STEVAL-IHM025V1

1 kW 3-phase motor control demonstration board featuring the IGBT SLLIMM™ STGIPL14K60

Data brief

Features

- Min. input voltage: 125 VDC or 90 VAC
- Max. input voltage: 400 VDC or 285 VAC
- Max. output power for motors up to 1000 W
- Regenerative STEVAL-IHM025V1 brake control feature
- Input inrush limitation with bypassing relay
- +15 V auxiliary power supply based on buck converter with VIPer16
- Uses IGBT intelligent power module STGIPL14K60 in SDIP 38L molded package
- Fully populated board conception with test points and isolated plastic safety cover
- Motor control connector for interface with STM3210B-EVAL board and other ST motor control-dedicated kits
- Tachometer input
- Hall/encoder inputs
- Possibility to connect a BEMF daughterboard for sensorless six-step control
- RoHS compliant

STEVAL-IHM025V1

Description

The STEVAL-IHM025V1 demonstration board is an AC/DC inverter that generates a three-phase waveform for driving three or two-phase motors such as induction motors or PMSM motors up to 1000 W, with or without sensors.

The system represents a universal, fully-evaluated and populated design consisting of a 3-phase inverter bridge based on the 600 V IGBT SLLIMM™ (small low-loss intelligent molded module) in the SDIP 38L package mounted on a heatsink. The STGIPL14K60 integrates: high voltage, short-circuit rugged IGBT, and high voltage gate drivers with advanced features like integrated op amp suitable for advanced current sensing. Thanks to this integrated module, the system has been specifically designed to achieve power inversion in a reliable and compact design. The system architecture of the module is based on integrated advanced features and is specifically designed to achieve fast and accurate conditioning of the current feedback, thereby matching the typical requirements in field-oriented control (FOC).

The board is designed to be compatible with single-phase mains, supplying from 90 VAC to 285 VAC or from 125 VDC up to 400 VDC for DC voltage.

1 Schematic diagrams

Figure 1. Circuit schematic (1 of 5)

