

# PWD13F60 System-in-Package

## High-voltage full-bridge power driver in a compact QFN



### A complete 600 V/8 A integrated power MOSFET full bridge with embedded gate drivers in a 13 x 10 mm outline

Complex systems require straightforward solutions to streamline design. Today's tremendous downscaling trend requires further efforts in improving the density in power circuitry. ST's system-in-package solutions simplify electronics design and reduce the space occupied on the board as well as improve system efficiency and reduce EMI, increasing overall system reliability.

#### KEY BENEFITS & FEATURES

##### Saves PCB space and BOM costs both during design and system assembling

- 600 V full-bridge system in package with 2 gate drivers and 4 power MOSFETs
- Bootstrap diodes embedded inside gate drivers

##### Suitable for a wide range of industrial applications

- 8 A and 320 mΩ embedded power MOSFETs

##### Easy interfacing with microcontrollers, DSP units or Hall-effect sensors

- 3.3 and 15 V compatible inputs

##### Maximum protection

- Integrated cross-conduction and under-voltage lockout protections

##### Thermally efficient QFN package

- Compact QFN (13 x 10 mm) with exposed pads

#### IDEAL FOR

General-purpose inductive, resistive or capacitive loads with up to 600 V and 8 A capability, typically brushed DC motors in:

- Industrial and home appliances
- Fans and pumps
- Factory automation
- HID, ballasts
- Power supply units
- DC-DC and DC-AC converters

## 60% SMALLER, THIS EFFICIENT SOLUTION BOOSTS END-APPLICATION POWER DENSITY

ST's PWD13F60 System-in-Package (SiP) is a complete 600 V/8 A MOSFET full bridge in a 13 x 10 mm outline. It saves bill-of-materials costs and board space in industrial motor drives, lamp ballasts, power supplies, converters, and inverters.

With a footprint 60% smaller than a comparable circuit built from discrete components, the PWD13F60 can boost end-application power density. By integrating four power MOSFETs, it presents a uniquely efficient solution for DC motors; a true alternative to other modules on the market that are typically dual-FET half-bridges or

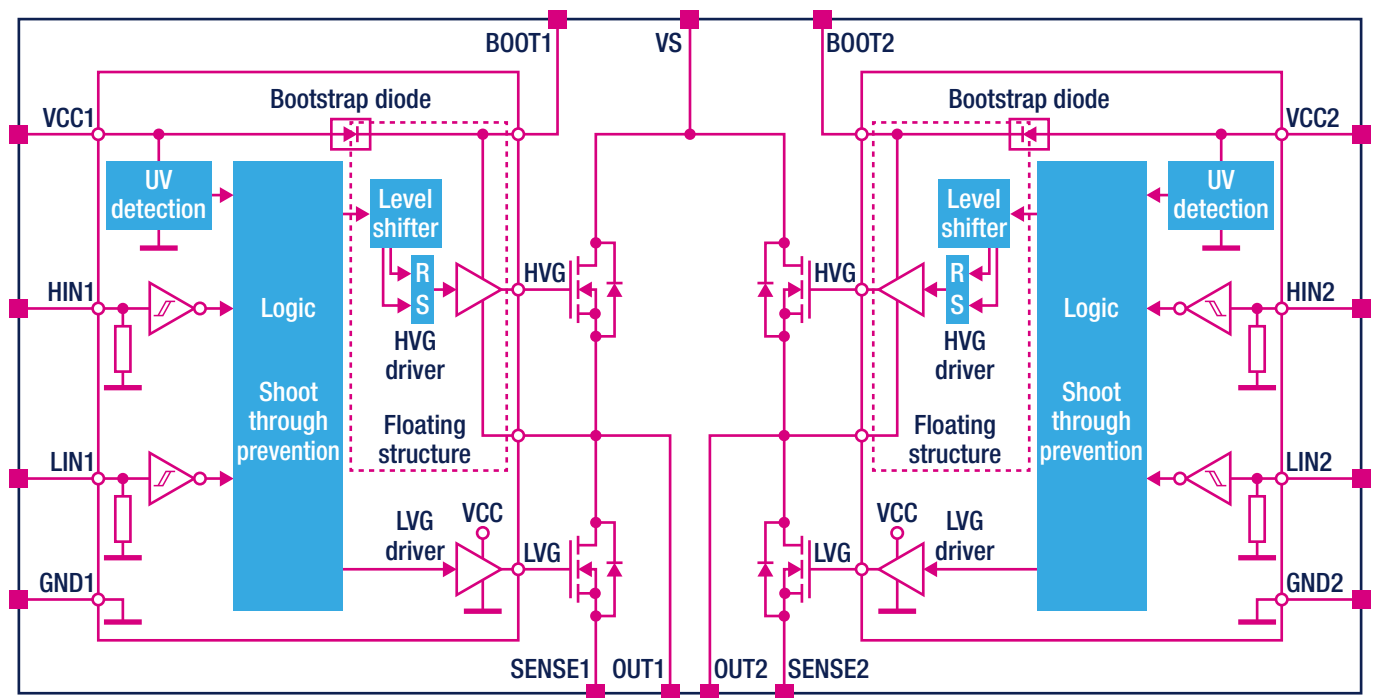
six-FET three-phase devices. Unlike either of these choices, only one PWD13F60 is needed to implement a full bridge topology, leaving no internal MOSFET unused. Developers enjoy the flexibility to configure the module as one full bridge or two half bridges.

Leveraging ST's high-voltage BCD6-OFFLINE fabrication process, the PWD13F60 integrates gate drivers for the power MOSFETs and the bootstrap diodes needed for high-side driving, which simplifies board design and streamlines assembly by eliminating external components. The gate drivers are optimized to efficiently drive power MOSFETs without

the need of additional external gate driving devices guaranteeing reliable and low EMI (electromagnetic interference) switching. The SiP also features cross-conduction protection and under-voltage lockout, which further ensures system safety.

Further attributes of the PWD13F60 include a wide supply-voltage range, extended down to 6.5 V for maximum flexibility. In addition, SiP inputs can accept logic signals from 3.3 to 15 V to ensure easy interfacing with microcontrollers (MCUs), digital signal processors (DSPs), or Hall-effect sensors.

### PWD13F60 MAIN INTERNAL BLOCKS



### DEVICE SUMMARY

Order code	Package	Packing
PWD13F60/PWD13F60TR	QFN (13 x 10 mm)	Tube/Tape & reel

### DEVELOPMENT ENVIRONMENT

Order code	Description
FEVALPWD13F60	High-voltage evaluation board for the PWD13F60 full-bridge high density power driver



© STMicroelectronics - February 2018 - Printed in United Kingdom - All rights reserved  
The STMicroelectronics corporate logo is a registered trademark of the STMicroelectronics group of companies  
All other names are the property of their respective owners

