

# Master Thesis

## Development of a HTRB test bench

Master thesis "**Development of a HTRB test bench for testing SiC MOSFETs**" at Chemnitz Power Labs GmbH.

Power devices have to be reliable in application, especially in electromobility. The integrity of the edge structure of the chips in power devices is investigated in hot-duration or high-temperature reverse bias (HTRB) tests, which is a standardized method in qualification.


Within the scope of this master thesis, an HTRB test bench will be developed which enables power electronics components to be tested under standard-compliant conditions with high demands on measurement accuracy. For this purpose, the following work steps are planned:

- 1. Literature review:** conduct a comprehensive literature review to determine the current standards and procedures for HTRB testing and identify possible approaches for the development of a test bench.
- 2. Concept development:** develop a concept for the HTRB test bench based on the literature review that considers the test environment requirements and includes an appropriate methodology for conducting HTRB tests.
- 3. Setup and commissioning:** setup and commissioning of a prototype circuit for an HTRB test bench, including hardware and software components.
- 4. Validation:** implementation of validation measures to ensure that the HTRB test bench provides reliable results.

Chemnitz Power Labs GmbH is a young and dynamic company founded in November 2021 as a spin-off of the Chair of Power Electronics at Chemnitz University of Technology. We offer specialized test services for power semiconductors and also develop our own products. With our experienced team and extensive knowledge in this field, we have a lot of potential to grow further, to advance modern technologies such as electromobility and renewable energies, and to contribute to CO2 reduction.

Please send your application to [jobs@cpowerlabs.com](mailto:jobs@cpowerlabs.com)

Chemnitz, May 11, 2023



Dr.-Ing. Christian Herold  
Chemnitz Power Labs GmbH  
Technologie-Campus 1  
09126 Chemnitz  
[christian.herold@cpowerlabs.com](mailto:christian.herold@cpowerlabs.com)  
[www.cpowerlabs.com](http://www.cpowerlabs.com)

Dipl.-Ing. Javier Arigita  
Chemnitz Power Labs GmbH  
Technologie-Campus 1  
09126 Chemnitz  
[javier.arigita@cpowerlabs.com](mailto:javier.arigita@cpowerlabs.com)  
[www.cpowerlabs.com](http://www.cpowerlabs.com)