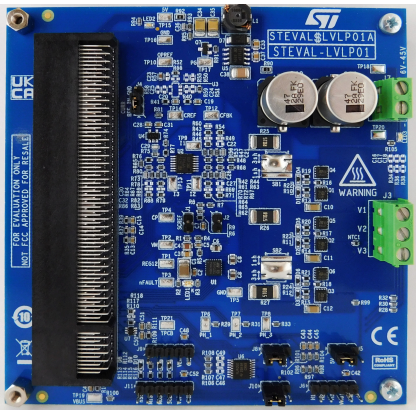
STEVAL-LVLP01

Data brief

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



Features

- Motor supply voltage from 6 to 45 V
- Output current up to 5 A rms
- 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
Up to 3 A step-down switching regulator	ST1S14PHR
STM32 Motor Control Software Development Kit (MCSDK)	X-CUBE-MCSDK
Applications	Motor Control

1 Schematic diagrams

Figure 1. STEVAL-LVLP01 circuit schematic (1 of 6)

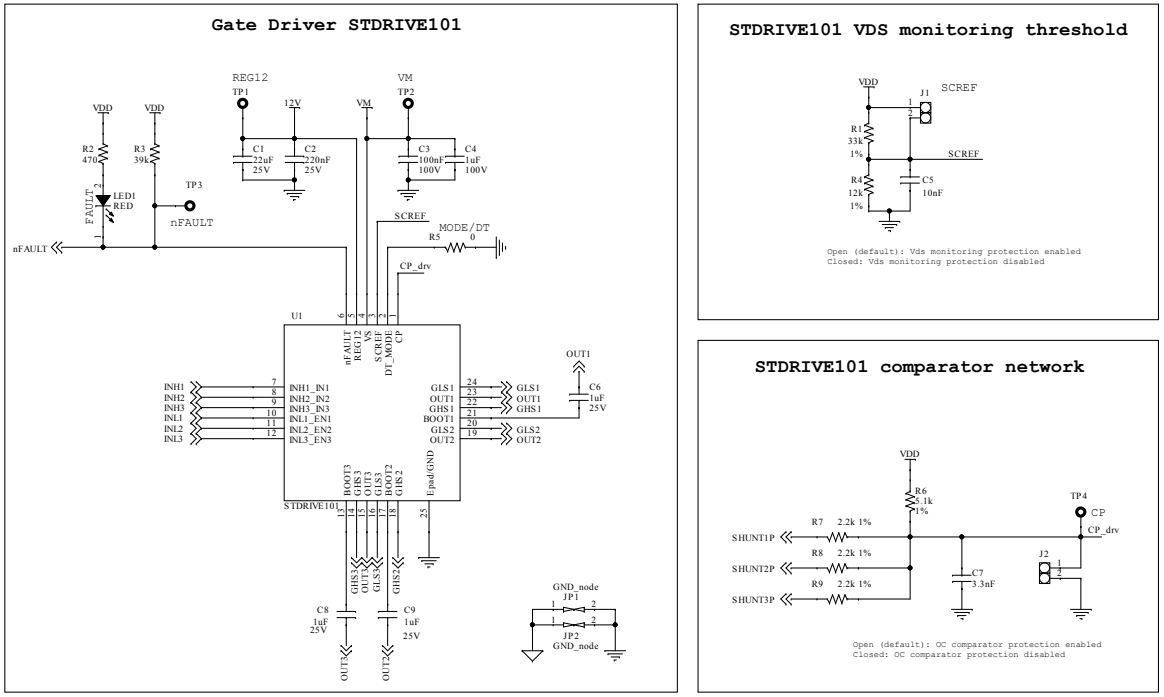


Figure 2. STEVAL-LVLP01 circuit schematic (2 of 6)

