

## STSPIN32F0A advanced 3-phase BLDC driver with embedded STM32 MCU single shunt evaluation board



### Features

- Input voltage from 7 V to 45 V
- Output current up to 15 A<sub>rms</sub>
- Power stage based on [STD140N6F7](#) MOSFETs
- Embedded 3.3 V buck regulator
- Embedded 12 V LDO regulator
- Single shunt current sensing
- Digital Hall sensors and encoder input
- Overcurrent comparator
- Bus voltage sensing
- Fully compatible with STM32 Motor Control SDK ([X-CUBE-MCSDK-Y](#))
- 6-step sensorless and sensed firmware supported
- Embedded ST-LINK/V2-1
- Easy user interface with buttons and trimmer
- STM32 firmware boot loader supported
- RoHS compliant

### Product summary

|  |  |
|--|--|
| STSPIN32F0A advanced 3-phase BLDC driver with embedded STM32 MCU single shunt evaluation board | <a href="#">STEVAL-SPIN3202</a>  |
| Advanced BLDC controller with embedded STM32 MCU   | <a href="#">STSPIN32F0A</a>  |
| N-channel 60 V, 0.0031 Ohm typ., 80 A STripFET F7 Power MOSFET in a DPAK package               | <a href="#">STD140N6F7</a>   |
| STM32 motor control SDK  | <a href="#">X-CUBE-MCSDK-Y</a>   |
| Applications   | <a href="#">Smart Home</a><br><a href="#">Industrial Motor Control</a><br><a href="#">Therapy equipment</a><br><a href="#">Smart Farming</a><br><a href="#">Drones</a> |

### Applications

- Smart manufacturing equipment
- Battery powered home appliances and pumps
- Fans
- Drones
- Power tools

### Description

The [STEVAL-SPIN3202](#) three-phase brushless DC motor driver board is based on the [STSPIN32F0A](#) 3-phase controller with integrated STM32 MCU and [STD140N6F7](#) MOSFETs.

It implements a single shunt resistor current reading topology and provides an easy-to-use solution for the implementation of home appliances, fans, drones, power tools, and low voltage motor driving applications.

The board is designed for sensed or sensorless vector control FOC and six-step algorithms with single shunt sensing.

# 1 Schematic diagrams

Figure 1. STEVAL-SPIN3202 schematic (1 of 4)

