



# STEVAL-IHM028V1

2 kW 3-phase motor control demonstration board featuring the IGBT intelligent power module STGIPS20K60

Data brief

## Features

- Complete solution for a 2 kW power inverter
- HV supply mode: voltage 90 VAC to 285 VAC or direct DC line 125 V DC to 400 V DC
- Input voltage range extended to +400 V to be compliant with PFC
- Input inrush limiter with bypassing relay
- Brake feature with overvoltage comparator
- Single or three shunt resistors current sensing method
- Hall sensor or encoder input feature
- Tachometer input feature
- Overtemperature and overcurrent hardware protection
- Active fan with automatic overtemperature switching
- Compact and safe design
- Universal conception for further evaluation with bread board and testing pins
- RoHS compliant

## Description

The goal of the STEVAL-IHM028V1 demonstration board is to present a universal, fully tested, and populated design consisting of a 3-phase inverter bridge based on the 600 V, 17 A intelligent power module STGIPS20K60. The IPM itself consists of short-circuit rugged IGBTs with negative temperature co-efficiency. It also contains a wide range of auxiliary functions like undervoltage lockout and smart shutdown.

Thanks to these advanced characteristics, the system has been specifically designed to achieve an accurate and fast conditioning of the current feedback, therefore matching the typical requirements for a field oriented control (FOC).

This demonstration board can be used for evaluating a wide range of applications such as



HVAC (air conditioners), power white goods and high end single-phase power tools.