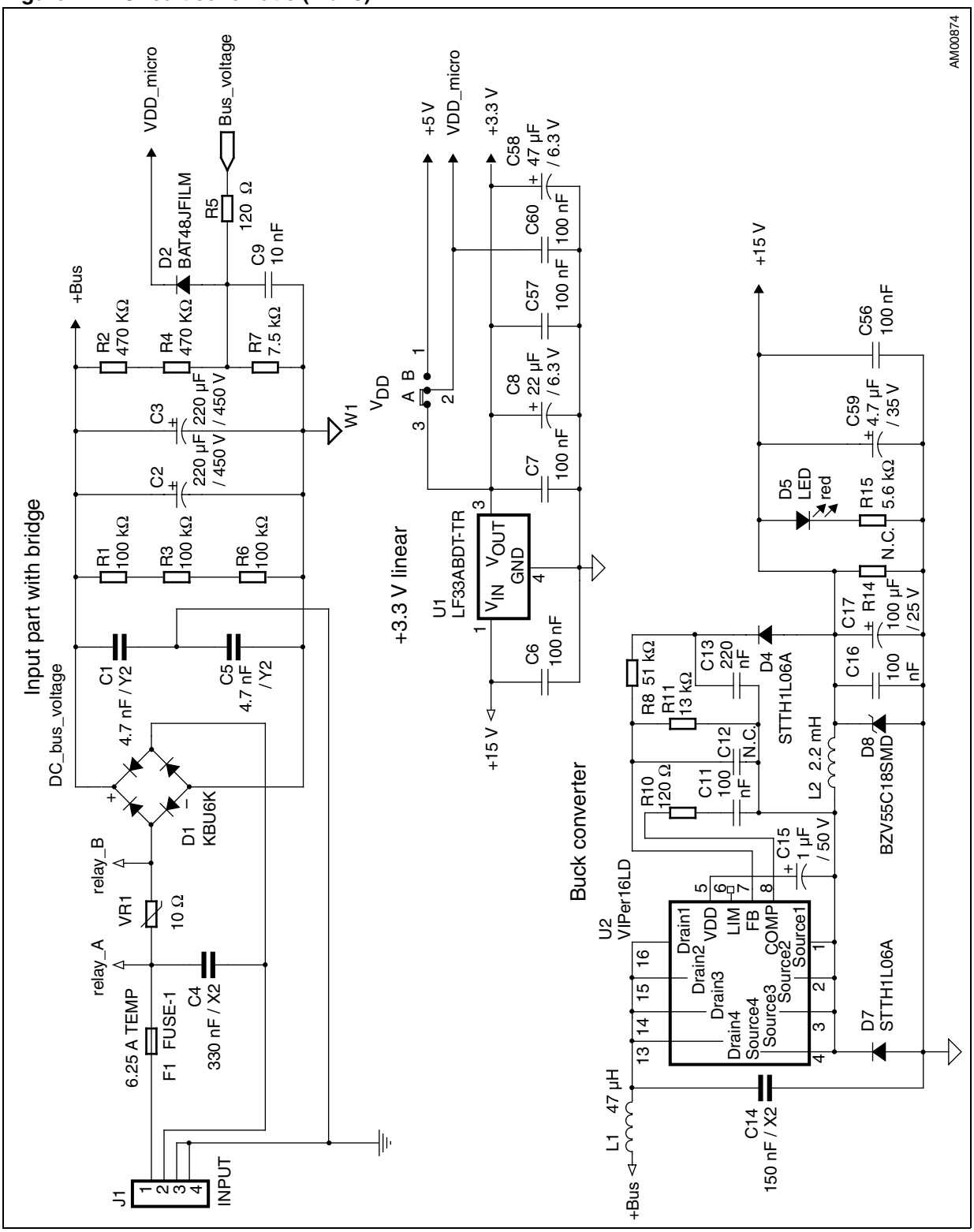


Figure 2. Circuit schematic (2 of 5)

