# STEVAL-IHM042V1

Compact, low-voltage dual motor control evaluation board based on the STM32F303CC and L6230

Data brief
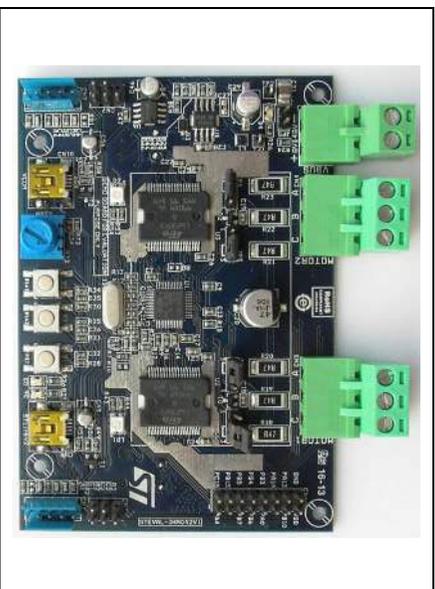
Features

- Highly compact dual 3-phase motor control design
- Two L6230 monolithic power stages in a PowerSO package, featuring overcurrent and thermal protection
- STMicroelectronics' ARM™ Cortex-M4F core-based STM32F303CC microcontroller capable of simultaneous driving field-oriented control of two PMSM motors
- Sensored or sensorless vector control (FOC)
- Input voltage from 8 V to 48 V
- Up to 10 W continuous for each motor
- 3- or 1-shunt current sensing topology for each drive easily selectable through jumpers
- On-board STLink for STM32F303CC programming
- USB-to-serial interface for real-time control via ST MC Workbench
- RoHS compliant

Description

The STEVAL-IHM042V1 evaluation board is designed as a complete dual motor field-oriented control (FOC) demonstration platform featuring STMicroelectronics' ARM Cortex™-M4F 32-bit core-based STM32F303CC microcontroller with floating point support and two fully integrated DMOS L6230 3-phase motor drivers.

It is designed as an integrated evaluation environment for motor control applications in the range of 8 V - 48 V DC bus voltage (extendable up to 52 V) and nominal power up to 10 W for each motor drive. The design exploits the computational power of the STM32F303CC microcontroller with 48 KB of internal SRAM and 256 KB Flash, 4 ADCs, 2 DACs, 7 comparators, 4 operational amplifiers with programmable gains, SWD debugging, as well as the L6230 DMOS driver's 2.8 A output peak current, non-dissipative overcurrent detection/protection, cross-conduction protection, uncommitted comparator, thermal shutdown, and undervoltage lockout.

The STEVAL-IHM042V1 is equipped with a USB-to-serial interface, specifically for real-time data exchange implemented by an STM32F103C8 pre-programmed with the STM32 Virtual COM Port firmware.

The ST Link in-circuit debugger and programmer is embedded in the board, allowing the user to program and debug the STM32F303CC microcontroller directly with a USB cable using a compatible toolset.