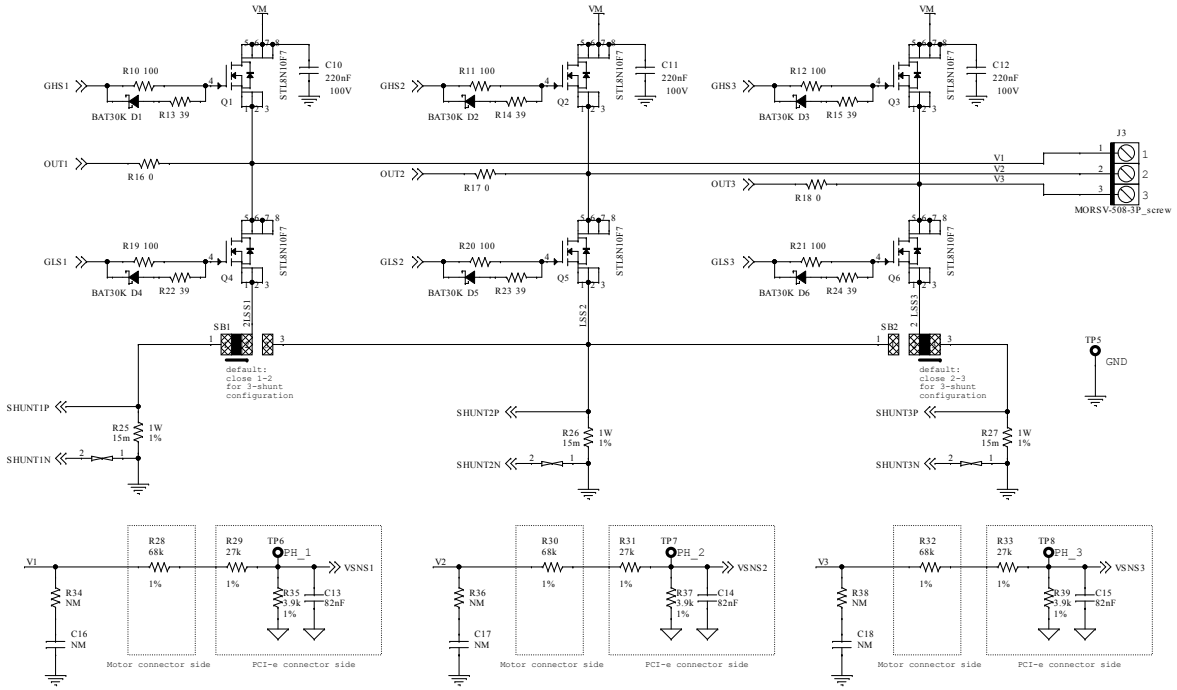


Figure 3. STEVAL-LVLP01 circuit schematic (3 of 6)

