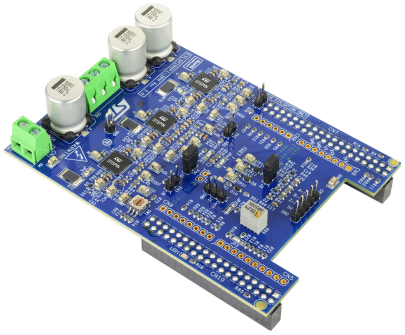
EVLSPIN9P1-3PH

Data brief

3-phase driver for BLDC/PMSM motors based on STSPIN9P1 half-bridge



Product status link
EVLSPIN9P1-3PH
STSPIN9P12

Features

- 3-phase driver for BLDC/PMSM motors
- STSPIN9P12 power system-in-package integrating gate driver and high-current power MOSFETs with $R_{DS(ON)}$ = 27 mΩ
- 7 V to 75 V operating voltage
- Up to 10 A_{rms} output current
- Operating frequency up to 100 kHz
- Programmable output slew rate
- Compatible with STM32 Nucleo boards
- Fully compatible with STM32 motor control SDK
- Equipped with ST ST morpho
- Three-shunt or single-shunt configurable jumpers for motor current sensing topology
- Hall / encoder motor sensors connector and circuit
- Potentiometer available for speed regulation
- User LED
- Open-load detection
- Thermal shutdown, UVLO, and overcurrent protection
- Bus voltage sensing
- Standby mode
- X-NUCLEO form factor with Arduino® connectors (not mounted by default)
- RoHS compliant

Applications

- Industrial and home automation
- Home appliances such as vacuum cleaners, dryers, and cleaning robots
- Servo drives and e-bikes
- Service and automation robots
- Power and garden tools
- Pumps and fans

Description

The EVLSPIN9P1-3PH demonstration board is a three-phase power board, which allows to evaluate all STSPIN9P12 features.

The board is designed to support a three-shunt or single-shunt current sensing topology.

The board can be stacked with an X-NUCLEO MCU control board through ST morpho connectors and drive BLDC/PMSM motors exploiting off-the-shelf firmware libraries.

The STSPIN9P12 is a high-density power driver integrating gate drivers and two N-channel power MOSFETs in half-bridge configuration.

The device has dedicated input pins for each output and one enable pin. The logic inputs are CMOS/TTL compatible down to 3.3 V for easy interfacing with control devices.

1 Specifications

Ratings of the board can be found in Table 1.

Table 1. EVLSPIN9P1-3PH - specifications

Parameter		Value
Supply voltage	Nominal	From 7 V to 75 V
Maximum current	Continuous (1)	10 A_{rms}
	Peak (2)	16.5 A
Maximum power	Continuous (1)	500 W

1. *At 25°C ambient temperature.*
2. *Typical value at 25°C ambient temperature.*

Revision history

Table 2. **Document revision history**

Date	Version	Changes
02-Dec-2025	1	Initial release.

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