

PAC™ Value for High-Performance Power Tools

- Smallest System Footprint
- BOM Cost Reduction
- Improved System Reliability
- Scalability, Platform Solution
- Proven Firmware & Software IP
- Reduced Time-to-market

Featured Products, Eval Kits & Firmware IP

- **PAC5220** 8mm x 8mm PAC™ IC with 52V gate drivers for 3-phase BLDC motor control
- **PAC5223** 6mm x 6mm PAC™ IC with 70V gate drivers, Multi-mode Power Manager, AFE, ARM Cortex core for 3-phase BLDC motor control
- **PAC5250** 10mm x 10mm PAC™ IC with 600V gate drivers, Multi-mode Power Manager, AFE, ARM Cortex core for High-Voltage motor control
- HYDRA-X Eval Kits: **EP-HYDRA-X23-1**, **EP-HYDRA-X20-1**
- **EH-BLDCM1-1** motor control head
- **Firmware** for sensed, sensorless, Trapezoidal, FOC Control

About Active-Semi

- Headquartered in Dallas, Texas, USA
- Founded in 2004
- Investors: LG, USVP and Tenaya Capital
- 1.5 Billion ICs shipped
- Shipping over 30M ICs per Quarter
- Operations in the US, Europe, China, Taiwan, Hong Kong, Japan and S Korea
- ISO 9001:2008 Company
- ISO 14001:2004 Company
- www.active-semi.com/about/leadership

Active-Semi's Power Application Controller™ (PAC™) IC Family offers highly integrated, single-IC solutions for BLDC and PMSM motor controls perfect for Power Tool solutions. PAC™ family of ICs, specifically the PAC5220, PAC5223 and PAC5250, along with firmware IP for sensorless BLDC and FOC control, offer better system performance, efficiency and reliability while reducing total system footprint, BOM cost and time-to-market in these applications.



SMALLEST SYSTEM FOOTPRINT: In a tiny 6mm x 6mm QFN package, PAC™ integrates required power management, up to 70V, 1A gate drivers for 3-phase motor control, analog front-end along with 32-bit ARM Cortex-M0 core to enable high-performance BLDC motor in smallest system footprint. PAC™ also includes serial interfaces control, high-speed PWM Engines, timers, and sophisticated hardware based protection blocks for improved system reliability.

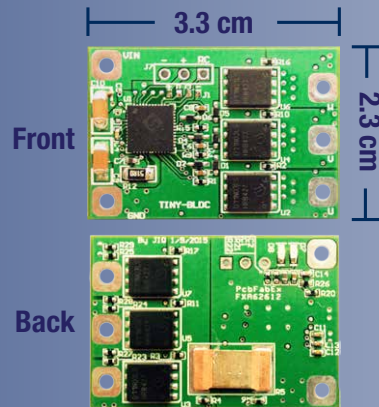
BOM COST REDUCTION WITH POWERFUL ALL-IN-ONE INTEGRATION: PAC™ ICs integrate high voltage high-side and low-side gate drivers for 3-phase control, offering superior switching performance than those in typical discrete implementations. The high level of integration with multi-mode power manager, single-ended and differential amps, on-chip temperature sensing, protection blocks also help reduce external components for lowest BOM cost and system footprint.

HIGH PERFORMANCE: PAC™ Architecture has several features and clocking schemes to enhance performance and reduce current consumption such as during total system shutdown or hibernate mode.

SYSTEM SCALABILITY: PAC™ ICs are highly configurable for different input power requirements (direct input from battery, AC input or DC input through buck or boost modes), output drives with 3-half bridge drivers, open drains, GPIOs, and programmable ARM Cortex core. PAC5250 with integrated 600V gatedrivers is ideal for AC powered tools, whereas PAC5223 with 1A/1A HS/LS drivers would be ideal for up to 70V BLDC motor based power tools. PAC solutions can scale from a few watts to a few kilo watts with minimal design efforts and system component changes.

PROVEN FIRMWARE IP & TOOLS: PAC™ motor solutions are supported with reference designs and high-quality IP for sensed & sensorless control. In addition, software tools such as motor tuning GUI help reduce development time and time-to-market. PAC™ Software Development Kit (SDK) is available for IAR, Coocox and Keil IDEs.

Battery Operated and AC-Corded Power Tool Solutions using Active-Semi's Power Application Controller(PACT™) IC Family



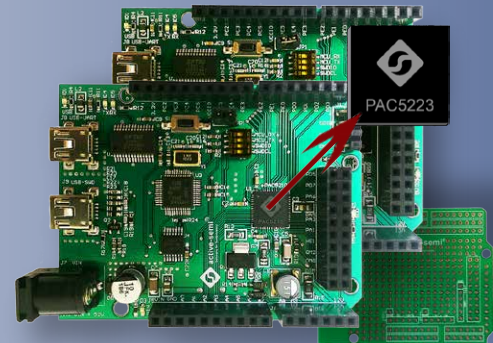
Available Now

Tiny BLDC Motor Reference Design for High-Performance Battery Powered Tools

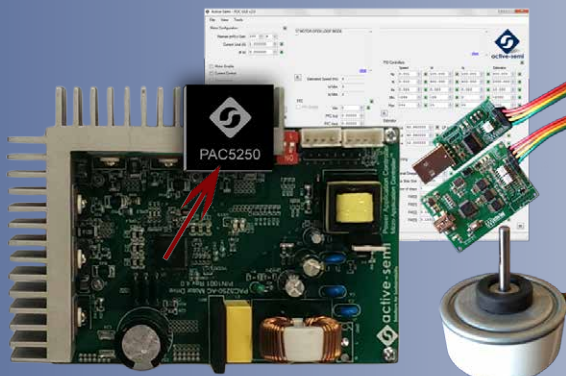
- Tiny 2.3cm x 3.3cm BLDC Motor Reference Design with PAC5223 IC, FETs and discretes
- Based on 6mm x 6mm PAC5223 IC with 70V, 1A gate-drivers for 3 half-bridge
- 3-phase BLDC motor control intended for Back-EMF with BLDC motors or FOC with PMSM motors
- Vin: 8 – 18V with built-in linear regulator; up to 70V using integrated SMPS configurable as buck, boost, or buck-boost

PACT™ Solution EVK for BLDC Cordless Power Tools

- PAC5223 Single-IC based BLDC motor solutions
- Integrated gate drivers for 3 Half H-bridge control (up to 70V with PAC5223, up to 50V for PAC5220)
- PACT™ with integrated Multi-mode Power Manager for AC-DC, DC-DC conversion and 4 LDOs for system power
- PACT™ integrated with Configurable AFE with single & differential PGAs, comparators, precision DACs, ADC, ARM Cortex M0 MCU
- SDK, firmware IP for sensed, back-EMF sensorless, and FOC



Available Now



Available Now

PAC5250 EVK for High Voltage PMSM AC-Corded Power Tools

- PAC5250 based high-voltage motor control evaluation kit
- Reference for offline PMSM scrubbers, pumps, and drivetrains
- Demonstrates 10mm x 10mm PAC5250 with 600V gate drivers
- Class C safety critical library available with SDK
- EVK implements flyback from offline universal AC power supply
- Supports FOC, hall-sensors and sensorless back-EMF
- Software GUI for motor tuning and control

For more Active-Semi IC Products, Evaluation Kits, Application Solutions visit www.active-semi.com, or email sales@active-semi.com

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