

# STSPIN32F0 HIGH VOLTAGE



## 3-phase Motor Controllers with Embedded STM32 MCU



### STSPIN32 3-phase BLDC controllers extended to high voltage applications with 250V and 600V options

Four pin-to-pin Controllers integrate an STM32 Cortex-M0 MCU and high-voltage 3-phase gate drivers, with embedded smartShutDown™ and outstanding robustness against below-ground. Available for applications running up to 250 V and 600 V, at respectively two different gate currents of 0.35 A and 1 A. Home appliances and industrial applications designers can now easily design and reuse their current hardware and firmware in all applications fitting main voltage supplies (110 VAC & 220 VAC), without having to change PCB.

#### KEY FEATURES & BENEFITS

##### 250V and 600V Three-phase gate drivers

- $I_{GATE}$  up to 1A to drive MOSFETs / IGBTs
- Outstanding robustness against below-ground phenomena; can resist down to -120V
- Patented smartShutDown (smartSD) ensures fast and fail-proof protection
- Integrated bootstrap diodes
- 1.8 mm creepage with new QFN package option

##### STM32F0 MCU with ARM® Cortex®-M0 core

- 48 MHz, 4-Kb SRAM and 32-Kb Flash memories
- 12-bit ADC and 6 timers

- 21 GPIOs and Bootloader available
- Ready to use development ecosystem

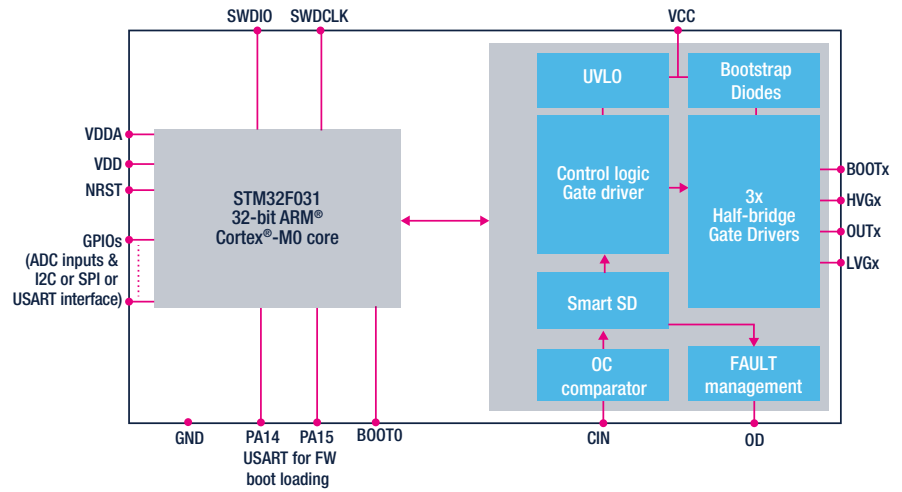
- Eight general purpose evaluation boards
- Full support of FOC (1 and 3 shunts) and 6-step sensorless and sensed control algorithms
- Integrated in Motor Control Software Development Kit (MCSDK) for easy FW writing and fine-tuning

Available in TQFP 64L 10x10 mm and QFN 72L 10x10 mm, with high creepage

STSPIN32F0 High Voltage Main internal blocks

KEY APPLICATIONS

- Refrigerators compressors
- Industrial drives, pumps and fans
- HVAC
- Corded power and garden tools
- Battery operated and 110 Vac supplied home appliances
- Industrial automation



Product table

Order code	Description	Vin min (V)	Vin max (V)	Vout max (V)	IGATE (A)	Related documents
STSPIN32F0251/Q	250V 3-phase driver with STM32 MCU	9	20	250V	0.35	EVSPIN32F0251S1 / EVSPIN32F020Q1S1 products evaluation boards, STSW-SPIN32F0251 firmware for fast and easy evaluation of BLDC 1-shunt six-steps control
STSPIN32F0252/Q					1	STEVAL-PTool2v1 reference design for power tools up to 80V. One-shunt six-step firmware for hands-on start-up
STSPIN32F0601/Q	600V 3-phase driver with STM32	9	20	600V	0.35	EVSPIN32F0601S1 / EVSPIN32F06Q1S1 product evaluation board STSW-SPIN32F0601 firmware for fast and easy evaluation of BLDC 1-shunt six-steps control EVSPIN32F0601S3 / EVSPIN32F06Q1S3 product evaluation board to be paired with X-CUBE-MCSDK software development kit for fast and easy evaluation of PMSM 3-shunt field-oriented control
STSPIN32F0602/Q					1	EVSPIN32F0602S1 / EVSPIN32F06Q2S1 product evaluation board STSW-SPIN32F0602 firmware for fast and easy evaluation of BLDC 1-shunt six-steps control



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