Schematic diagrams

Figure 1. Schematic (1 of 5)
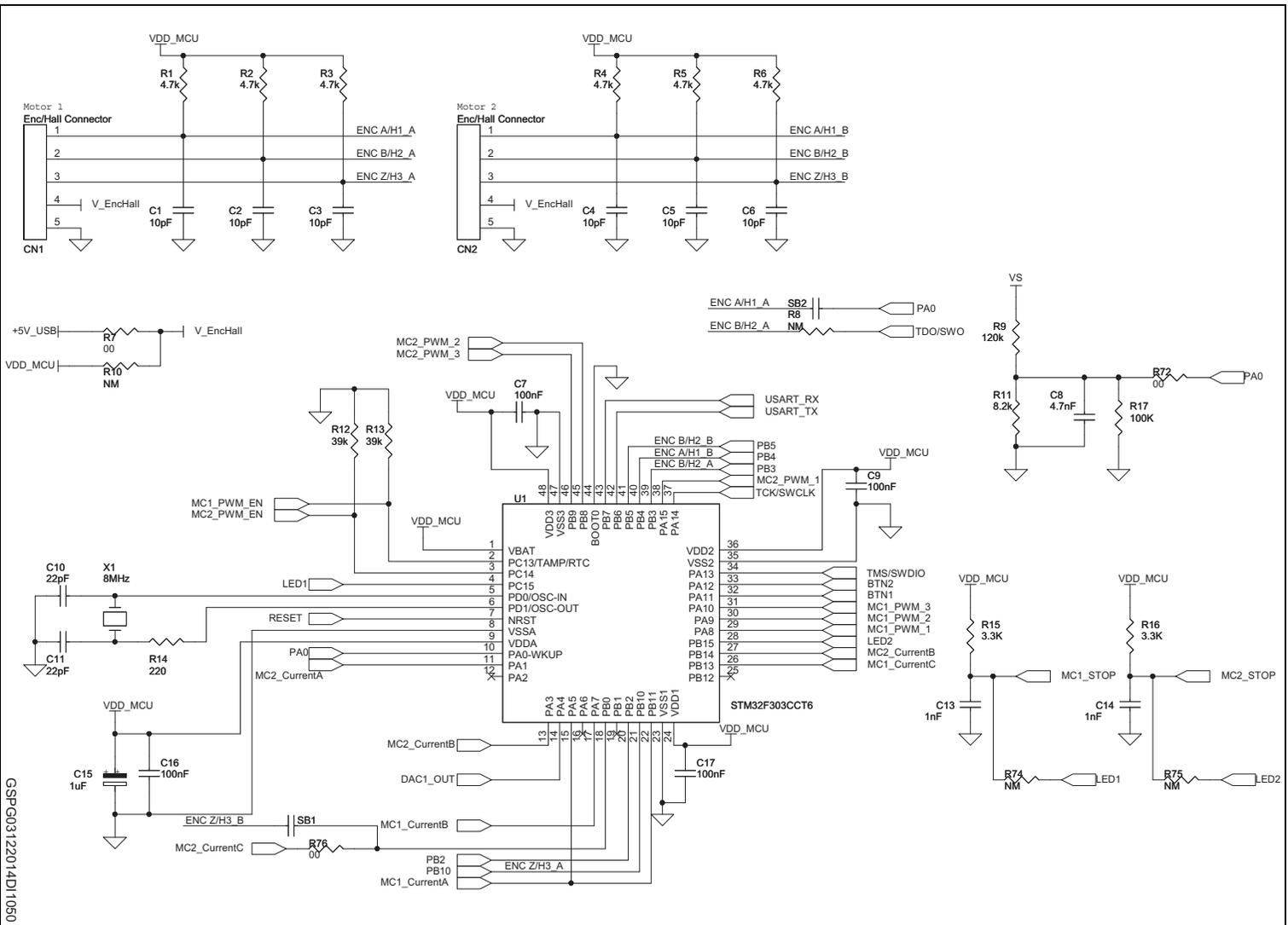