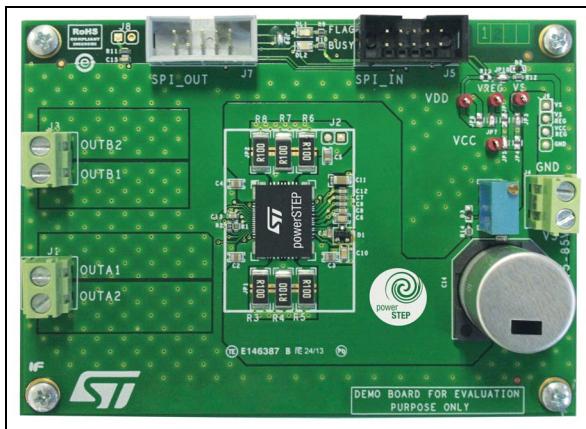


## System-in-package integrating microstepping controller and 10 A power MOSFETs demonstration board

**Data brief**

## Features

- Voltage range from 10.5 V to 85 V
- 10 A<sub>r.m.s.</sub> maximum output current
- Up to 1/128 microstep
- Programmable speed profile and advanced commands
- Adjustable output slew rate
- SPI with daisy chain feature
- FLAG and BUSY LED indicators
- Flexible supply voltage management
- Suitable to be used in combination with STEVAL-PCC009V2

## Applications

- High power bipolar stepper motors:
  - Stage lighting
  - Surveillance systems
  - Textile and sewing machines
  - Pick and place machines

## Description

The EVLPOWERSTEP01 demonstration board is a microstepping motor driver delivering up to 10 A<sub>r.m.s.</sub>. In combination with the STEVAL-PCC009V2 communication board and the evaluation software, the board allows the user to investigate all the features of the powerSTEP01. In particular, the board can be used to check the performance and to regulate the parameters in order to fit the application requirements.

The EVLPOWERSTEP01 supports the daisy chain configuration making it suitable for the evaluation of the powerSTEP01 in multi motor applications.

