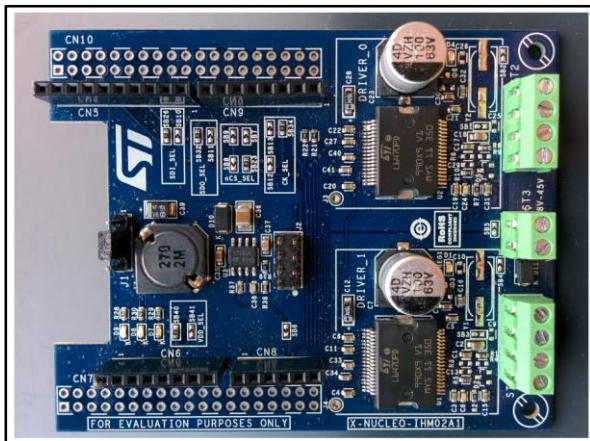


## Two axis stepper motor driver expansion board based on the L6470 for STM32 Nucleo

Data brief



- Five LEDs:
  - 2 green, to indicate that each L6470 is powered
  - 1 orange, to indicate that the digital voltage is on
  - 1 yellow, to indicate when any L6470 is busy
  - 1 red, to indicate when a fault condition occurs (step loss, OCD, thermal pre-warning or shutdown, UVLO, incorrect command, non-performable command) for any L6470
- RoHS compliant

### Features

- Operating voltage: 8 V - 45 V DC
- 7 A peak output current (3 A rms) for each motor driver
- Digital voltage supply is selectable (3.3 V or 5.0 V) by a 0  $\Omega$  resistor and is provided on main board
- 3.3 V digital voltage supply may be provided by:
  - the STM32 Nucleo board
  - the step-down monolithic power switching regulator soldered on the expansion board (through jumper selection, it can also be used to supply the STM32 Nucleo board)
- USART communication
  - enables receiving of commands from a PC
  - enables sending information to a PC
  - Requires no dedicated cable; uses the Type A to Type Mini-B USB cable already used to supply the STM32 Nucleo board
- SPI interface (may be connected in a daisy chain configuration)
- Equipped with Arduino UNO R3 connectors
- Layout compatible with ST morpho connectors

### Description

The X-NUCLEO-IHM02A1 is a two axis stepper motor driver expansion board based on the L6470. It provides an affordable and easy-to-use solution for low voltage motor control driving for stepper motors in your STM32 Nucleo project.

The expansion board includes two L6470s, a fully-integrated micro stepping motor driver used to control stepper motors by means of high-end motion control commands received through SPI. It is capable of driving one or two stepper motors when plugged into an STM32 Nucleo board.

This board is equipped with Arduino UNO R3 connectors and the layout is also compatible with ST morpho connectors. One or more of these expansion boards can be plugged into an STM32 Nucleo board to control one or more stepper motors.

Each SPI peripheral of each L6470 is connected in a daisy chain configuration.



# Schematic diagram

Figure 1: X-NUCLEO-IHM02A1 circuit schematic (1 of 4)

