



STEVAL-IHM042V1

Compact, low-voltage dual motor control board based on the STM32F303 and L6230

Data brief

Features

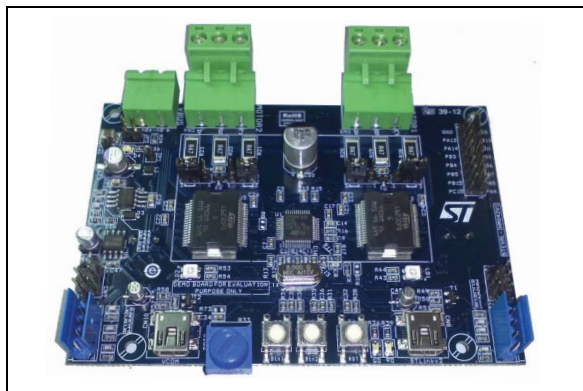
- Highly compact dual 3-phase motor control design
- Only one STM32F303 to control up to two motors
- One L6230 monolithic motor driver used for each of the motors
- Input voltage from 8 V to 48 V
- Up to 50 W continuous for each motor
- Suitable for sensored or sensorless vector control (FOC)
- Suitable for one or three shunt-based current reading
- On-board STLink for STM32F303 programming
- Communication capability through USB port (Virtual COM)

Description

The STEVAL-IHM042V1 demonstration board is an extremely compact, low-voltage solution which used only three devices to enable the simultaneous control of up to two permanent magnet motors.

Thanks to a powerful ARM Cortex-M4 core with floating point capability and to leading-edge analog peripherals (such as fast operational amplifiers, rail-to-rail comparators, fast 12-bit and ADC converters), a single STM32F303 microcontroller can control up to two three-phase motors, minimizing the need of additional components.

Motors actuation is handled by two L6230 monolithic motor drivers from ST's rugged PowerSPIN family, combining six 0.73 Ω power transistors together with gate driving circuitry, overcurrent and thermal protection, as well as an additional uncommitted comparator.