# 1 Schematics

Figure 1. Schematic 1/6

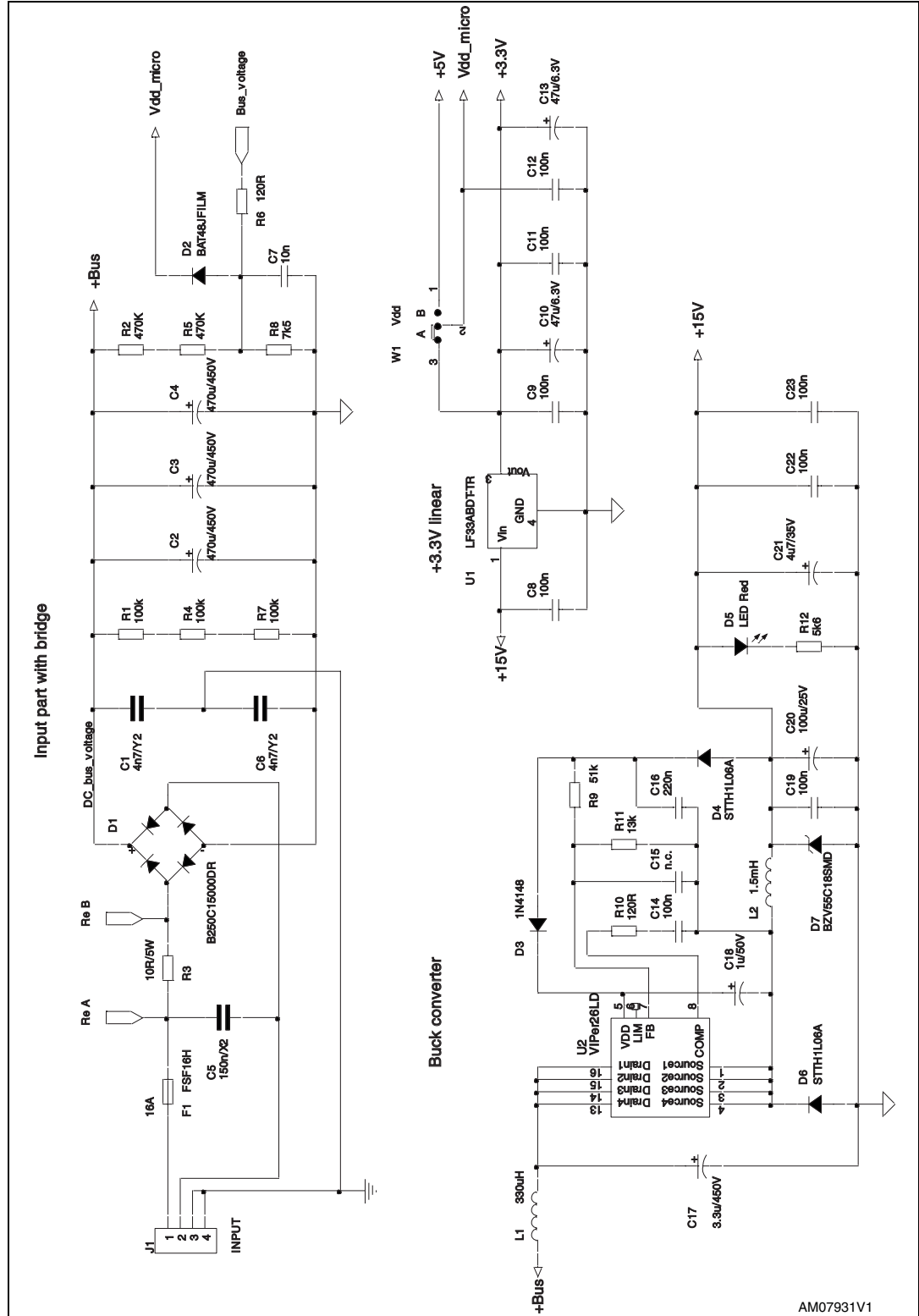