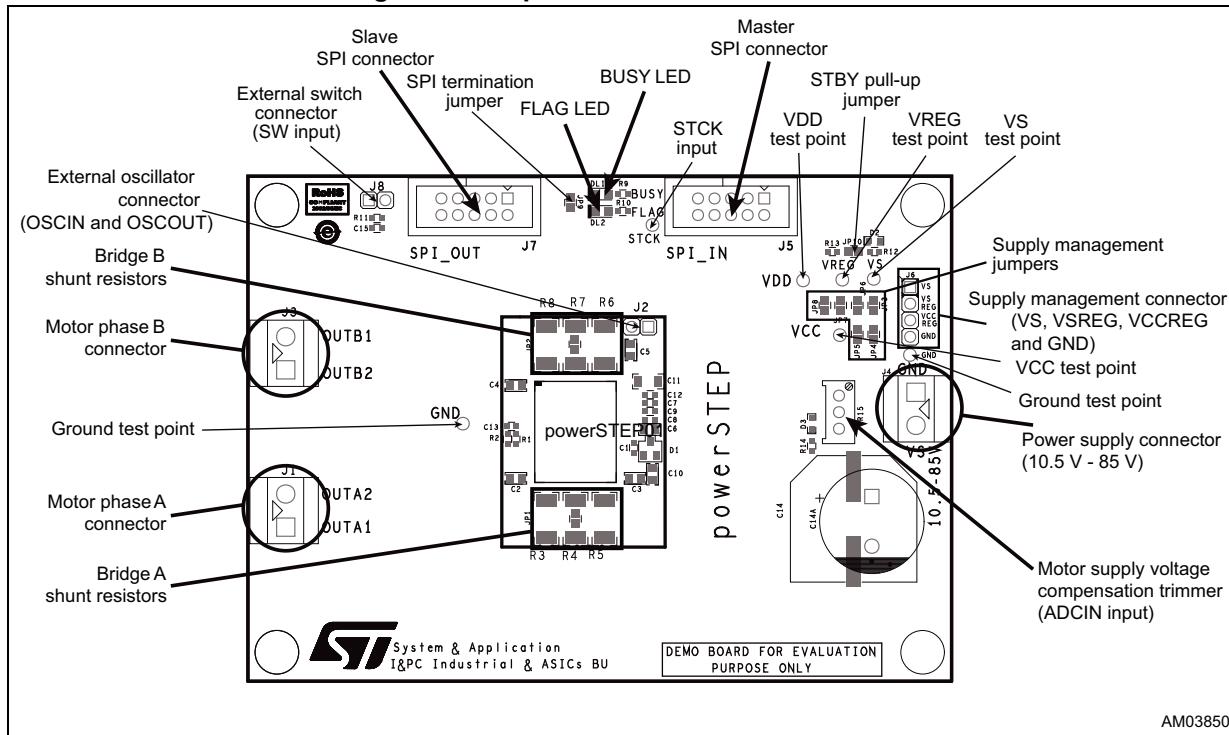
# Board description

Table 1. Electrical specifications

Parameter	Value
Supply voltage (VS)	10.5 V to 85 V
Maximum output current (each phase)	10 A <sub>r.m.s.</sub>
Gate drivers supply voltage (VCC)	7.5 V to 15 V
Logic supply voltage	3.3 V
Logic interface supply voltage	3.3 V or 5 V
Low logic level input	0 V
High logic level input	VDD <sup>(1)</sup>
Operating ambient temperature	0 °C to +85 °C

1. All logic inputs are 5 V tolerant.

Figure 1. Jumpers and connectors location



AM03850

**Table 2. Jumpers and connectors description**

Name	Type	Function
J4	Power supply	Main supply voltage
J1	Power output	Power bridge A outputs
J3	Power output	Power bridge B outputs
J6	Power supply	Integrated voltage regulator inputs
J5	SPI	Master SPI connector
J7	SPI	Slave SPI connector
JP3	Jumper	VS to VSREG jumper
JP4	Jumper	VSREG to VCC jumper
JP5	Jumper	VCC to VCCREG jumper
JP6	Jumper	VCCREG to VREG jumper
JP7	Jumper	VREG to VDD jumper
JP8	Jumper	VDD to 3.3 V from SPI connector jumper
JP9	Jumper	Daisy chain termination jumper
JP10	Jumper	STBY to VS pull-up jumper

