

Hardware Design Considerations for Integrated Power Boards for Driving BLDC Motors

Presenter:

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Brief description:

For power electronics engineers and researchers, hardware prototyping of the power converter topologies and ideas is required for their validation and acceptance in academia and industry. Printed circuit boards (PCBs) have been an integral part of this prototyping. With the increased availability of off-the-shelf microcontrollers, dedicated Power Management, and Control ICs, the PMBLDC drives have gained popularity in low to medium power applications ranging from UAVs to Water Pumps. However, several hardware design challenges include gate driver selection, switch selection, PCB layout, sensors, and control requirements. PCB design and hardware prototyping in this domain are non-trivial and have specific requirements. Tutorials and courses on PCB are limited to high-speed, low-power designs. Nevertheless, PMBLDC drives are designed in various application-specific segments like 12 to 16 Volts up to 50 Amps for UAVs and 48 V, 100 Amps for EVs and 320 Volts, 5 Amps for water pumping solutions.

The proposed tutorial deals with all the criteria to be considered while designing an integrated power board for PMBLDC Motor Drives.

Design considerations to be highlighted in the tutorial are: -

- Design requirements.
- Component selection.
- PCB design constraints.
- Power circuit Layout.

*This webinar neither promotes particular PCB design software nor endorses any device manufacturer.

Outline schedule of delivery (headings) and expected duration

The tutorial will be delivered in the form of a webinar, wherein power point presentations will be delivered focusing on design and challenges in integrated gate driver-based BLDC motor controllers. The presentation will be of 45 minutes and 15 minutes for Q&A.