Figure 2. Schematic 2/6

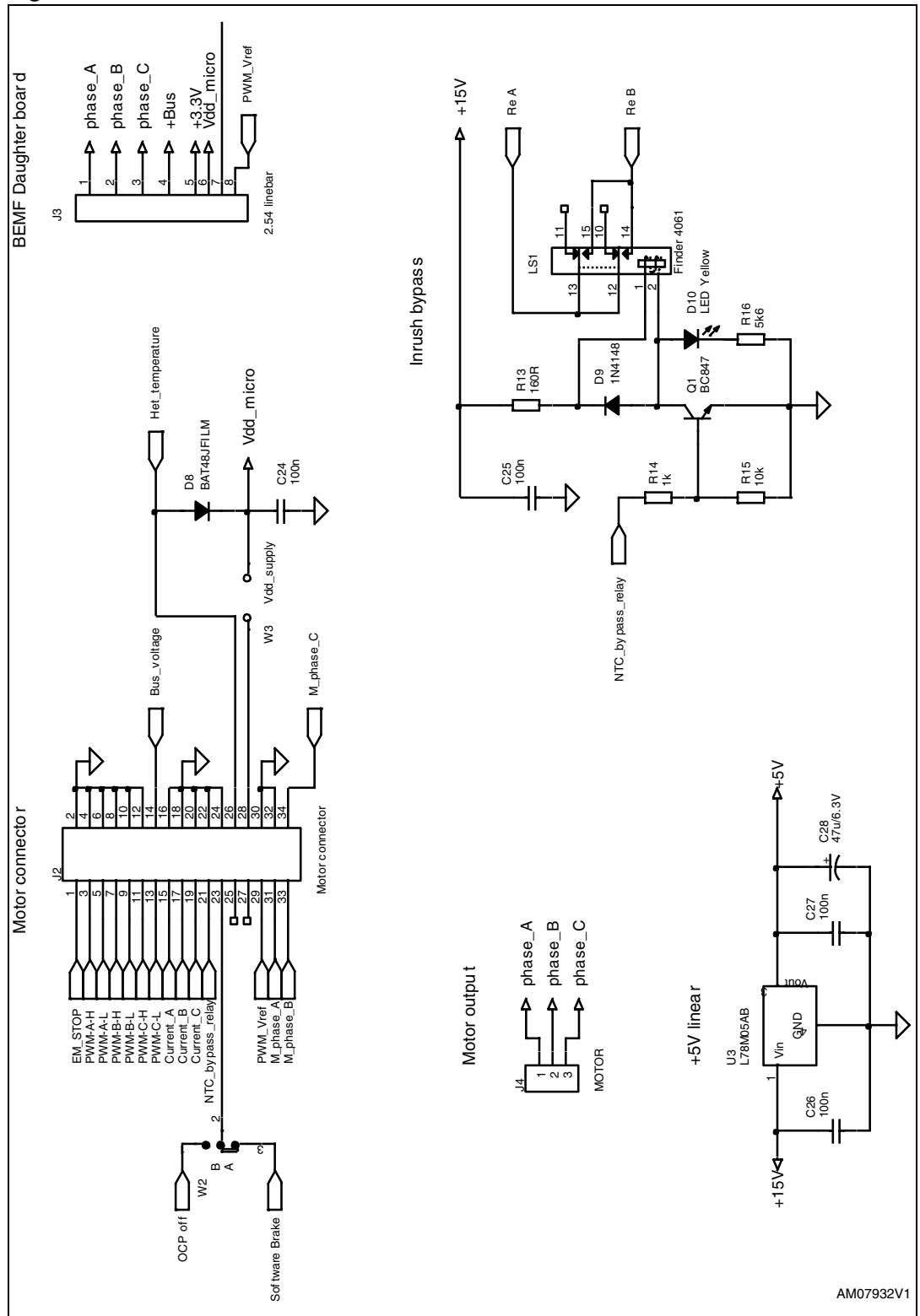


