

Project Title: Isolated, soft switching SEPIC with Active Clamp for 480 V AC to 400 V DC Rectifier for Data Centers

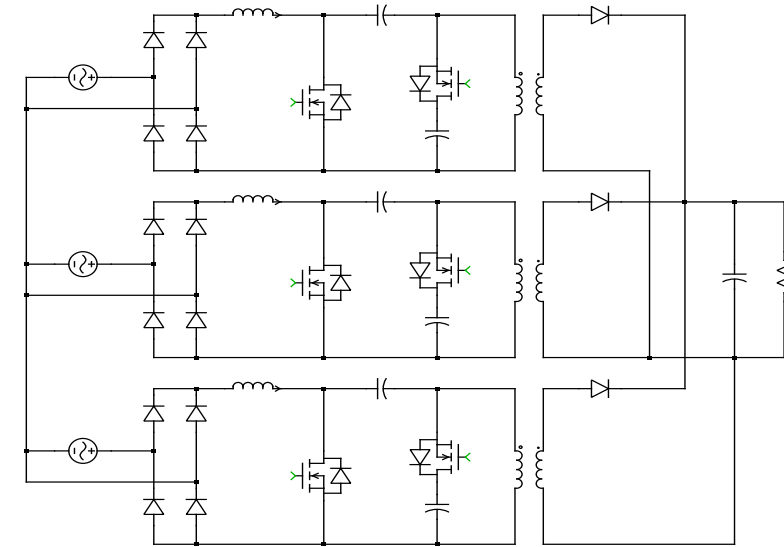
Objectives: Develop a high performance 10 kW modular 480 V AC to 400 V DC rectifier using innovative topologies

Major Milestones:

1. ANSYS based design of magnetics
2. 2 generations of hardware prototypes

Significant Equipment Acquisition:
High bandwidth 8-channel oscilloscope

Deliverables: 10 kW rectifier with isolation featuring >98% efficiency, 200 kHz, 150 W/inch³



PI: Raja Ayyanar
Email: rayyanar@asu.edu
Phone:480.727.7307

WBG Technology Impact

1. High switching frequency, high efficiency, single stage
2. Market segments impacted - Application Spaces: Data centers, power supplies for information technology, electric transportation, appliances
3. Timeframe for commercialization: 2 years
4. Improvement in power density by about 3X-5X enabling compact system designs, efficiency by 2% compared to Si devices

Additional impacts

1. System level cost improvement compared to Si with reduced cooling and smaller EMI filters with switching frequency 200 kHz, soft switching
2. Workforce Development and Education: Impacts more than 150 students through enhanced course material; short videos on high frequency power conversion
3. TRL level At project start: 4, Expected at project completion: 5