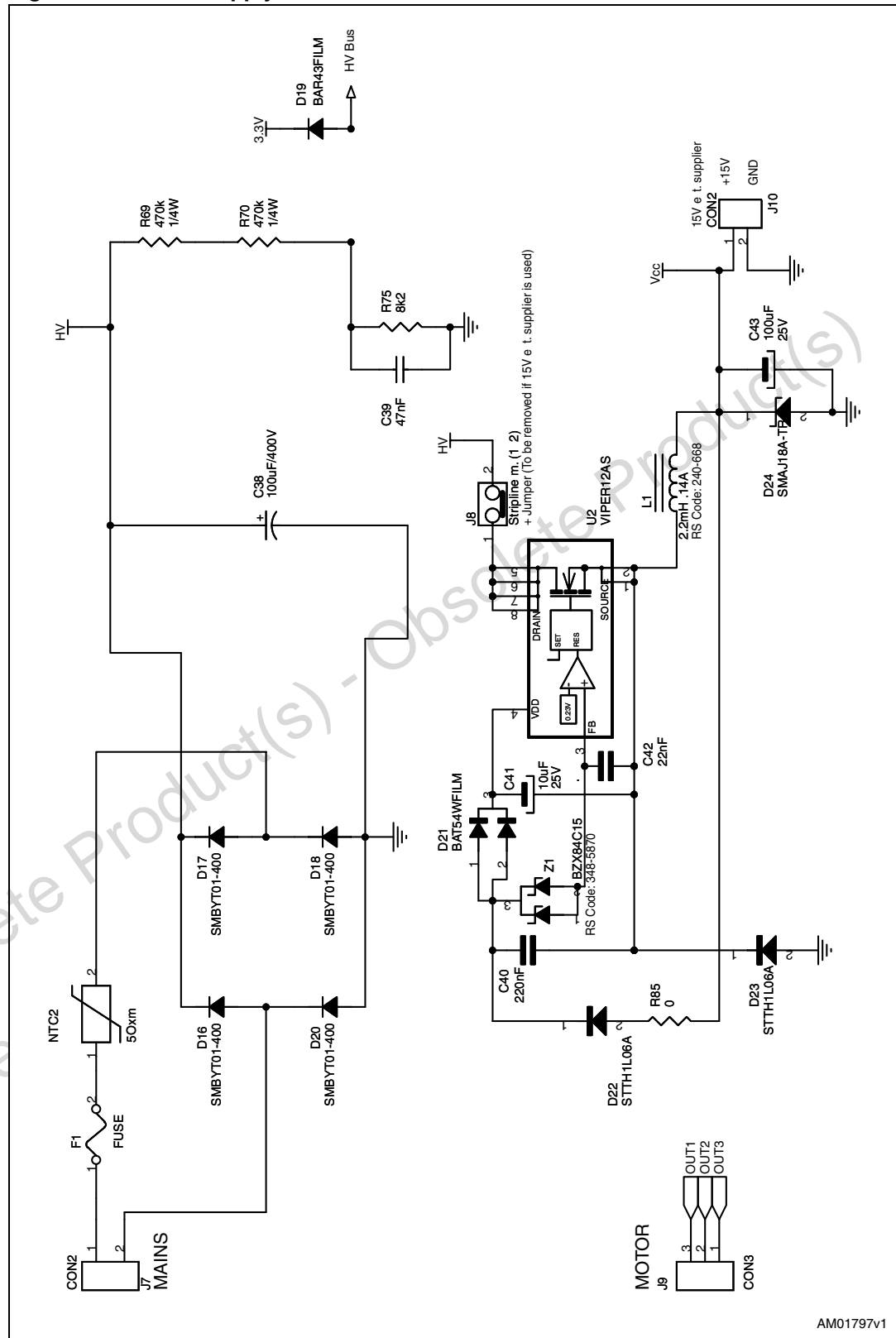
1 Circuit schematic

Figure 1. Inverter schematic



AM01796V1

Figure 2. Power supply schematic



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
04-Nov-2008	1	Initial release.

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