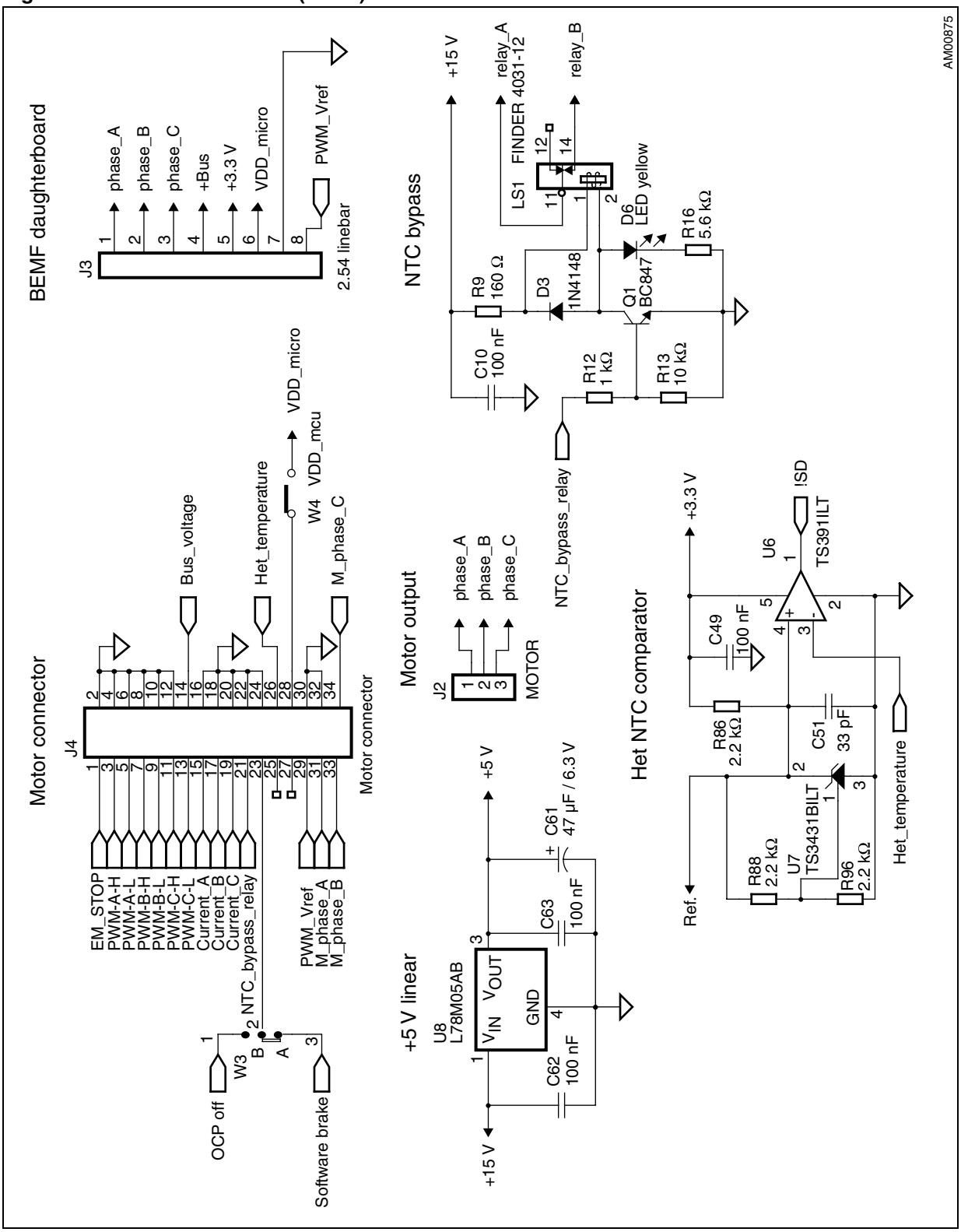


Figure 3. Circuit schematic (3 of 5)

