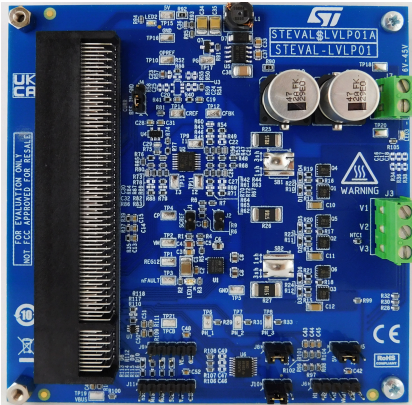


Motor control discovery kit with STDRIVE101 three-phase gate driver and the STL8N10F7 power MOSFETs



Features

- STDRIVE101 triple half-bridge gate driver
- STL8N10F7 N-channel 100 V STripFET F7 power MOSFET
- Board connectors:
 - MC connector V2
- Single-shunt or three-shunt operation

Description

The STEVAL-LVLP01 discovery kit is a part of the motor-control development platform, which is supporting ZeST and HSO algorithms. It could be connected to B-G473E-ZEST1S, the STM32 control board, through the motor control connector V2.

The STEVAL-LVLP01 evaluation board is based on the STDRIVE101 three-phase gate driver and the STL8N10F7 power MOSFETs. It embeds a power stage and circuitry for driving three-phase brushless DC motors.

Together with the B-G473E-ZEST1S the user can enable the ZeST and HSO algorithms on the STM32 microcontroller.

The STEVAL-LVLP01 can support single-shunt or three-shunt operation. The different connectors for onboard motor positioning feedback and motor phase sensing network allow implementation of sensor and sensorless algorithms for motion control.

Product summary	
Triple half-bridge gate driver	STDRIVE101
N-channel 100 V, 17 mOhm typ., 8 A STripFET F7 Power MOSFET in a PowerFLAT 3.3x3.3 package	STL8N10F7
Wide bandwidth (20MHz), rail to rail input/output 5V CMOS Op-Amps, small offset, quad	TSV994AIPT
Rail-to-rail 1.8 V high-speed comparator	TS3021
STM32 Motor Control Software Development Kit (MCSDK)	X-CUBE-MCSDK
Applications	Automotive Motor Control

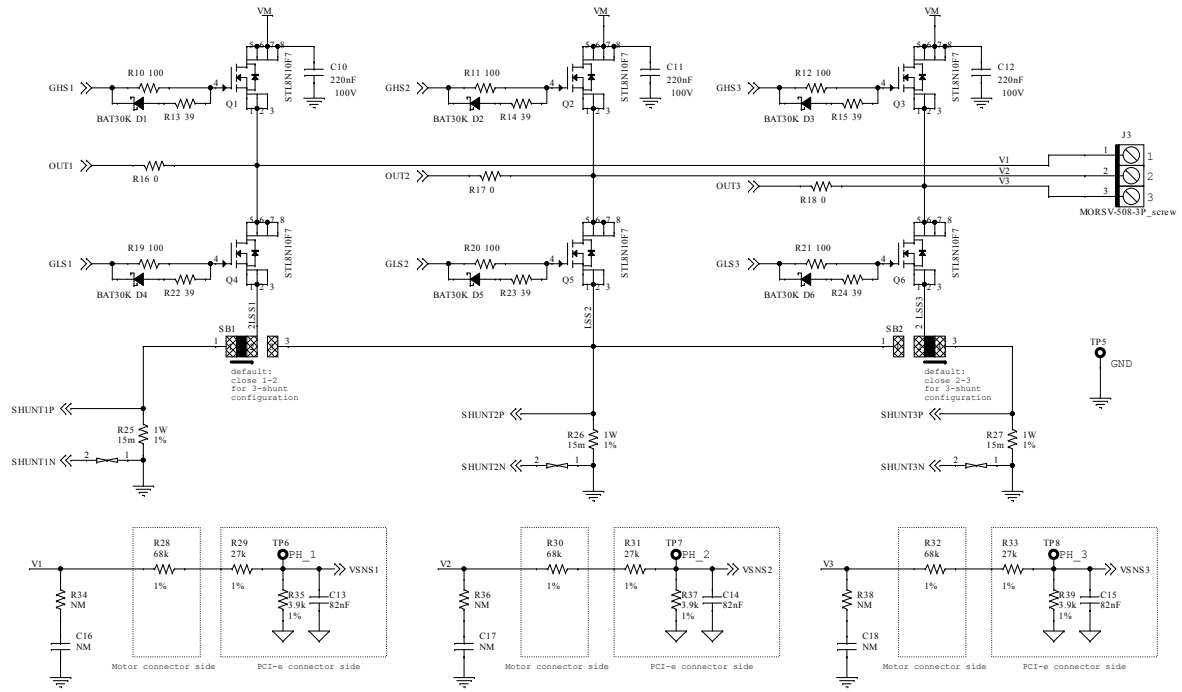
Figure 2. STEVAL-LVLP01 circuit schematic (2 of 6)


Figure 3. STEVAL-LVLP01 circuit schematic (3 of 6)