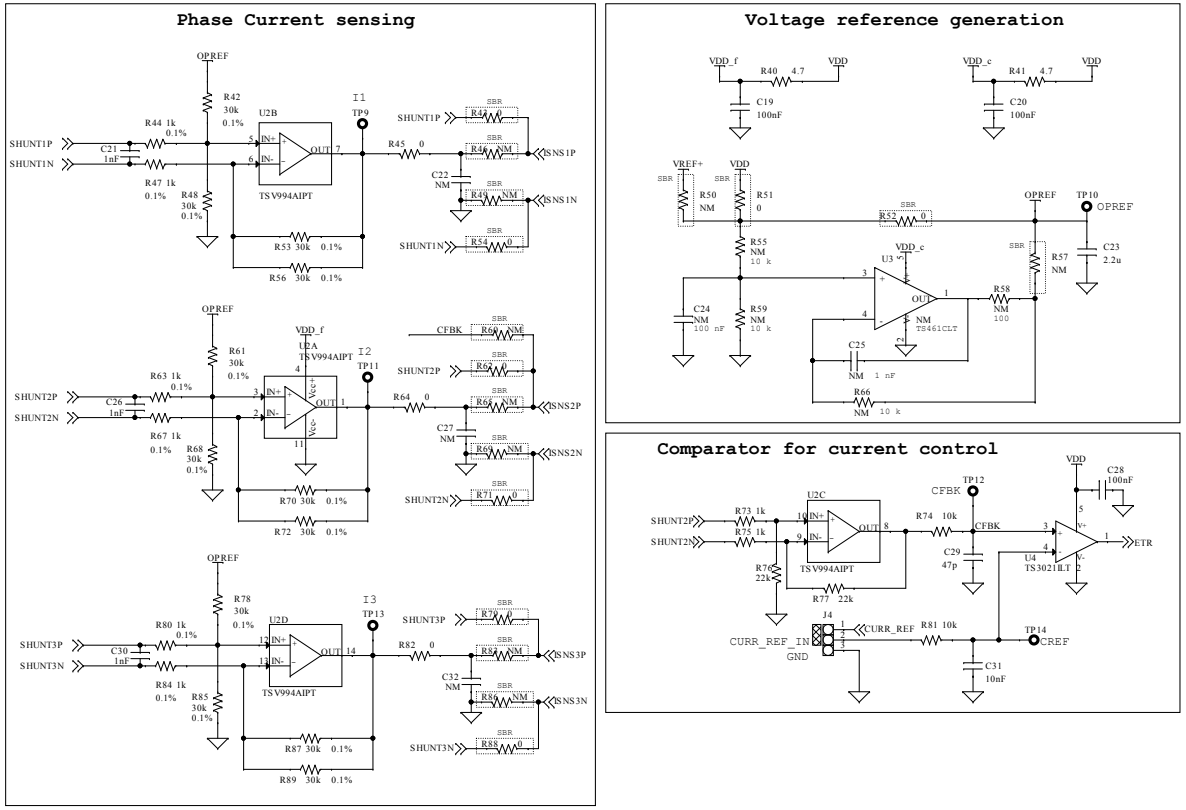


Figure 4. **STEVAL-LVLP01 circuit schematic (4 of 6)**

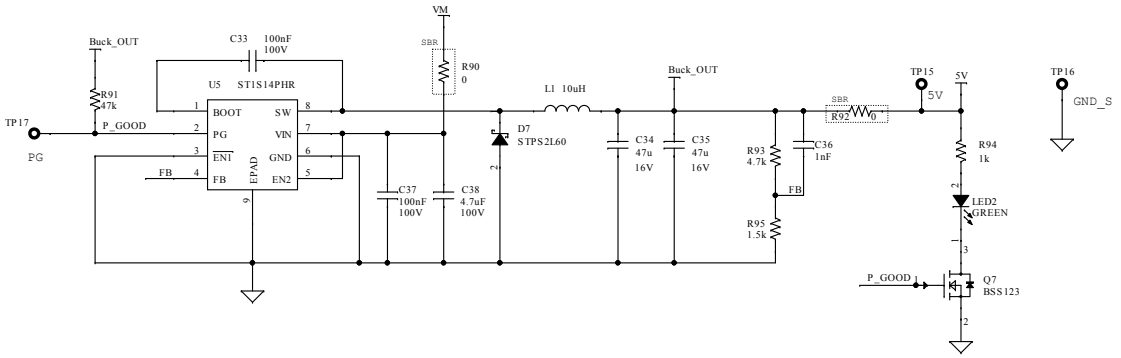


Figure 5. STEVAL-LVLP01 circuit schematic (5 of 6)