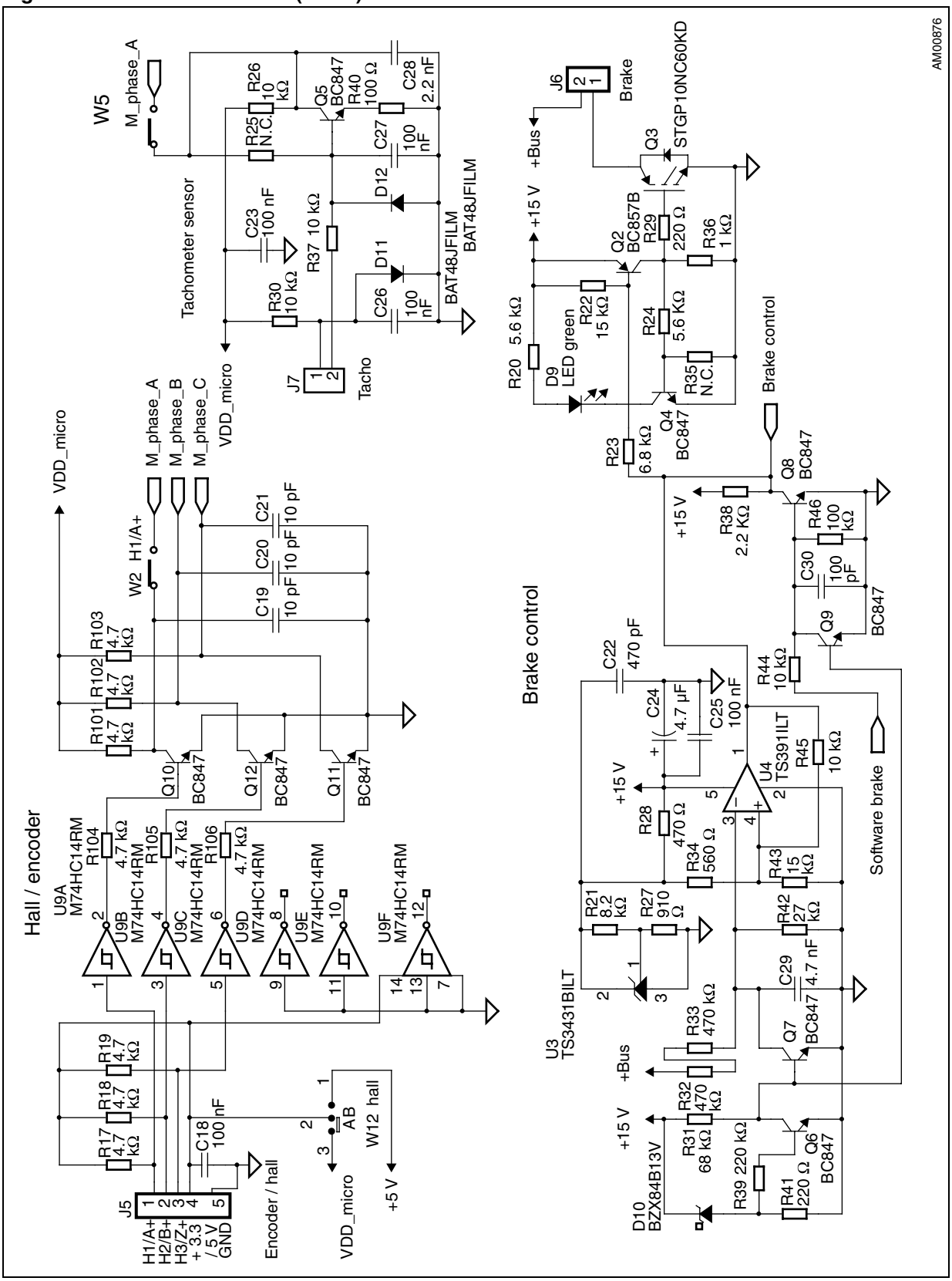


Figure 4. Circuit schematic (4 of 5)