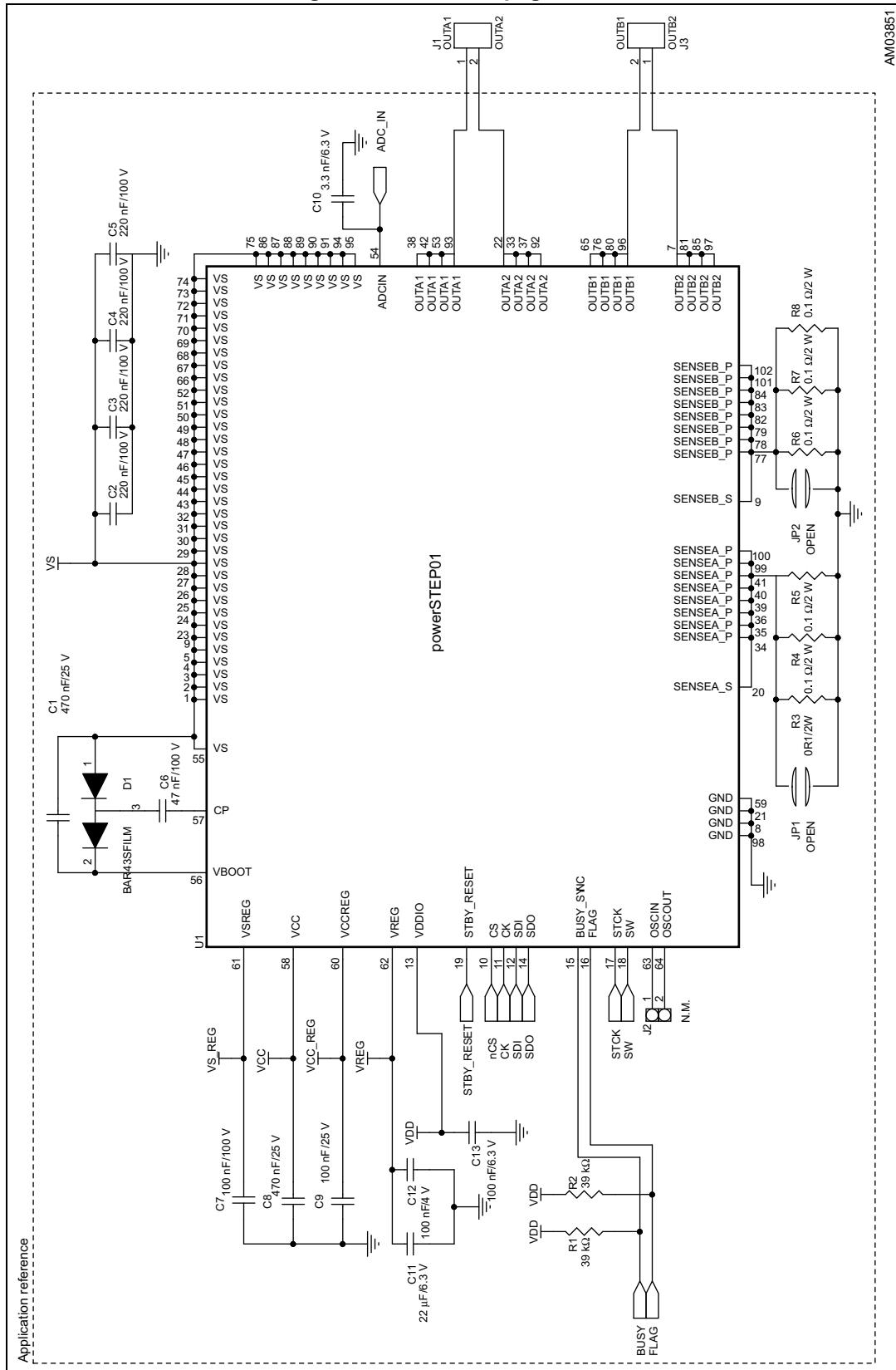
**Table 3. Master SPI connector pinout (J5)**

Pin number	Type	Function
1	Open drain output	powerSTEP01 BUSY output
2	Open drain output	powerSTEP01 FLAG output
3	Ground	Ground
4	Supply	EXT_VDD (can be used as external logic power supply)
5	Digital output	SPI "Master In Slave Out" signal (connected to powerSTEP01 SDO output through daisy chain termination jumper JP9)
6	Digital input	SPI "Serial Clock" signal (connected to powerSTEP01 CK input)
7	Digital input	SPI "Master Out Slave In" signal (connected to powerSTEP01 SDI input)
8	Digital input	SPI "Slave Select" signal (connected to powerSTEP01 CS input)
9	Digital input	powerSTEP01 step-clock input
10	Digital input	powerSTEP01 standby/reset input