Figure 3. Schematic 3/6

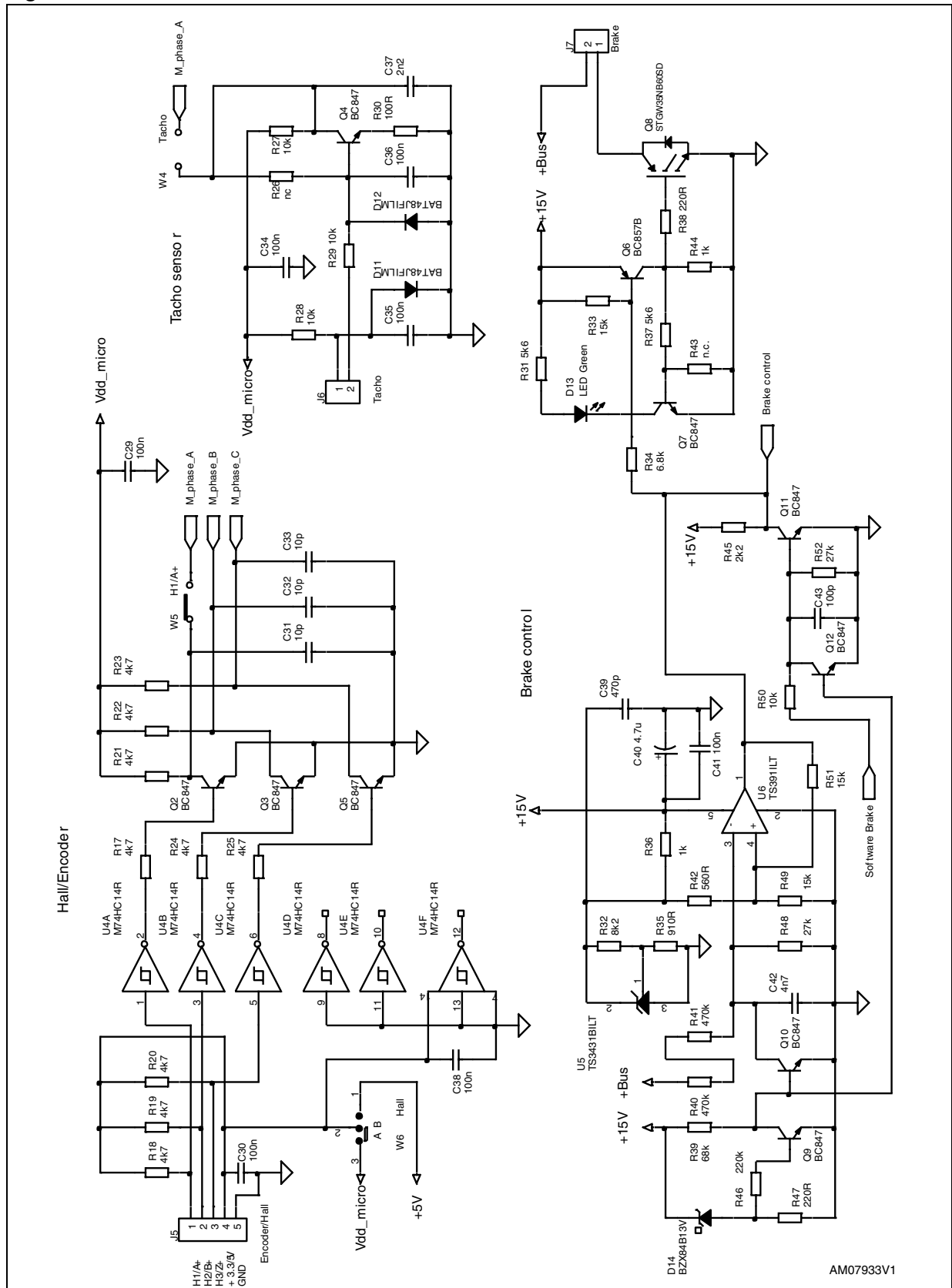