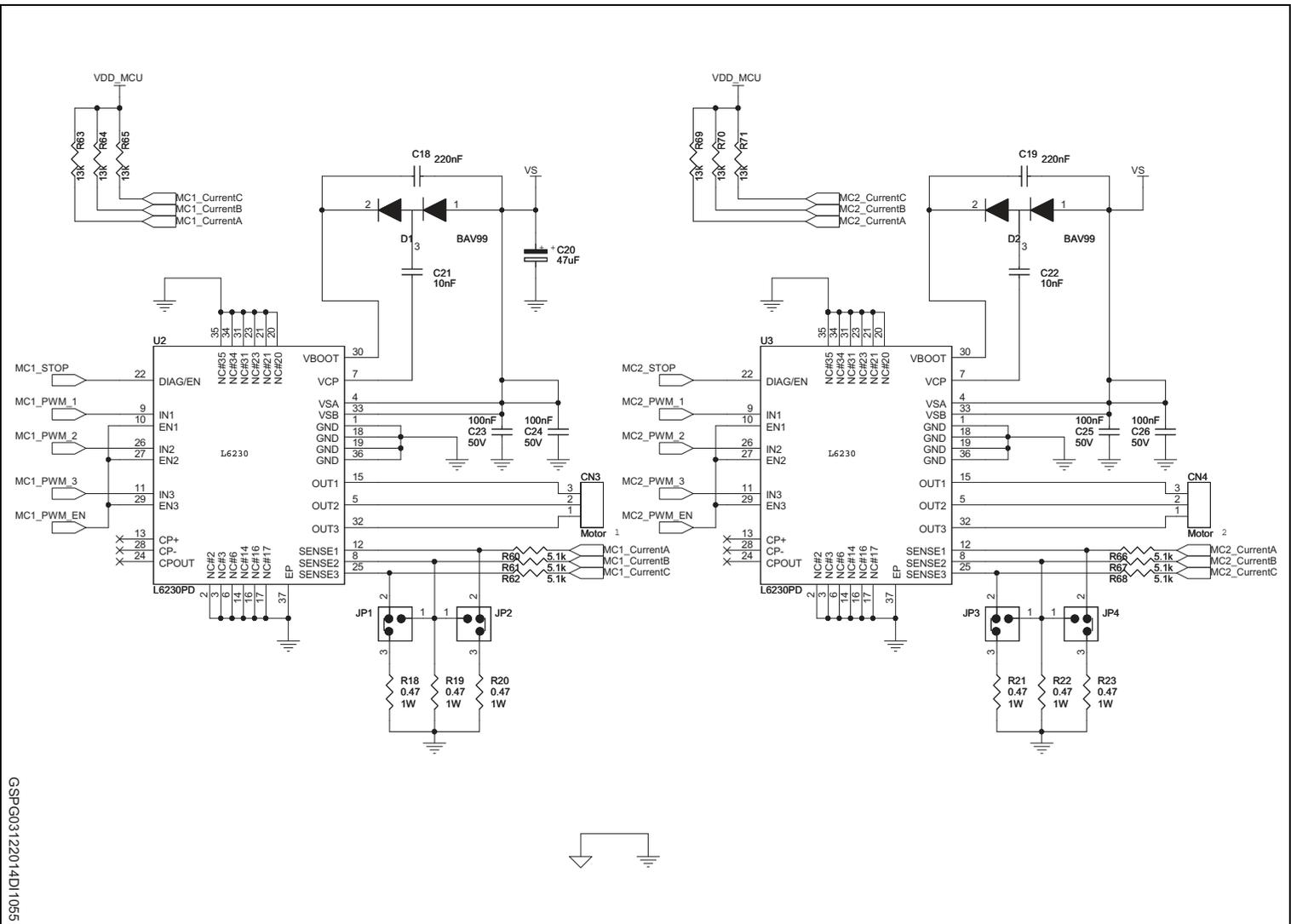
Figure 2. Schematic (2 of 5)