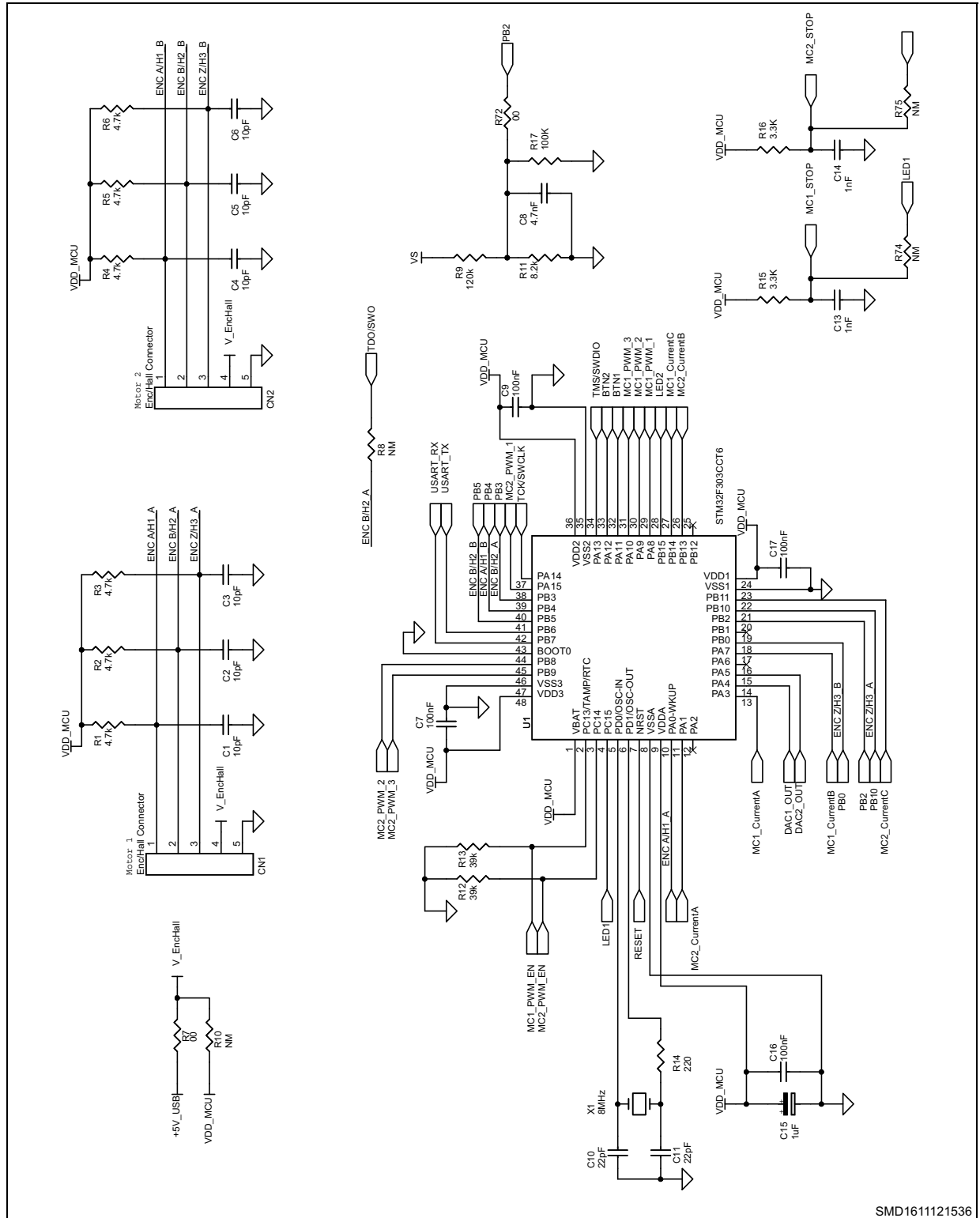


The board can be supplied by any voltage ranging from 8 V up to 48 V thanks to the ST1S14PHR step-down monolithic power switching regulator.

The demonstration board can be interfaced with a PC (Virtual COM) through a dedicated mini-USB connector and programmed by means of the on-board STLink.

