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Thermal simulation of IGBTs used in hybrid-electric vehicles



Presented at the STAR Global Conference 2012

The power electronics system of an electric vehicle is a critical part of the electric drivetrain, controlling the electrical power delivery between the battery system and the electric motors.

IGBTs (insulated gate bipolar transistors) are three-terminal power semiconductor device primarily used as an electronic switch combining high efficiency and fast switching. IGBTs are a key component in the power electronics system, and this presentation will give specific instructions for effectively and efficiently simulating the thermal performance of IGBTs in STAR-CCM+. Particular aspects will include: ? The appropriate geometric detail.

? Material properties.

? Simulation setup.

? Utilization of vendor data.

? Key output results.

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