Universität Stuttgart
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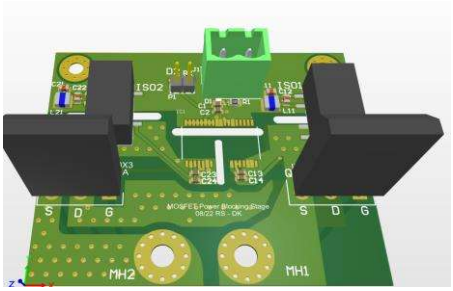
Bachelor thesis

LE

Automation of an Variable Inductive Load for Automated Calorimetric Measurements

In modern power electronics an ever increase in power density and efficiency is pursued. Therefore soft-switching of wide-bandgap semiconductors for high system performance is utilized. While high system advantages can be achieved, the prediction of those soft-switching losses become particular difficult with electrical measurements. Therefore time-consuming calorimetric measurements are utilized to characterize those losses accurately. Only recently time-efficient calorimetric measurement approaches have been developed which simplifies the extraction of the influence of several parameters.

In this Thesis a variable inductive load exhibiting low parasitics should be build and automated for the already existing measurement set-up. Furthermore the parasitics of the inductive load should be analyzed.



Power-blocking stage for the inductive load

Possible inductive load with different setable values.

Timeplan:

- Familirization & literature research (10%)
- Construction of power-blocking stages and possible coils (35%)
- Characterization of the parasitics of the variable inductive load (20%)
- Automation of the inductive load (20%)
- Thesis writing and presentation (15%)

Helpful previous knowledge:

- Power electronics I / RPSS 1 & RPSS 2
- Matlab/Microcontroller programming