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Figure 3. Schematic (3 of 5)
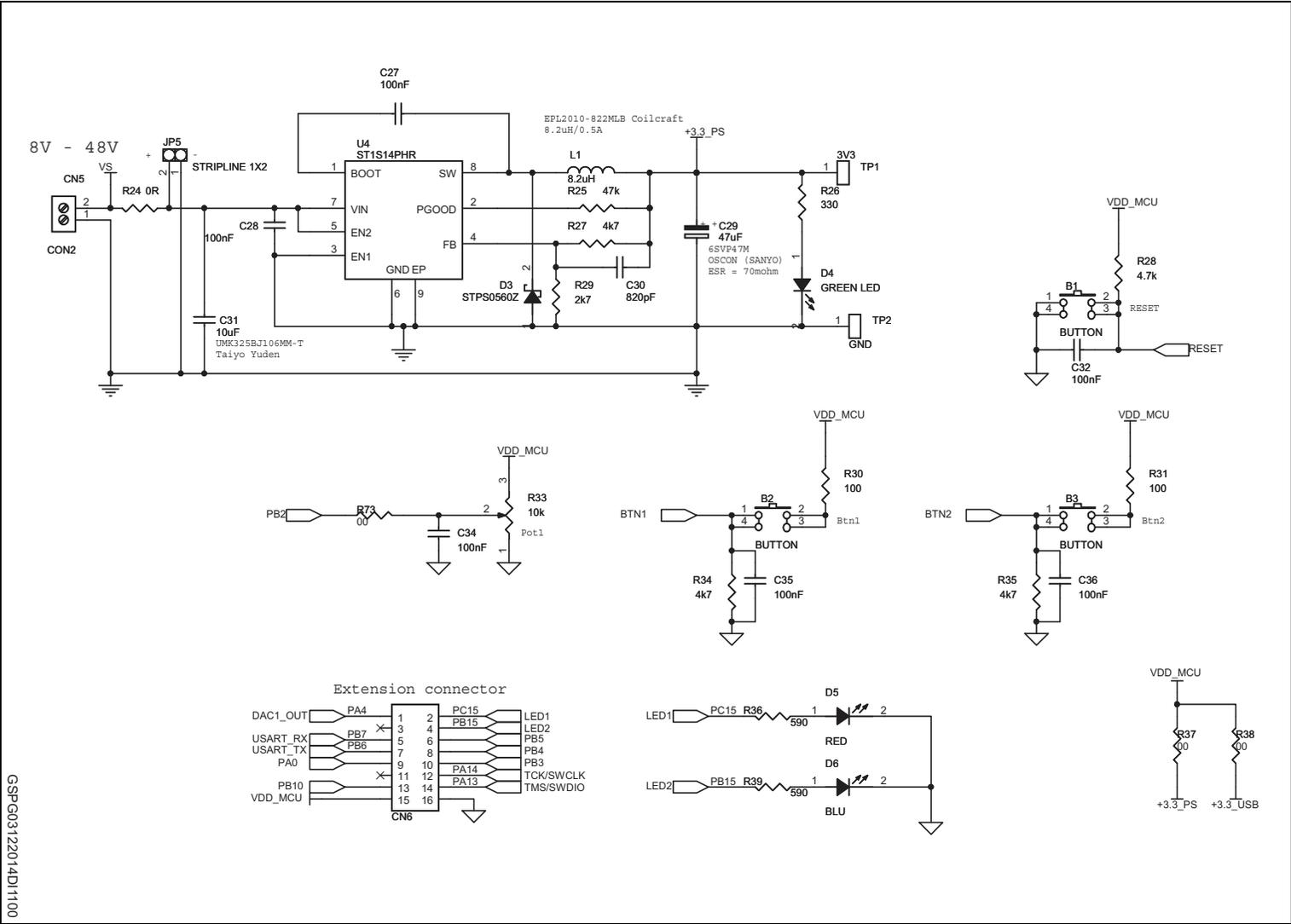