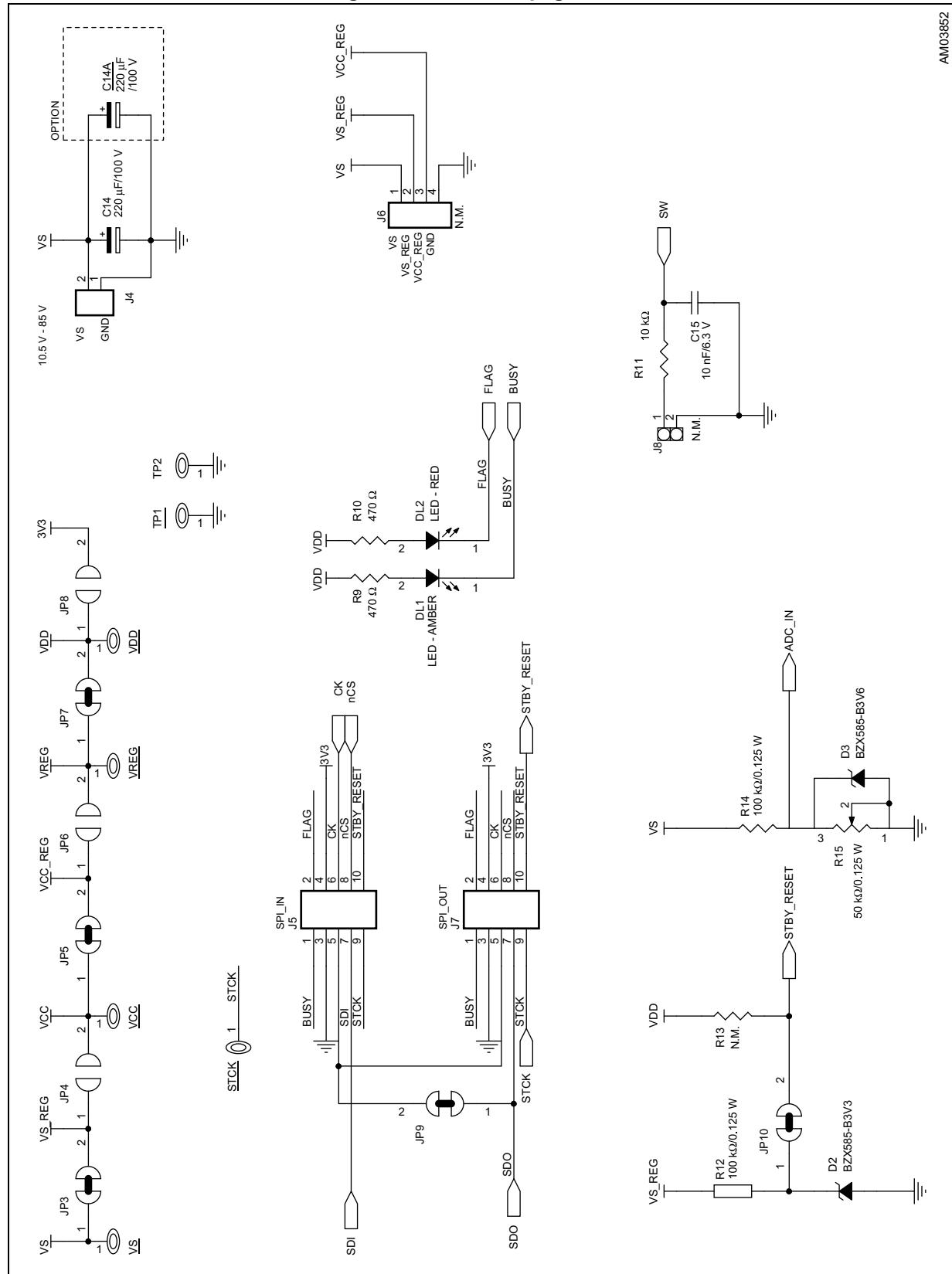
**Table 4. Slave SPI connector pinout (J7)**

Pin number	Type	Function
1	Open drain output	powerSTEP01 BUSY output
2	Open drain output	powerSTEP01 FLAG output
3	Ground	Ground
4	Supply	EXT_VDD (can be used as external logic power supply)
5	Digital output	SPI "Master In Slave Out" signal (connected to pin 5 of J5)
6	Digital input	SPI "Serial Clock" signal (connected to powerSTEP01 CK input)
7	Digital input	SPI "Master Out Slave In" signal (connected to powerSTEP01 SDO output)
8	Digital input	SPI "Slave Select" signal (connected to powerSTEP01 CS input)
9	Digital input	powerSTEP01 step-clock input
10	Digital input	powerSTEP01 standby/reset input

**Figure 2. Schematic page 1 of 2**



**Figure 3. Schematic page 2 of 2**



## Revision history

**Table 5. Document revision history**

Date	Revision	Changes
07-Oct-2014	1	Initial release.

**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2014 STMicroelectronics – All rights reserved

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[STMicroelectronics:](#)

[EVLPOWERSTEP01](#)