Special Issue

Power Electronics and Sensors

Message from the Guest Editor

Power electronics process and control electric energy to be suitably used by user loads, and have diverse applications including smart grids, renewable energies, power supplies, motor drives, and electrified vehicles. In addition, recent power electronics vigorously investigate new devices (e.g., silicon carbide or gallium nitride power semiconductors), components (e.g., inductors, transformers, capacitors), and power module structures. Because of these reasons, the calibration and evaluation of power electronics are important, and their reliability and lifetime estimation are also inevitable. Thus, sensors for power electronics are becoming more crucial. Power electronics sensors need to characterize current, voltage, power, electromagnetics, temperature, thermal-stress, etc. In addition, depending on their applications, it is often necessary to customize their performances, such as bandwidth, accuracy, differential operation, or electrical isolation. Therefore, sensors used in power electronics should be developed considering their usages and specialized by their levels, e.g., power device, power module, and powerelectronics system levels.

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Deadline for manuscript submissions

closed (31 October 2020)



Micromachines

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