

# STSPIN32G4

## High-performance, 3-phase motor controller with STM32G4 MCU



### Boosting the efficiency, performance and integration of motor-control systems was never so easy

A complete motor-control system in a single package, the STSPIN32G4 combines a 3-phase gate driver with a flexible power management section and an STM32G431 MCU.

Thanks to its extremely integrated and flexible design it is the best motor control choice for new applications enabled by Industry 4.0 and growing pervasiveness of 3-phase BLDC motors and battery powered systems.

#### KEY FEATURES & BENEFITS

3-phase gate driver:

- Rated 75 V/1 A sink/source
- Real-time  $V_{DS}$  monitoring
- Programmable  $V_{CC}$  buck, 0.2 A
- 3.3 V LDO regulator, 0.15 A
- Low standby regulator for MCU

#### STM32G431 MCU:

- 32-bit ARM® Cortex®-M4
- Up to 170 MHz clock frequency
- CORDIC HW accelerator
- 128 KB Flash/32 KB SRAM
- 2x motor control timers
- 2x 12-bit ADCs (19 channels)
- 4x ultra-fast Comparators

- 3x Op amps
- Up to 40 GPIOs

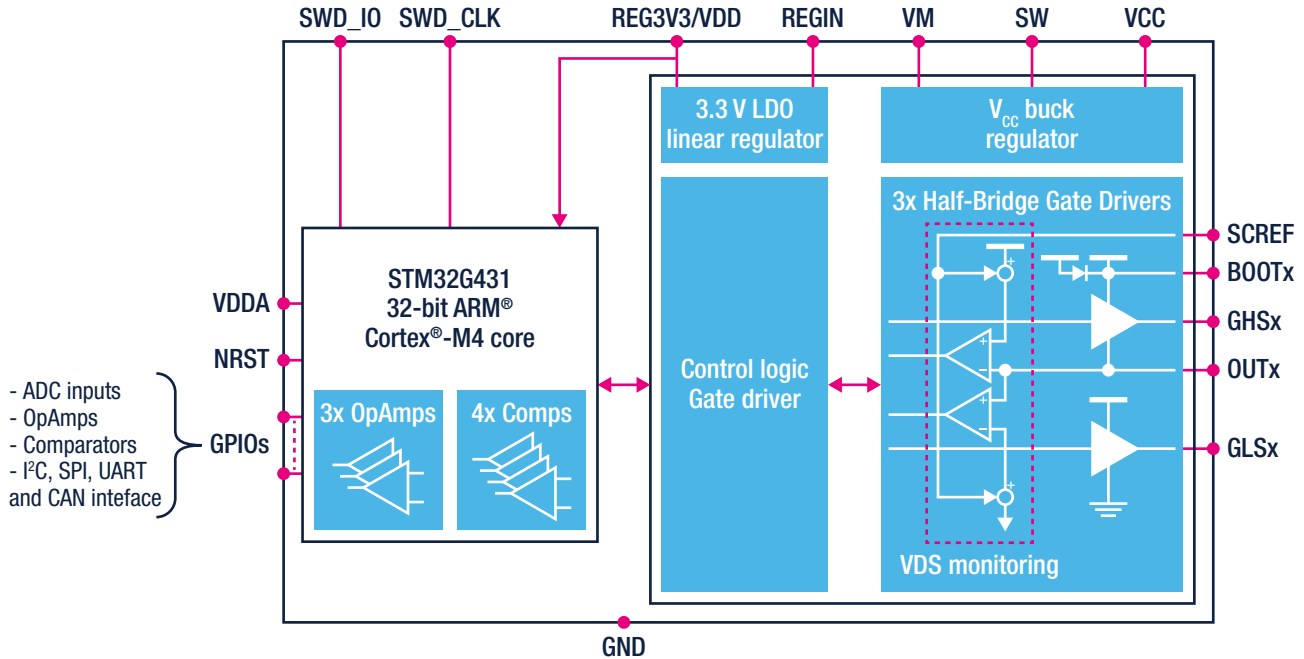
#### TARGET APPLICATIONS

- Industrial and home automation
- E-bikes
- Home appliances:
  - Stick and robot vacuum cleaners
  - Air purifiers, fans and dryers
- Power and garden tools
- Pumps and fans
- Automatic Guided Vehicles
- Servo drives
- Service and automation robots
- Drones and aero modeling

## Product details

Add six power MOSFETs to this high-performance STSPIN32 and you will get a complete motor-control system featuring unprecedented flexibility in choosing the best fitting control solution even for the most challenging applications. It can easily fit into a wide range of industrial automation systems, home appliances or emerging robotics and battery-powered systems, bringing in significant space reduction, improved energy efficiency and significantly reduced development time. A choice of two evaluation boards helps accelerate development. The EVSPIN32G4 and EVSPIN32G4NH, two complete inverter designs, are fully integrated in the latest ST Motor-Control Software Development Kit (X-CUBE-MCSDK). The boards contain the required circuitry to get motor-control applications up and running, including a shunt current sensor, op amps, hall sensors, back-emf sensing, and voltage monitoring.

## STSPIN32G4 block diagram



## Product table

Order code	Description	V <sub>in</sub> min (V)	V <sub>in</sub> max (V)	V <sub>cc</sub> Buck (V)	I <sub>gate</sub> (A)	Op amps	Comparators	GPIOs	Packing	Evaluation boards
STSPIN32G4	High performance 3-phase motor controller with embedded STM32G4 MCU	5.5	75	8 V, 10 V, 12 V, 15 V	1	3	4	40	Tray	EVSPIN32G4; EVSPIN32G4NH
STSPIN32G4TR									Tape & Real	



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