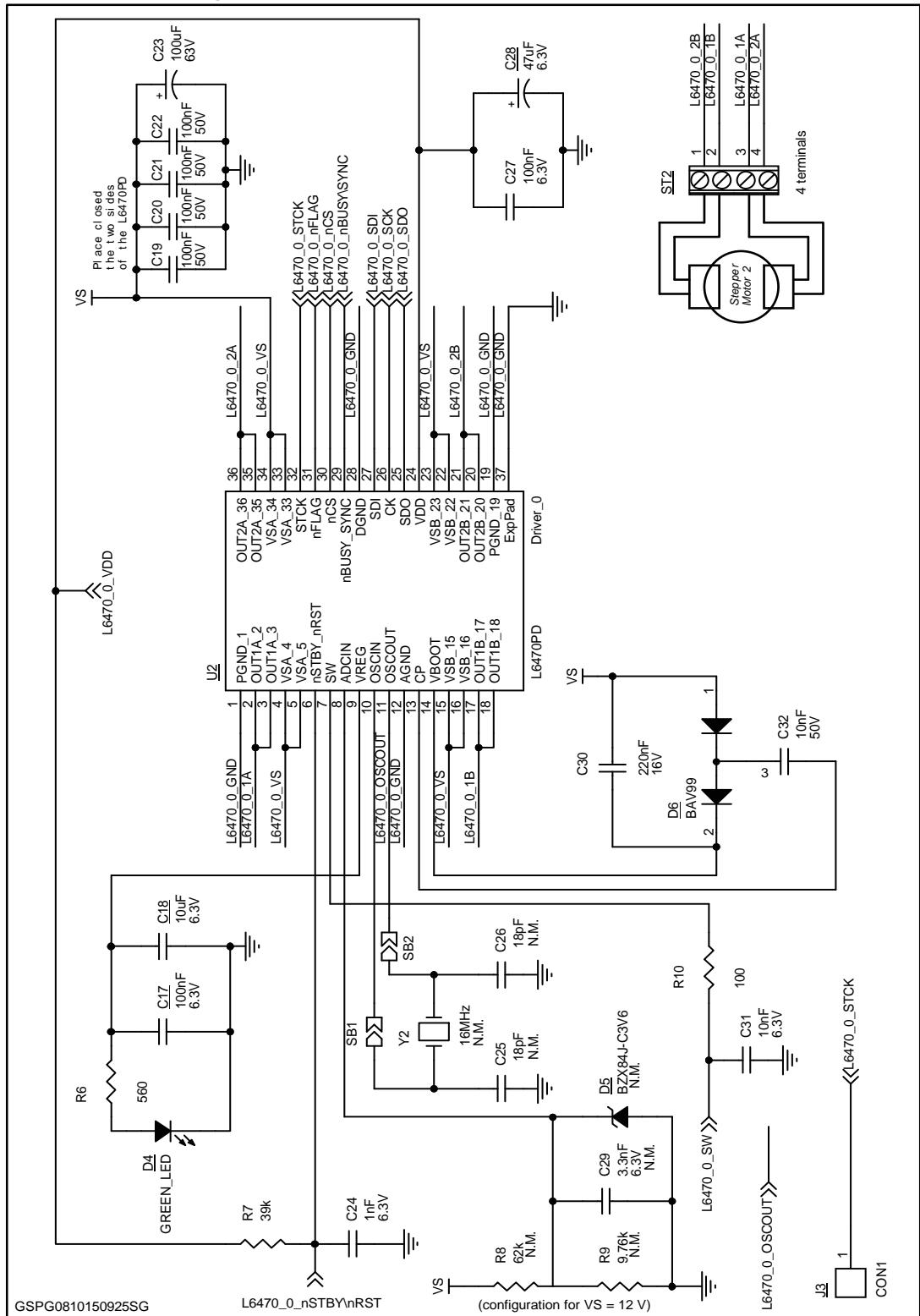


Figure 2: X-NUCLEO-IHM02A1 circuit schematic (2 of 4)