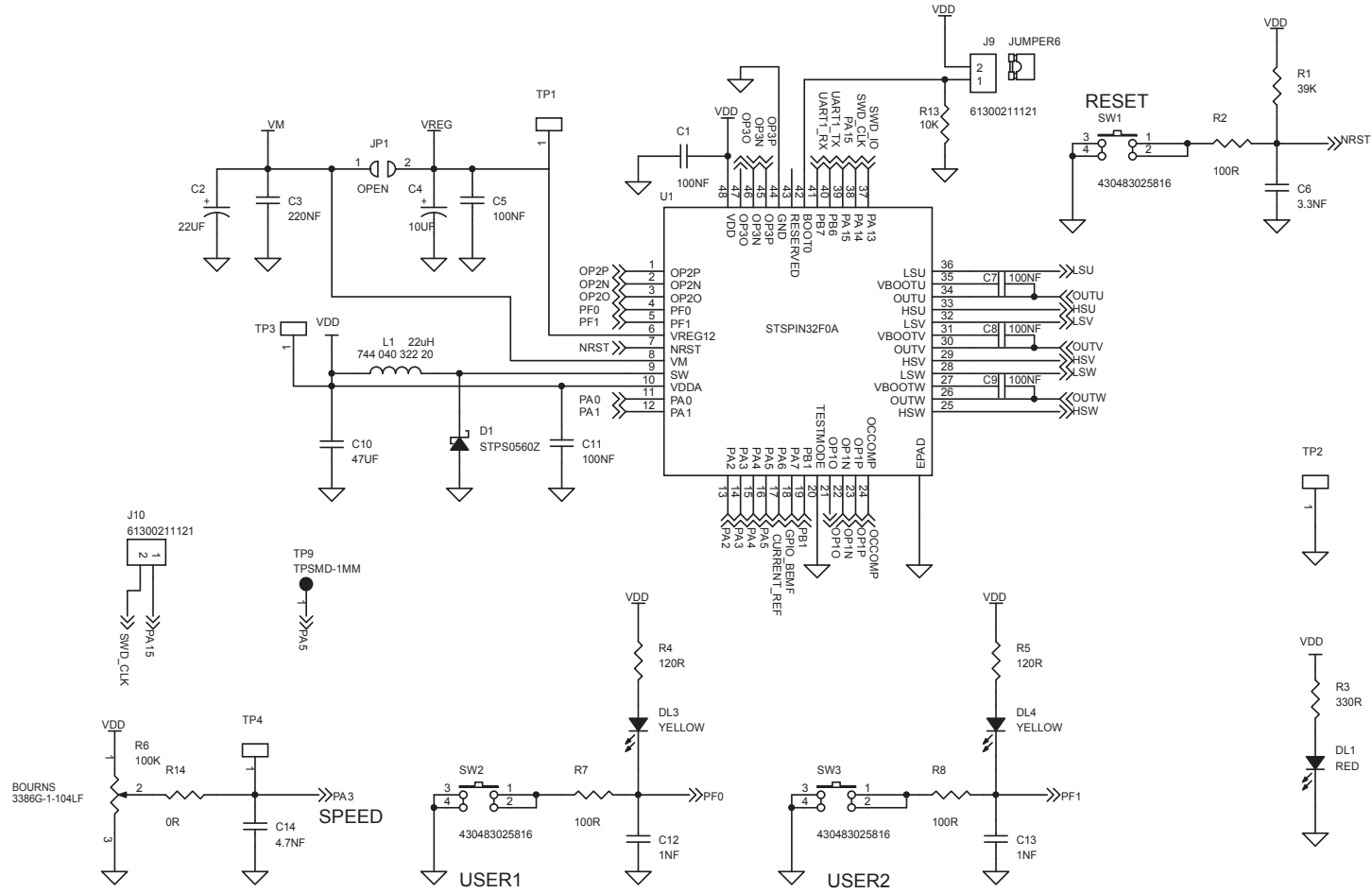


Figure 2. STEVAL-SPIN3202 schematic (2 of 4)

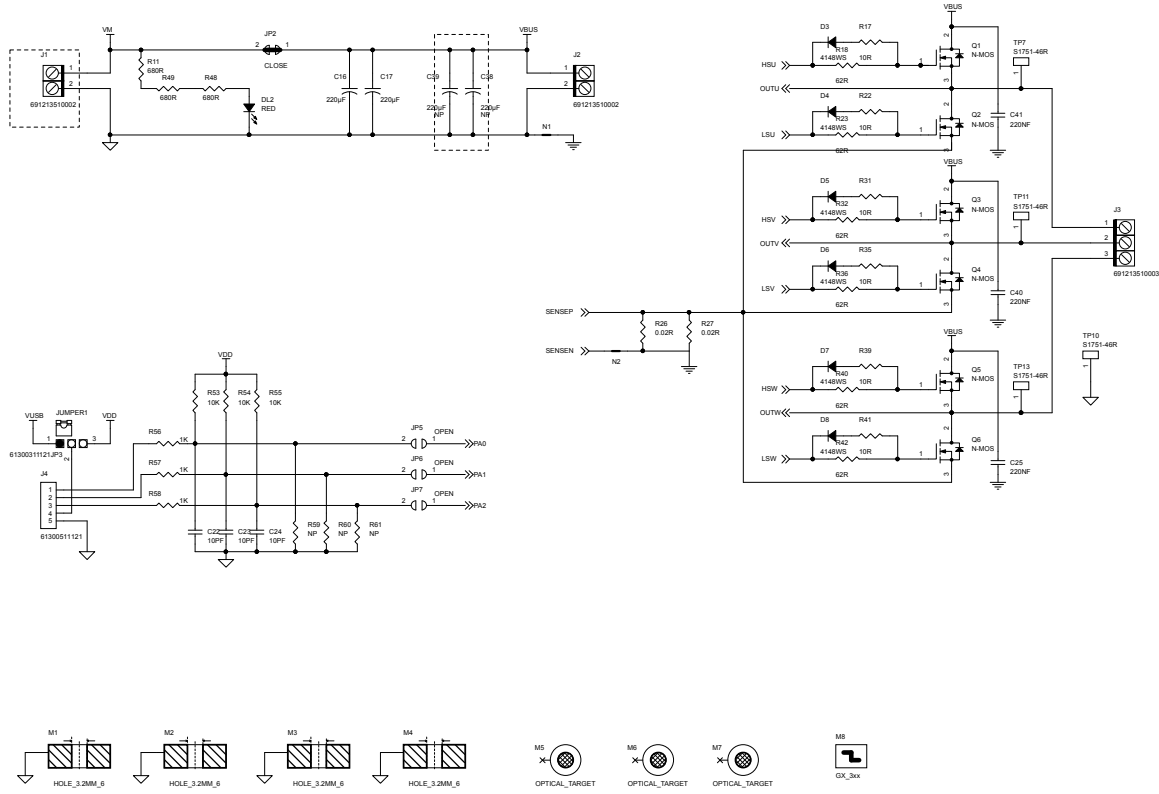


Figure 3. STEVAL-SPIN3202 schematic (3 of 4)