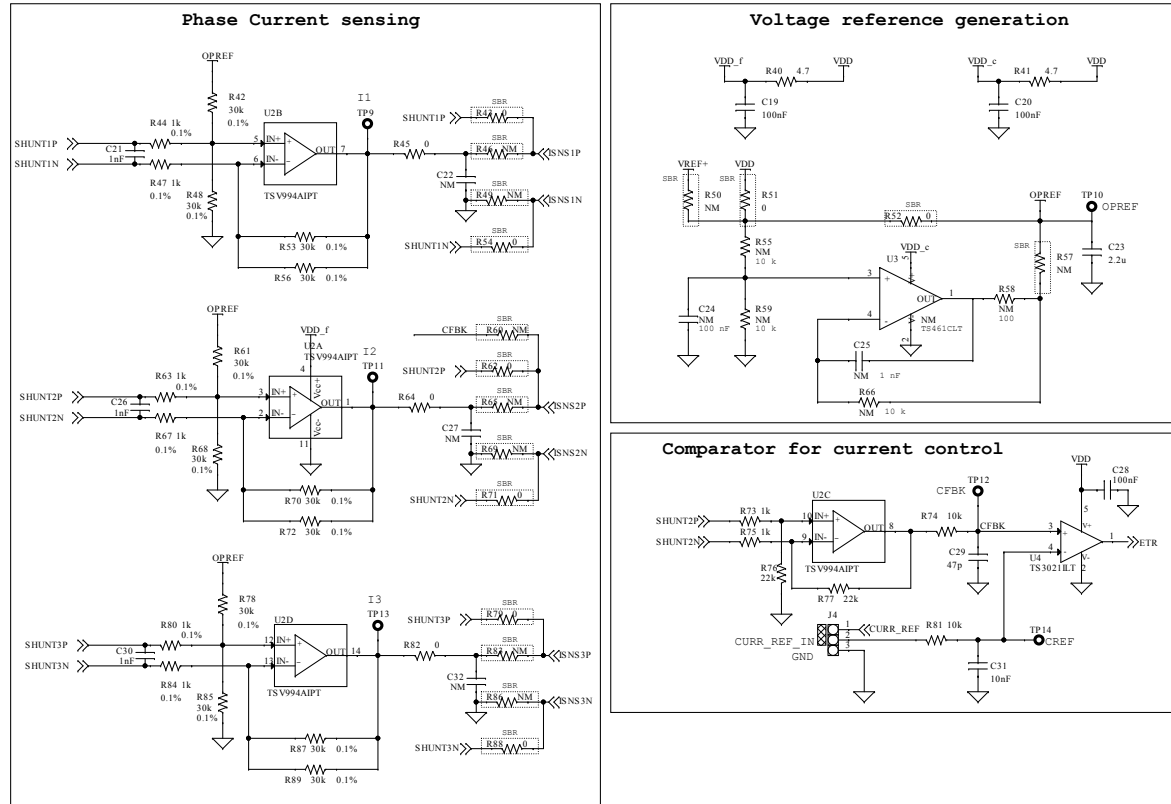


Figure 4. STEVAL-LVLP01 circuit schematic (4 of 6)

Buck converter for 5V generation

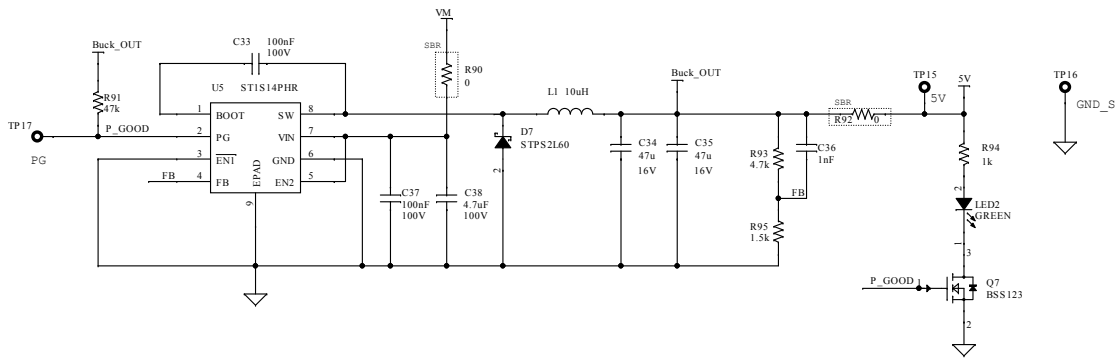


Figure 5. STEVAL-LVLP01 circuit schematic (5 of 6)