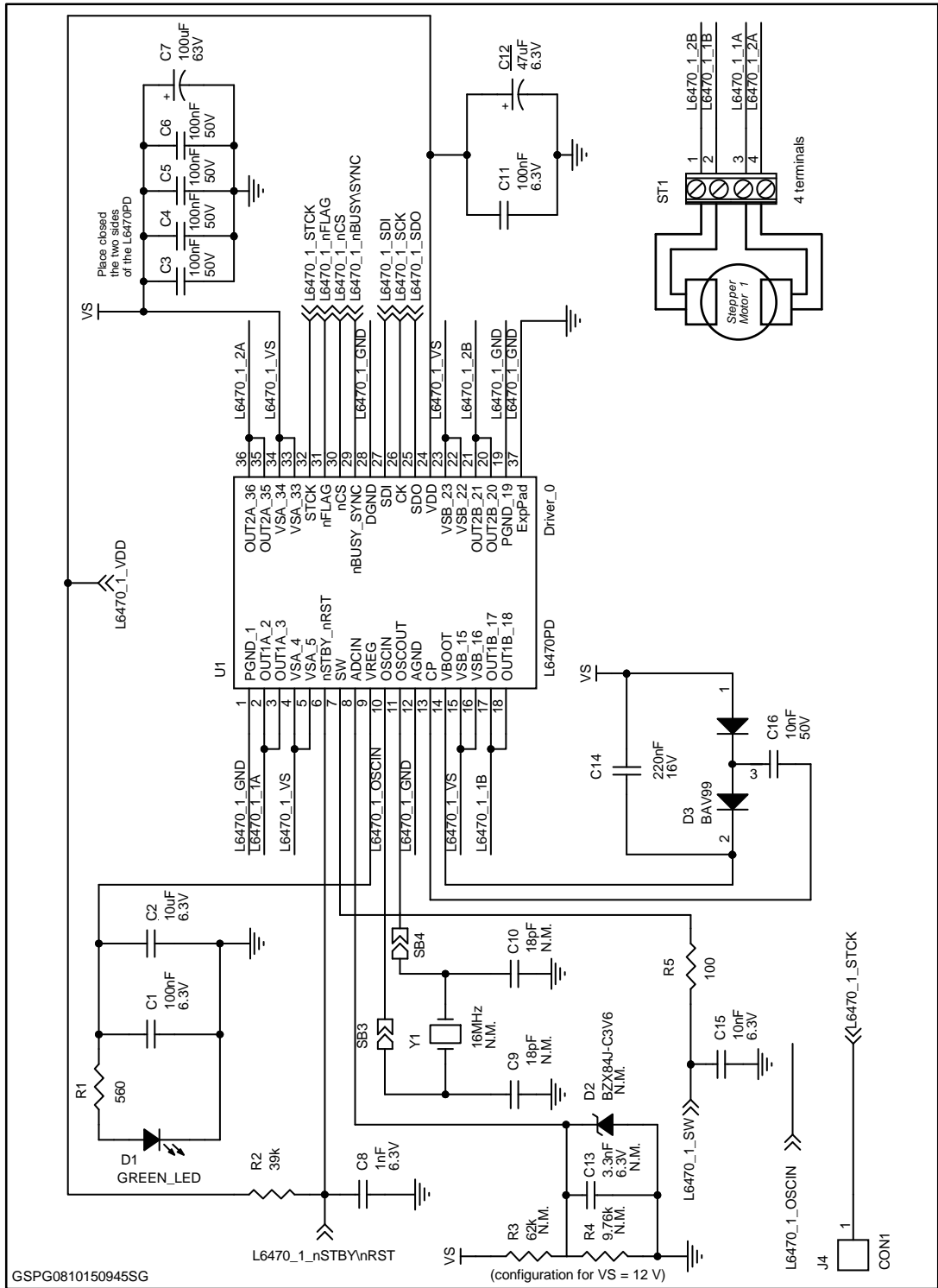


Figure 3: X-NUCLEO-IHM02A1 circuit schematic (3 of 4)

