

**Project Title:** Development of SiC-Based Resonant Converter for EV Charger Using 3.3 kV & 700 V SiC MOSFETs

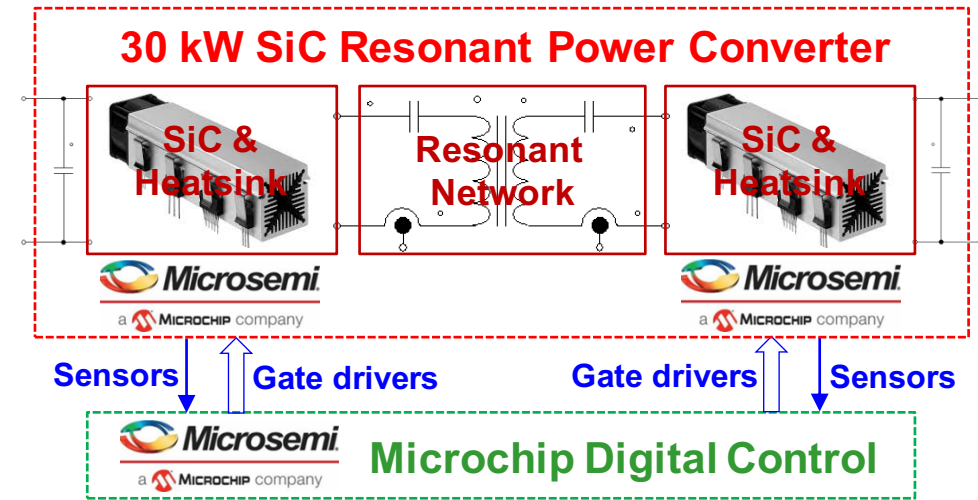
**Objectives:** To develop a TRL 5 resonant isolated DC-DC hardware and firmware with 30 kW power for EV charger with 97.5% targeted efficiency and 4 kW/L power density

Task No.: BP5-2.20B

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## WBG Technology Impact

- High power and high frequency digital SiC power converter with 5-10 times higher switching frequency and control bandwidth over Silicon approaches
- Market segments: industrial SiC high power rapid prototyping at EV industry
- 30 kW resonant converter for EV charging that can operate in both uni- and bi-directional modes using 700 V / 3.3 kV SiC devices

## Accomplishments/Outcomes

- Open source codes for high-power SiC resonant converter operating at wide voltage range with advanced digital control
- Detailed reference design of high-frequency 30 kW resonant converters using cost-effective TO247 SiC devices
- Establish the starting point of commercialization of a new product line for 3.3 kV and 700 V SiC devices applications
- Accelerate the skilled workforce development of high-power WBG converter and high-bandwidth digital control