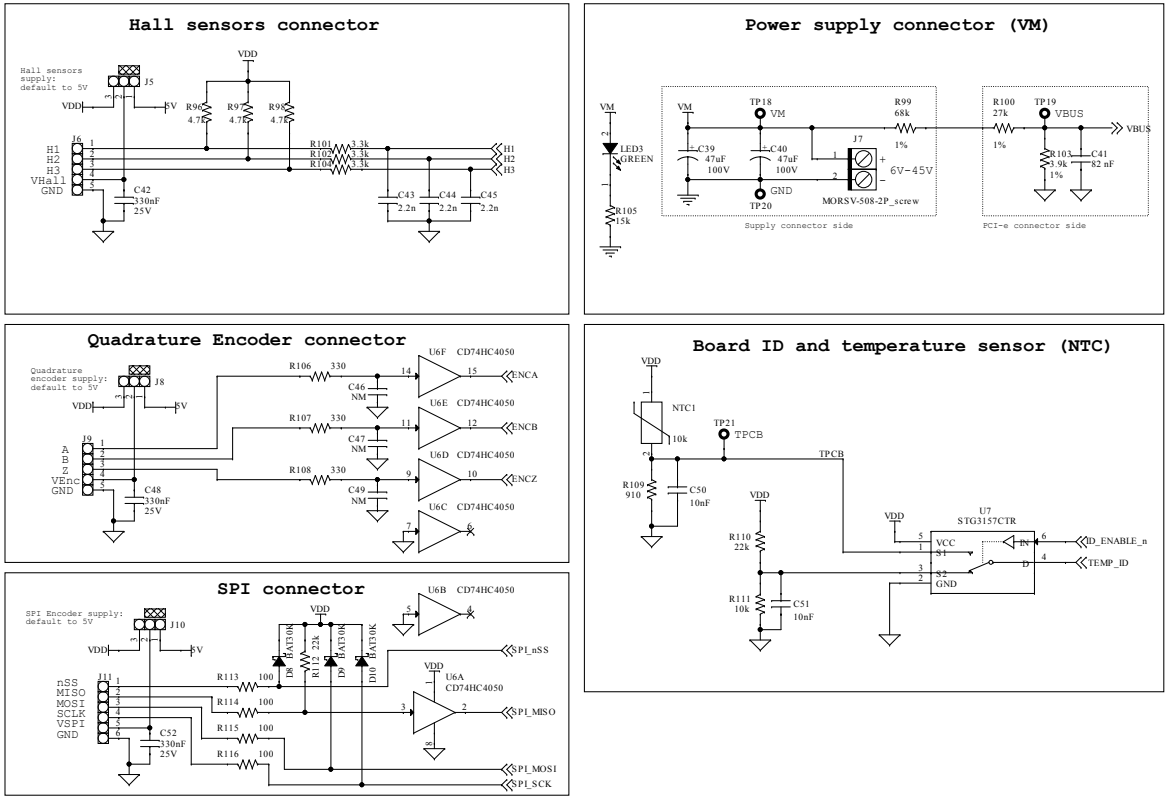
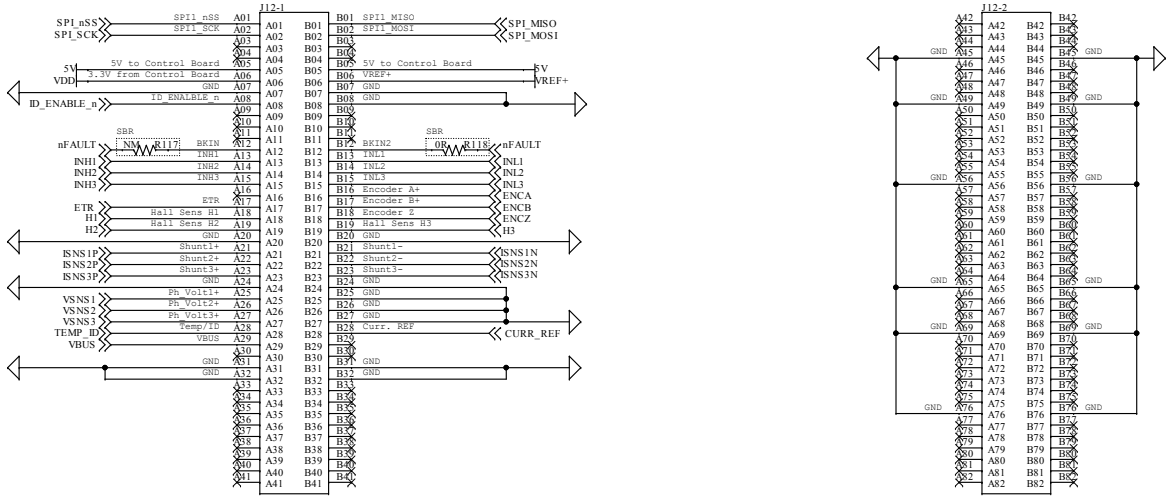


Figure 6. STEVAL-LVLP01 circuit schematic (6 of 6)



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.
23-Apr-2024	2	Updated Features and Product summary.