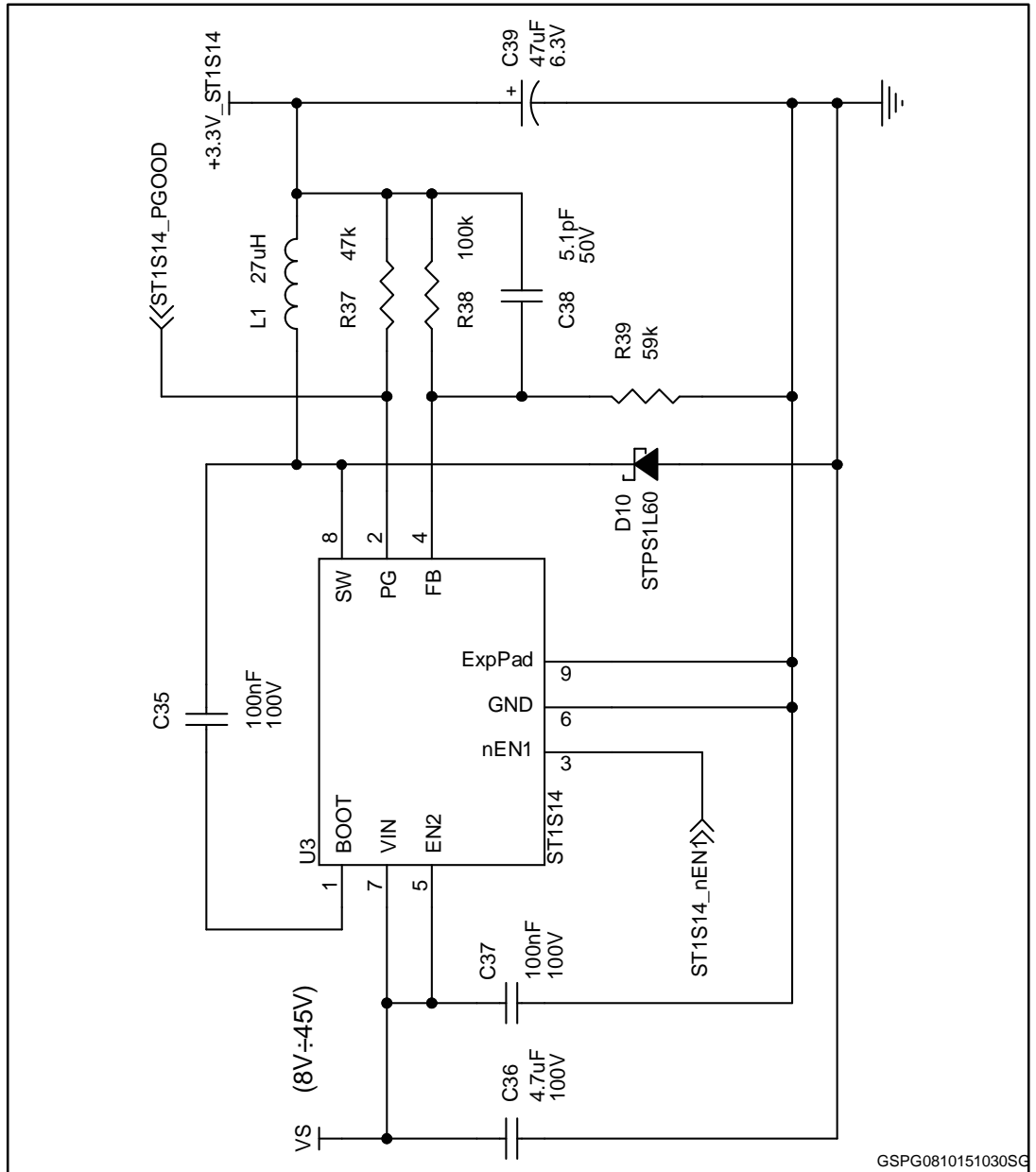
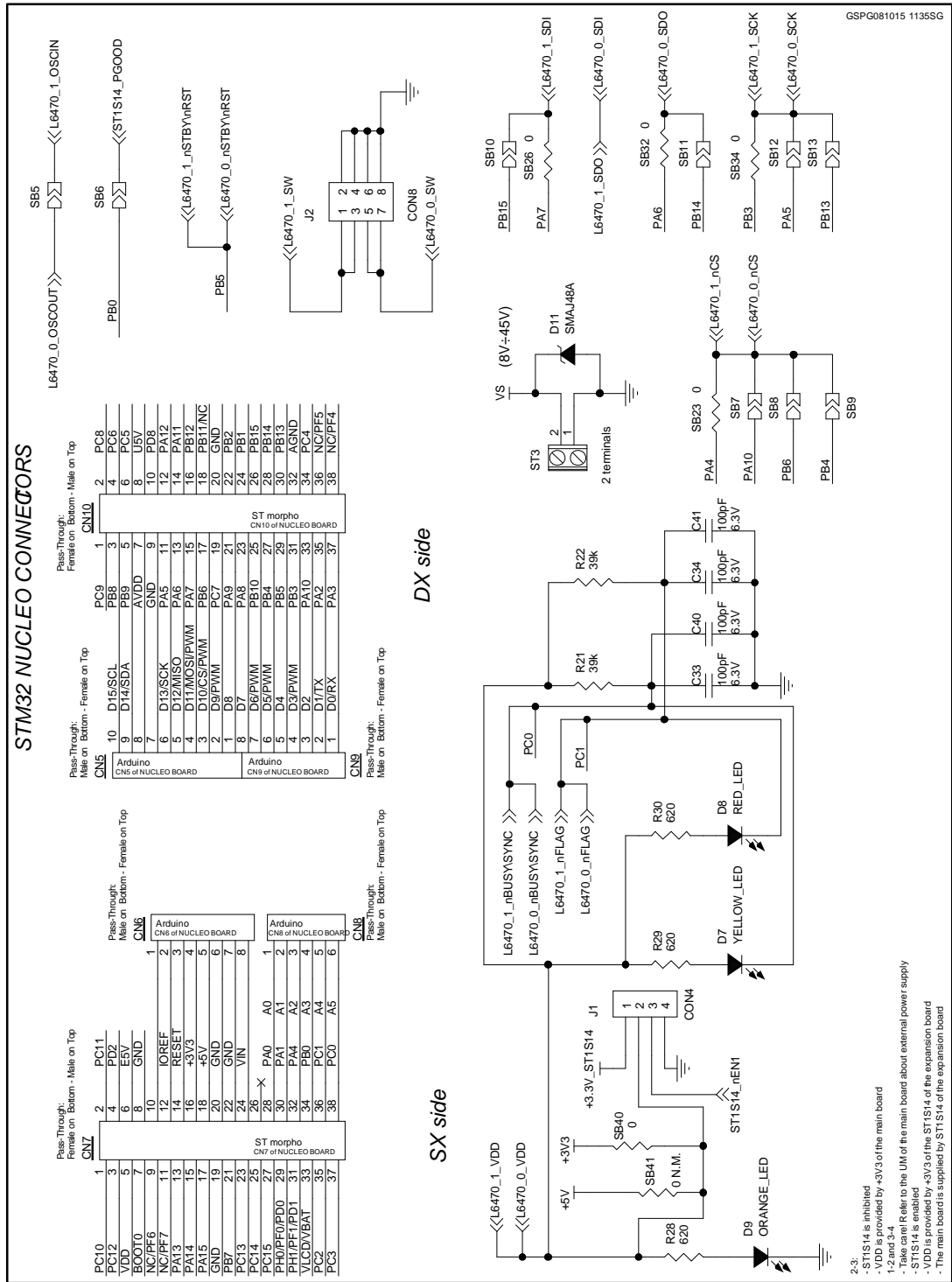


Figure 4: X-NUCLEO-IHM02A1 circuit schematic (4 of 4)



## Revision history

Table 1: Document revision history

Date	Version	Changes
19-Oct-2015	1	Initial release.
16-Dec-2015	2	Changed title description on cover page.

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