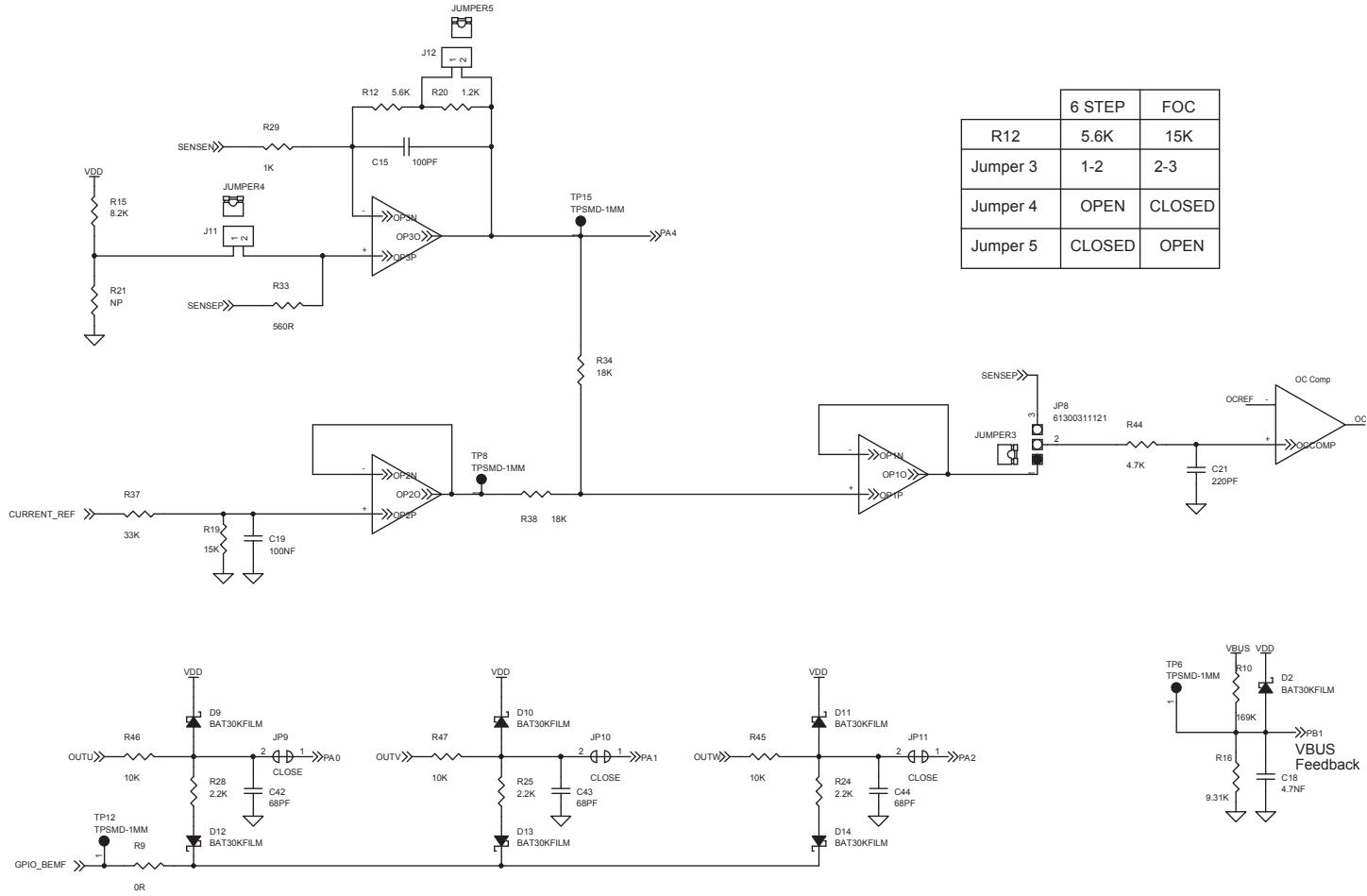
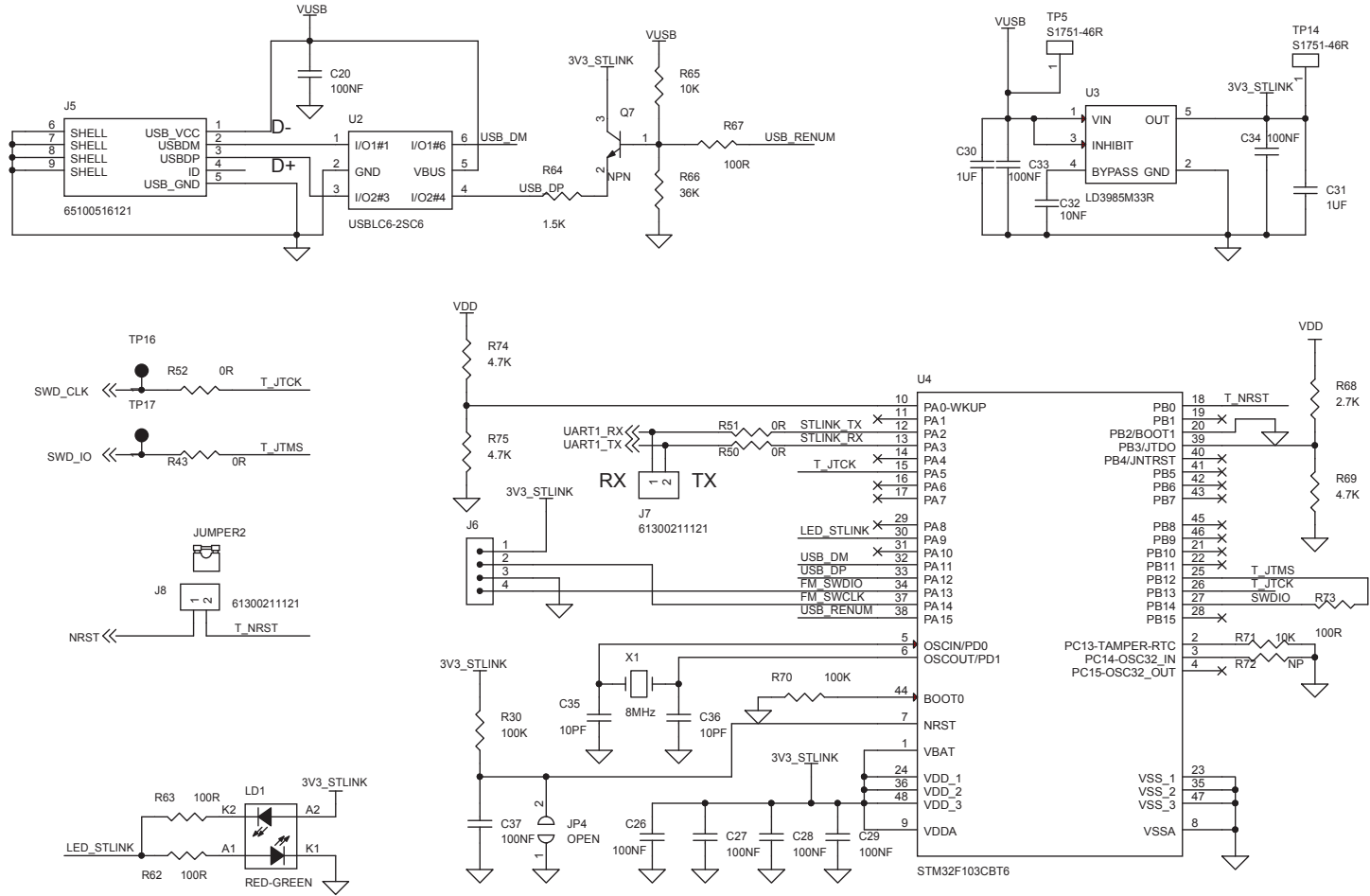


Figure 4. STEVAL-SPIN3202 schematic (4 of 4)



## Revision history

**Table 1. Document revision history**

| Date        | Version | Changes  |
|-------------|---------|--|
| 19-Sep-2017 | 1       | Initial release.   |
| 02-Nov-2017 | 2       | Modified title in first page.  |
| 20-Jul-2021 | 3       | Updated cover page features.<br>Added cover page product summary table.<br>Added references to X-CUBE-MCSDK-Y. |
| 26-Sep-2022 | 4       | Updated <a href="#">Section 1 Schematic diagrams</a> .   |

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