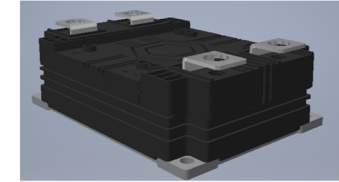


Project Title: 100A, 6.5kV Half-Bridge Module

Objectives: Develop and qualify a 100A, 6.5kV SiC half-bridge power module

Major Milestones: Finish prototype module design and procure components; Assemble and fully evaluate prototype modules; Refine production module design and assemble production modules; Evaluate and qualify production modules.

Deliverables: Three engineering samples



SiC
Supercascode

SOPO Task No.: BP4-3.8
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WBG Technology Impact

1. The 100A-6.5kV SiC module would be the first commercial-available cost-effective medium-voltage SiC power module, enabling the quick penetration of SiC into multi-megawatt power conversion applications;
2. Applications: Industrial motor drive, rail traction, renewable energy conversion, HVDC, FACTS, and military applications, etc.
3. The 100A-6.5kV SiC module can switch 10X faster than their Si counterparts, and will revolutionize the design of megawatt power converters with higher switching speed, higher efficiency, and higher power density.

More WBG Impact and Additional impacts

1. The cost of the state of the art 6.5kV to 10kV SiC MOSFET is prohibitive. The proposed module provides a cost-effective solution to 4.5kV to 15kV medium-voltage SiC power module. The target cost structure is < 25\$/A.
2. USiC will launch engineering modules, which will add growth for the foundry and expand the supplier base for SiC based medium-voltage modules. Impact on US and world wide energy efficiency will be significant. SiC power business growth creates employment opportunities for SiC supply chain providers, as well as advanced system developers.
3. TRL level at project start: TRL=4. Expected at project completion: TRL=5