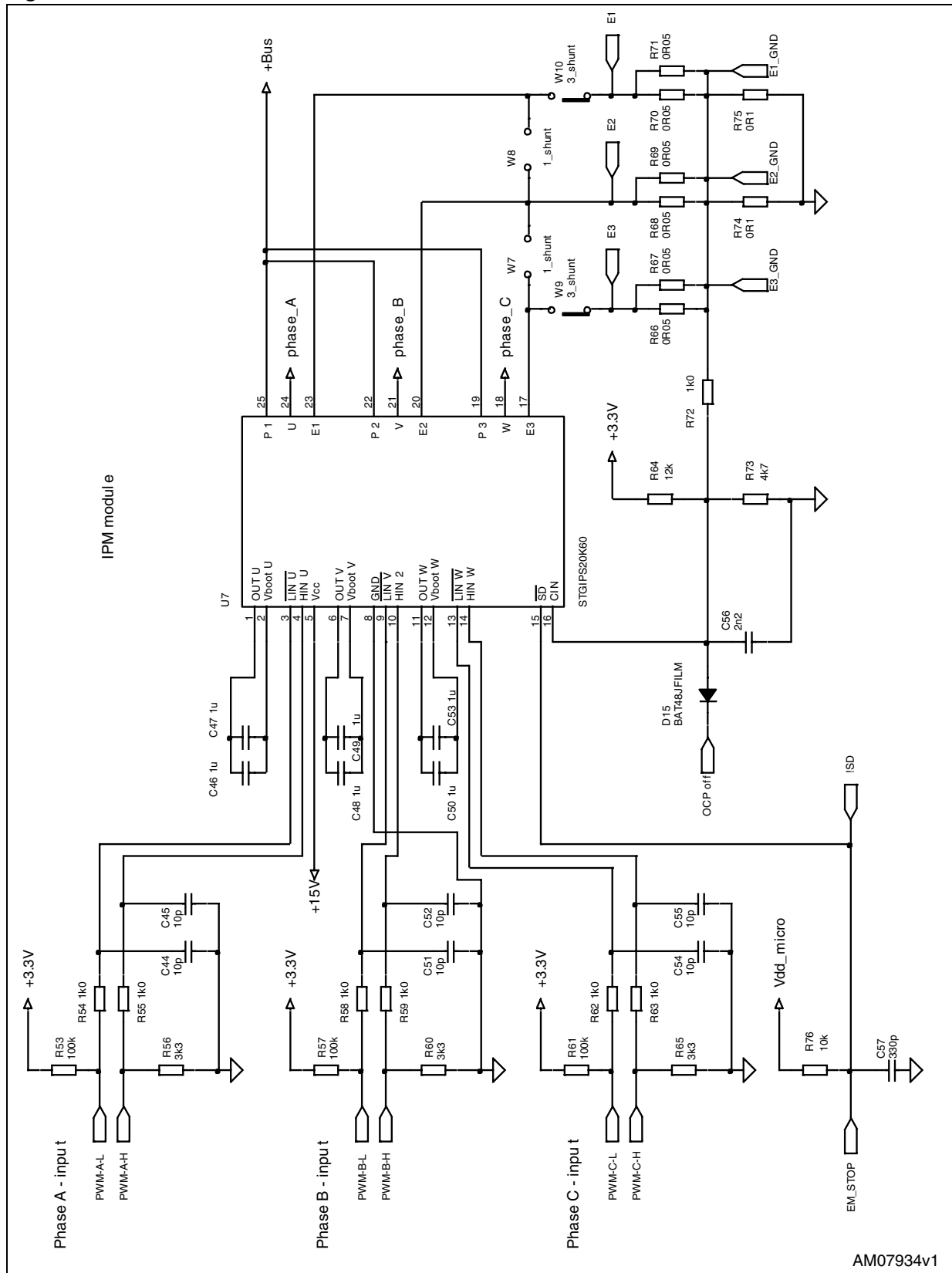
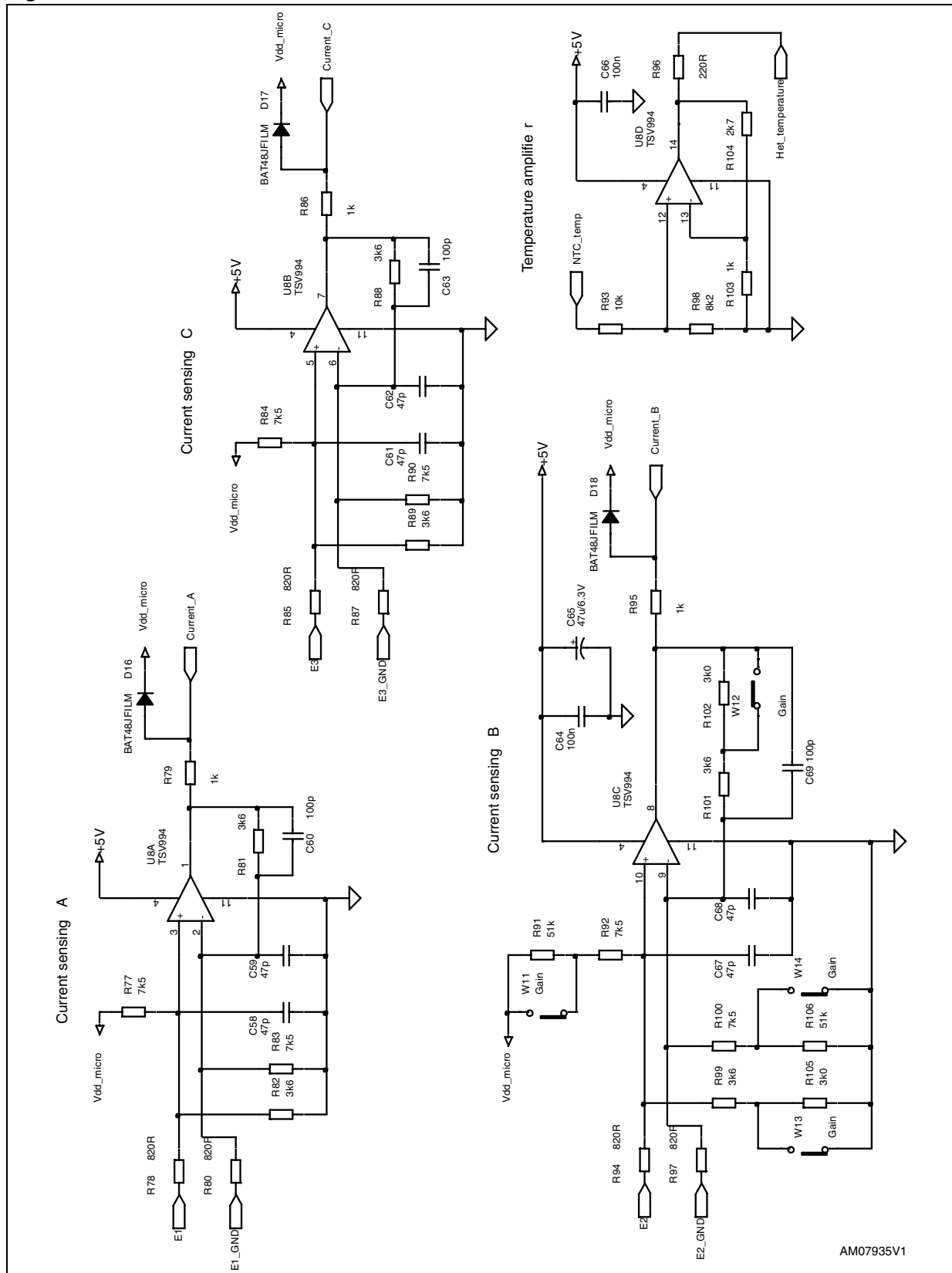