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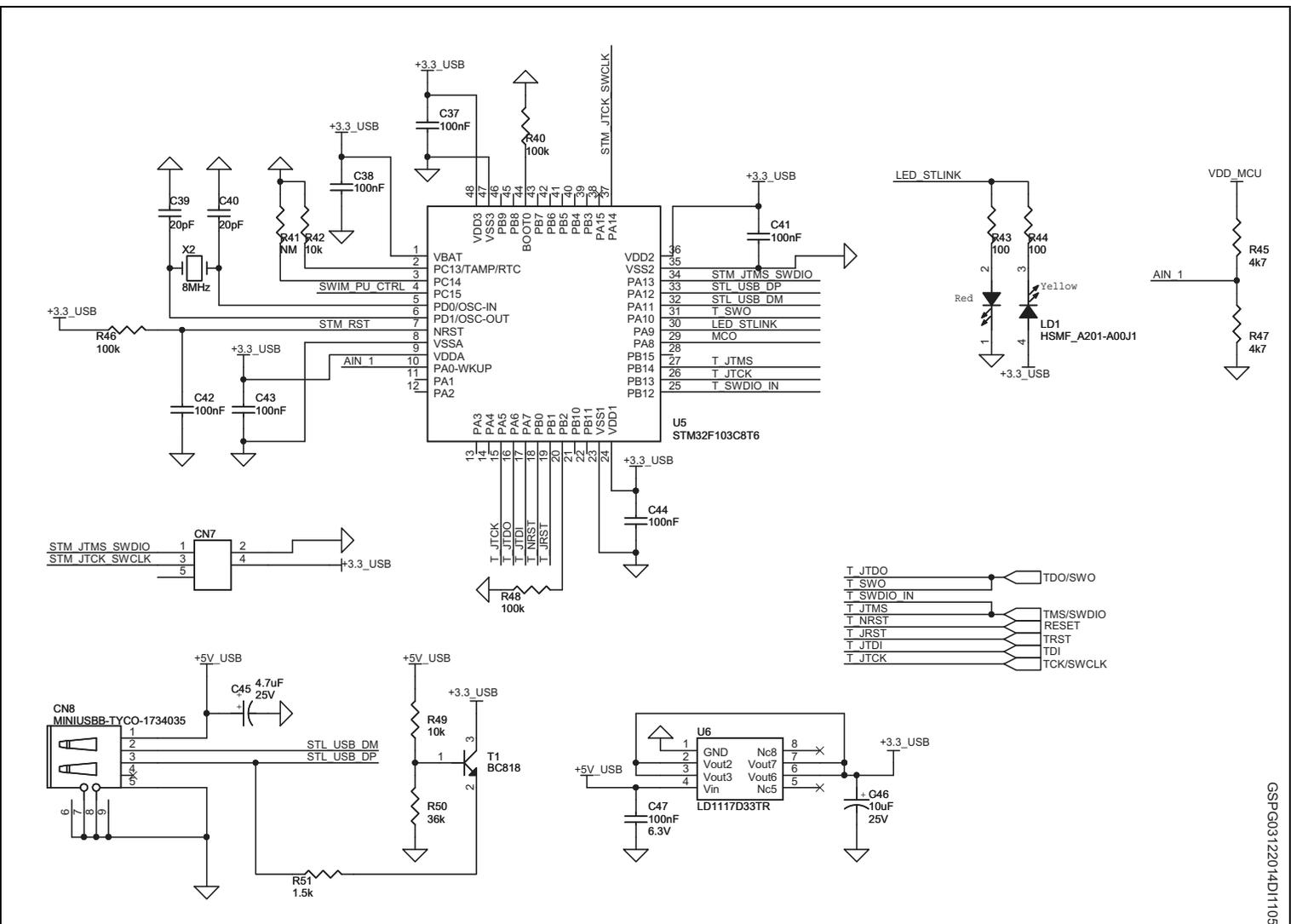
Figure 4. Schematic (4 of 5)

