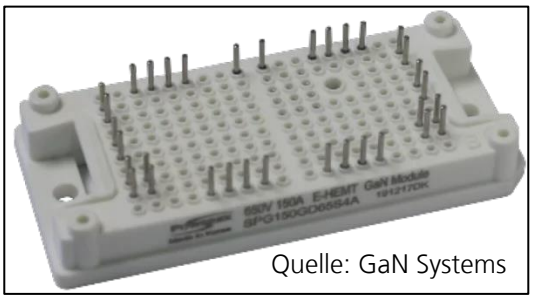
Thesis or internship "Design, implementation and evaluation of double-pulse tests for the characterization of wide-bandgap power modules"


Quelle: GaN Systems

The use of wide-bandgap power semiconductors made of silicon carbide (SiC) and gallium nitride (GaN) promises many advantages over semiconductors made of silicon, including reduced switching losses, higher switching frequency and improved power density. Power modules with GaN or SiC power semiconductors require new module concepts with adapted assembly and interconnection technology to exploit the full potential of the semiconductors. The switching behavior of new types of power modules is to be characterized by double-pulse tests. For this purpose, individual measurement setups must be designed and constructed for the test specimens. GaN and SiC power semiconductors are particularly demanding in terms of measurement setups and methods. Various measurement methods are to be compared in a preliminary study. After carrying out the double-pulse tests, the measurement results are to be evaluated in MATLAB to compare the different wide-bandgap power modules.

For our group "Power Converter Units" we are looking for a student assistant with the opportunity to write a thesis.

What you do with us

- Your tasks include the investigation of various measurement methods.
- You create circuit diagrams and PCB layouts in Altium Designer to enable double-pulse tests on new types of power modules.
- You assemble the designed PCBs with the components.
- You carry out double-pulse tests to characterize the switching behavior of new types of power modules.
- You evaluate the measurement results with MATLAB.
- You compare and evaluate different power modules.
- You create a final documentation.

What you bring with you

- You are studying electrical engineering, power electronics or a comparable subject.
- You have already gained practical experience in the areas of circuit design, layout, measurement technology and power electronics.
- You are a team player and have a committed and independent way of working.
- You have very good knowledge of German or English.

Focus:	Power electronics, hardware, layout
Start:	As soon as possible
Duration:	6 months
Supervisor:	Dennis Wöhrle, M.Sc.
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