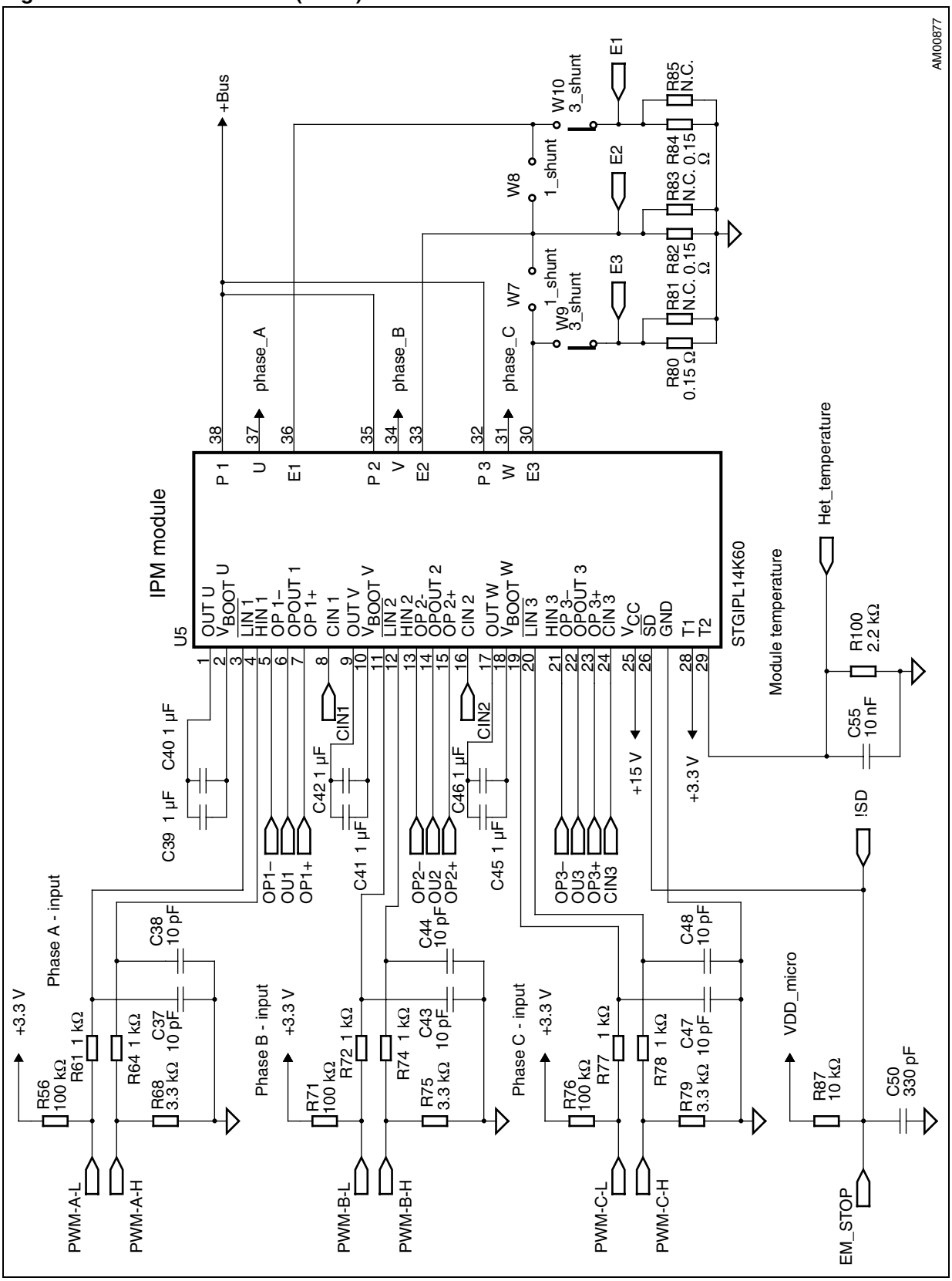
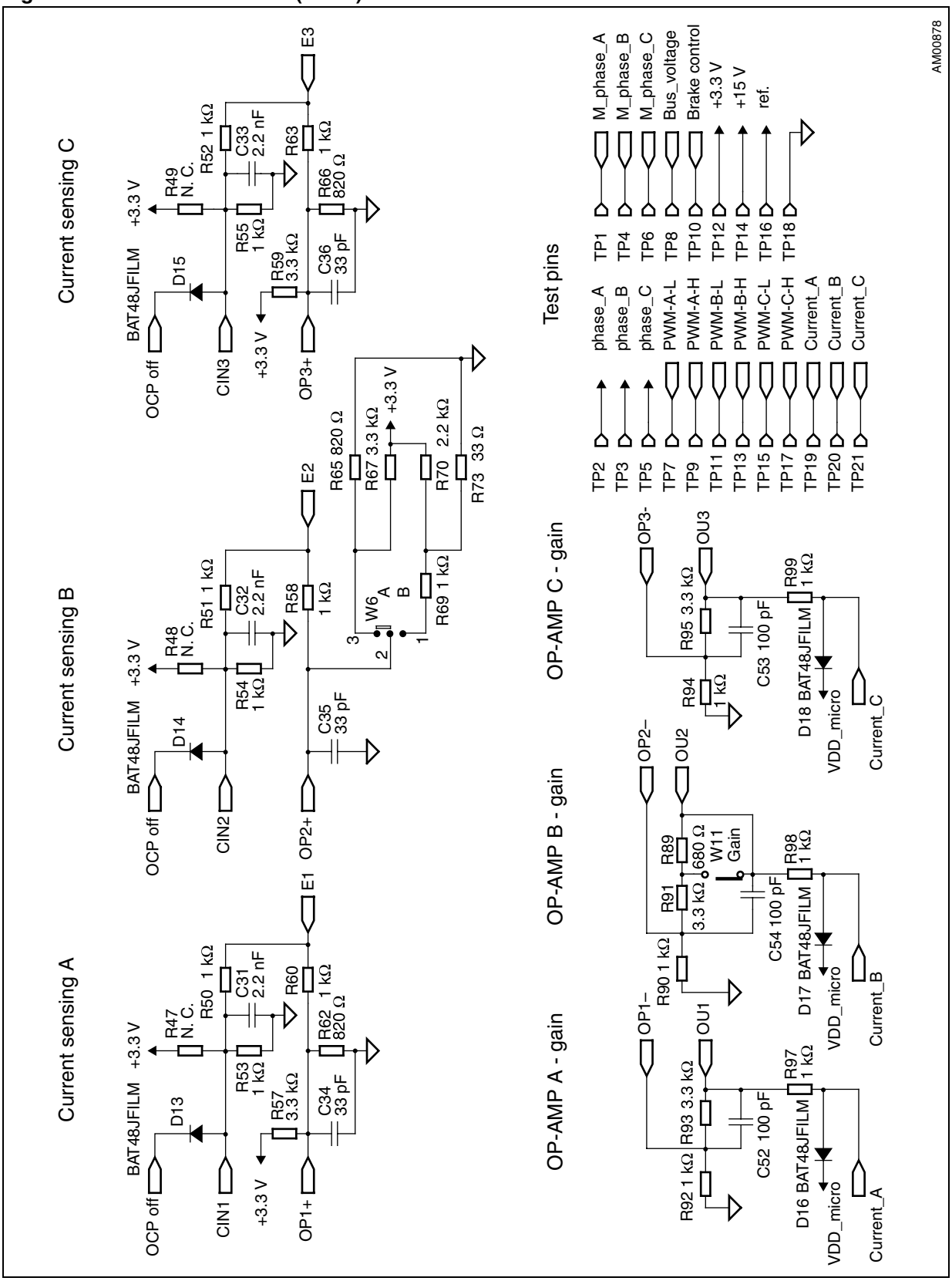


Figure 5. Circuit schematic (5 of 5)



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
16-Jun-2010	1	Initial release.
08-Apr-2011	2	Updated description in cover page.
26-Apr-2011	3	Content reworked to improve readability, no technical changes.

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