Figure 4. Schematic 4/6



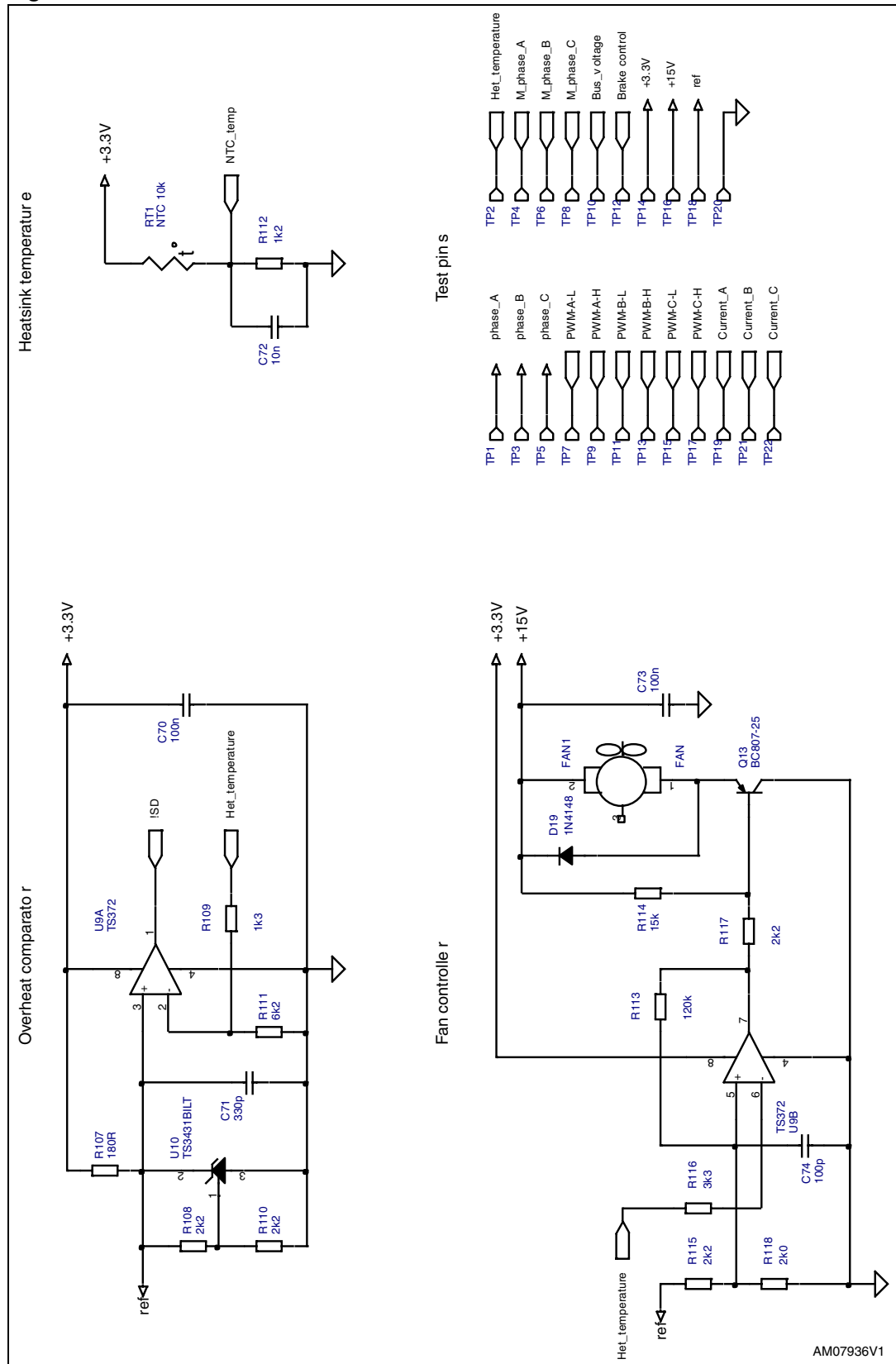
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Figure 5. Schematic 5/6



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Figure 6. Schematic 6/6



## 2 Revision history

**Table 1. Document revision history**

Date	Revision	Changes
23-Feb-2011	1	Initial release.



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