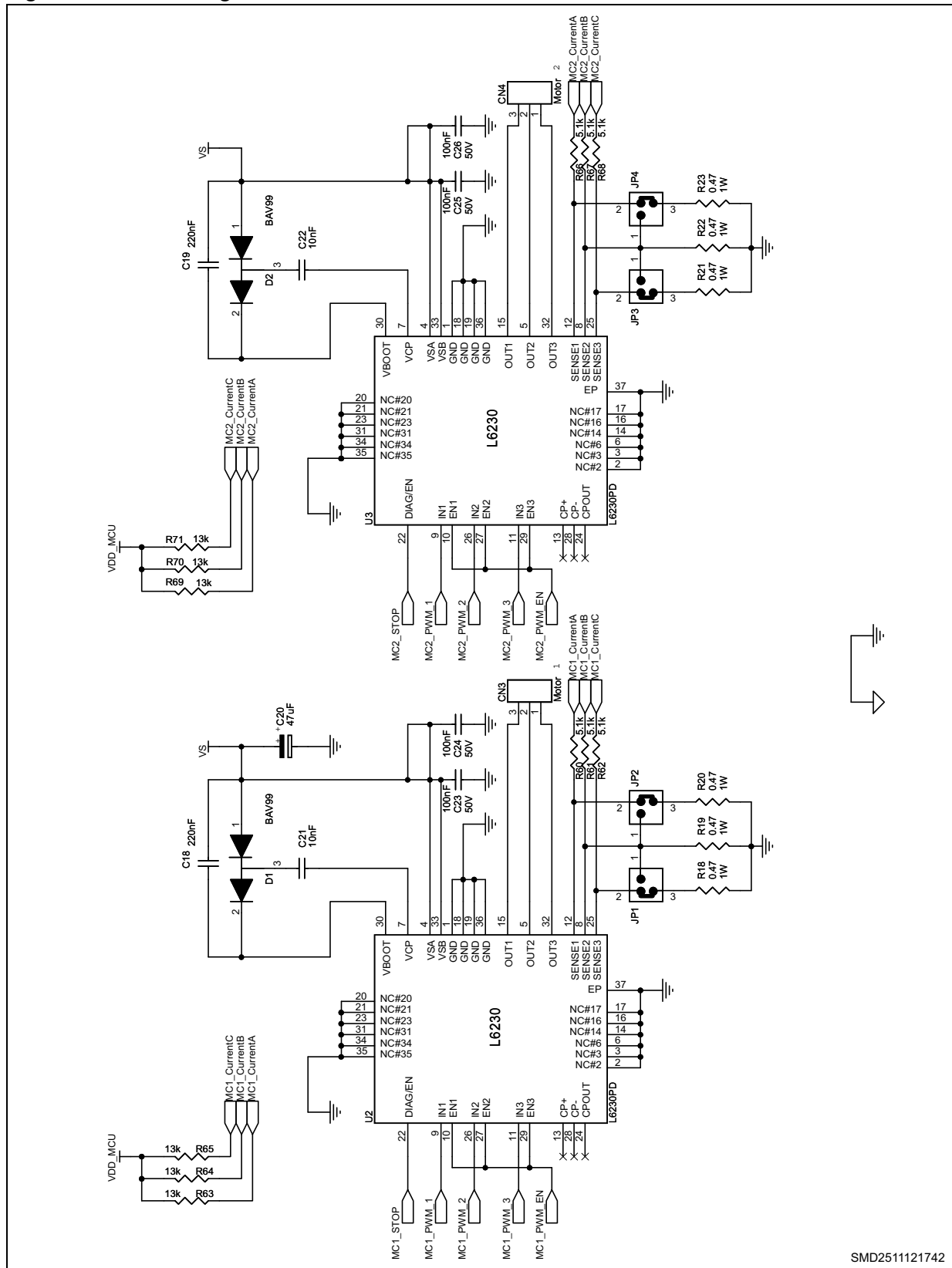
1 Schematic diagrams

Figure 1. STEVAL-IHM042V1: control stage



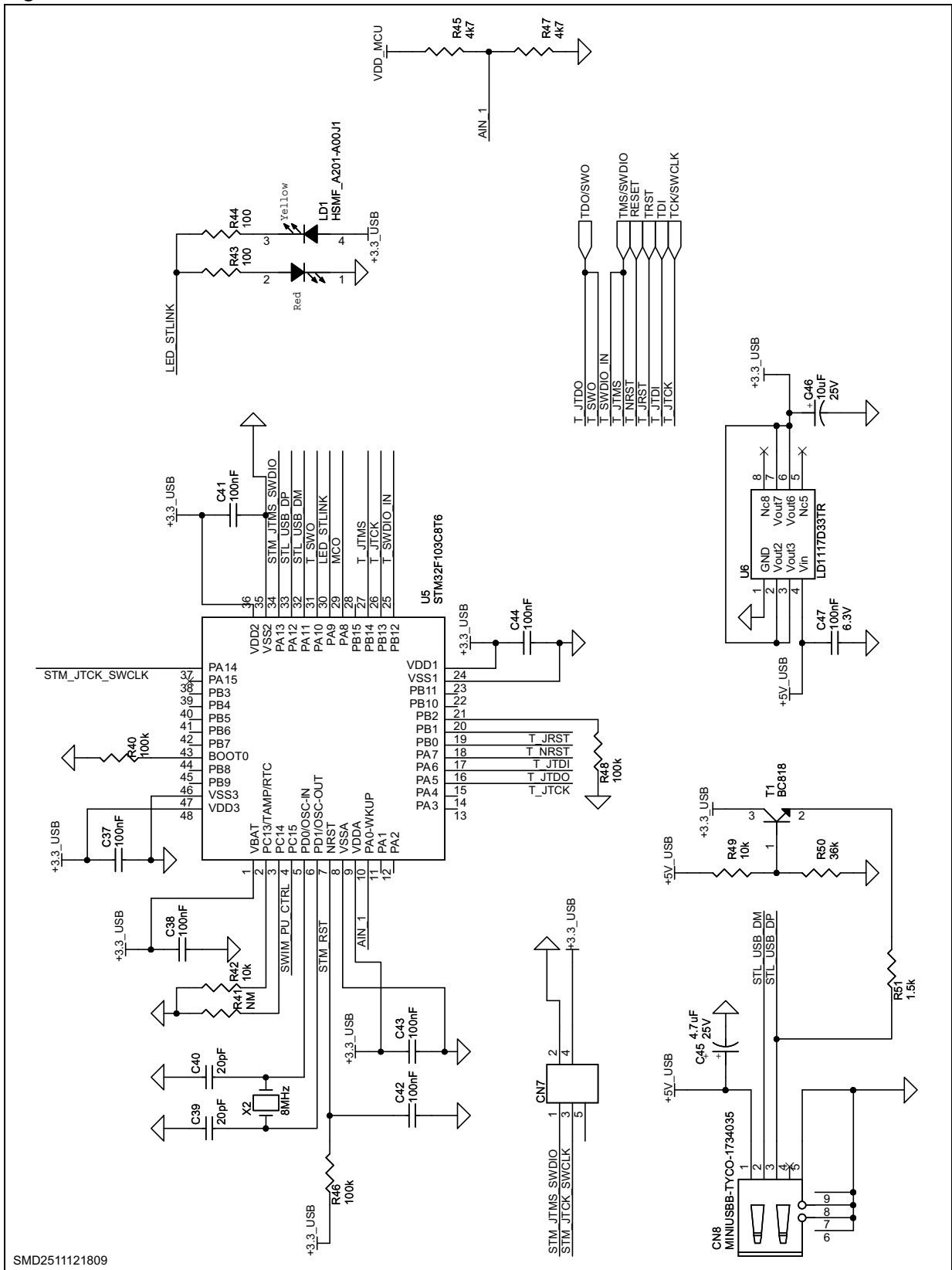
SMD1611121536

Figure 2. Power stage



SMD2511121742

Figure 4. STLink V2



SMD2511121809

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
26-Nov-2012	1	Initial release.
03-Dec-2012	2	Added figure from 1 to 5.

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