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Figure 5. Schematic (5 of 5)

STEVAL-IHM042V1
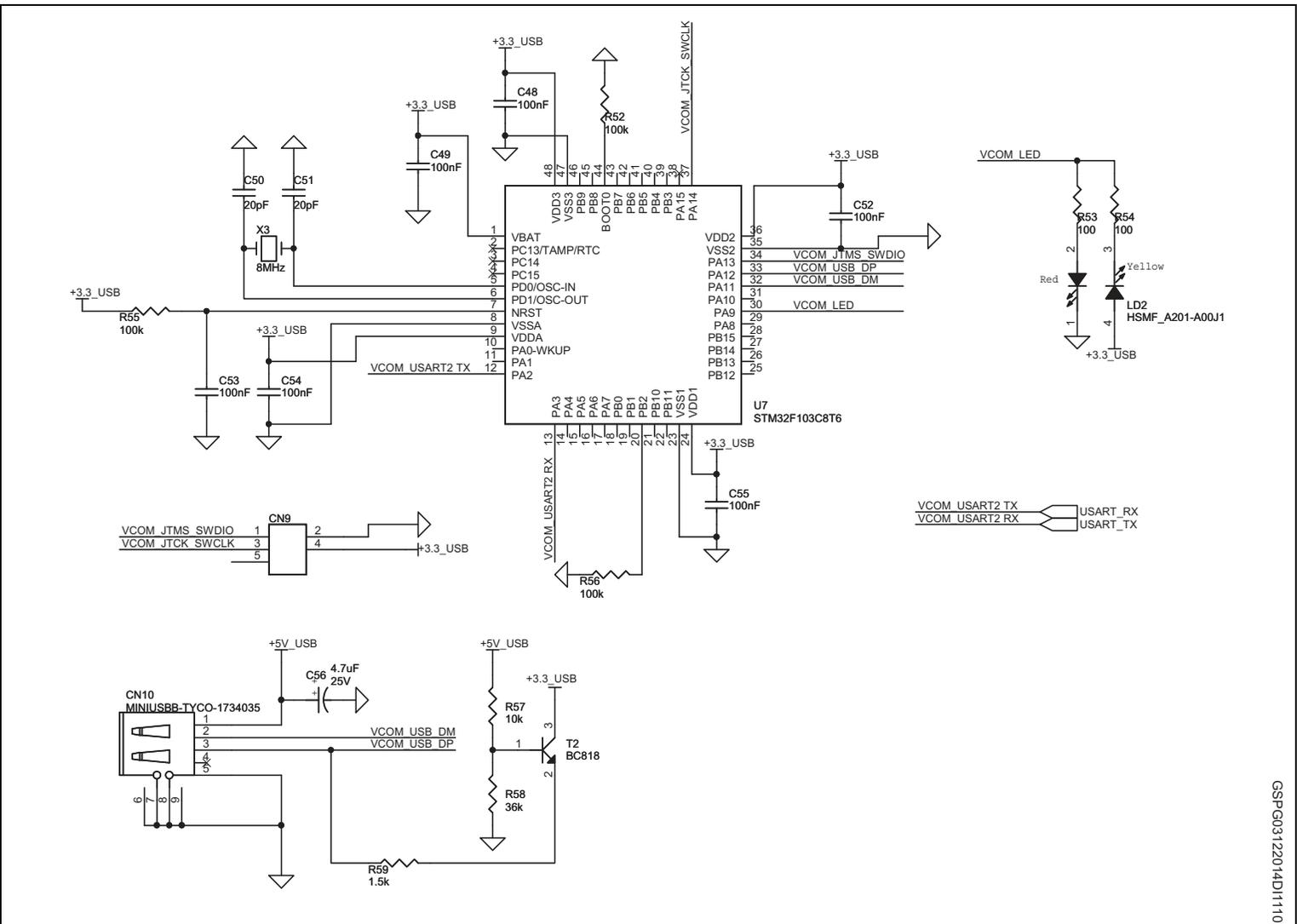
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2   Revision history

Table 1. Document revision history

Date	Revision	Changes
26-Nov-2012	1	Initial release.
03-Dec-2012	2	Added figure from 1 to 5.
31-Mar-2014	3	– Updated the *Features* and *Description* of the board. – Minor text modifications in the title, section headings and figure captions.
26-Mar-2015	4	Modified *Section 1: Schematic diagrams*

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