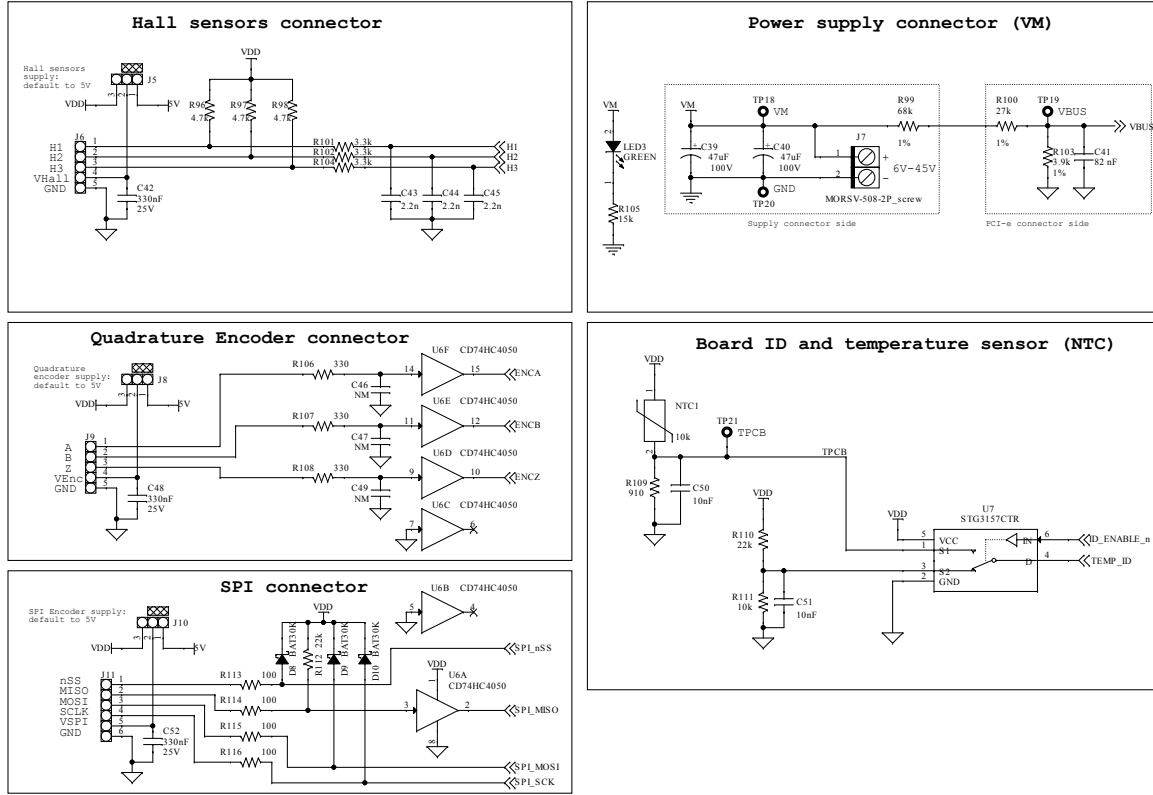
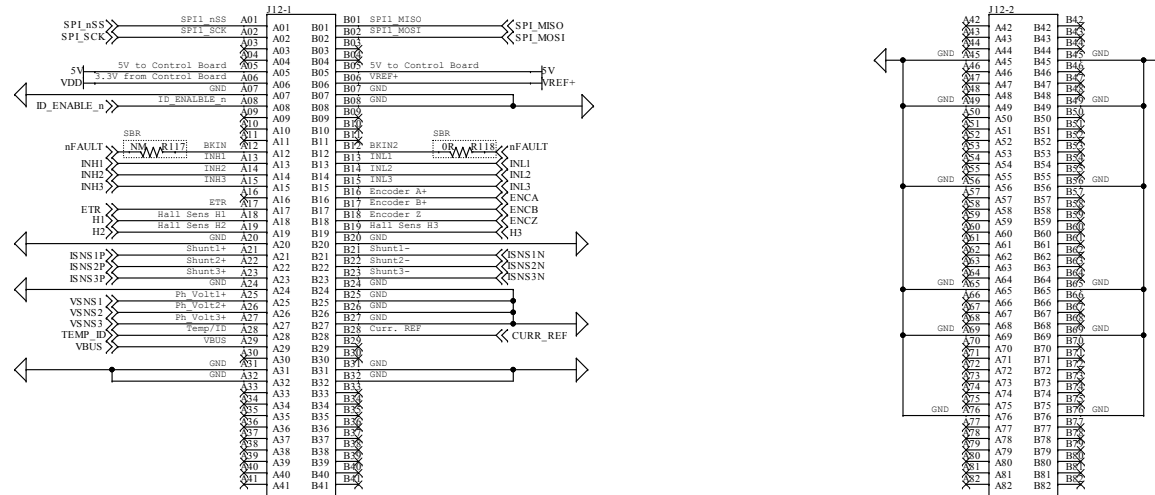


Figure 6. STEVAL-LVLP01 circuit schematic (6 of 6)

MC connector V2



2 Board versions

Table 1. STEVAL-LVLP01 versions

Finished good	Schematic diagrams	Bill of materials
STEVAL\$LVLP01A ⁽¹⁾	STEVAL\$LVLP01A schematic diagrams	STEVAL\$LVLP01A bill of materials

1. This code identifies the STEVAL-LVLP01 evaluation board first version.

Revision history

Table 2. Document revision history

Date	Version	Changes
24-Oct-2023	1	Initial release.

IMPORTANT NOTICE – 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 acknowledgment.

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. For additional information about ST trademarks, refer to www.st.com/trademarks. 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.

© 2023 STMicroelectronics – All rights reserved