PRINCETON UNIVERSITY

WIDE BAND GAP SEMICONDUCTOR AMPLIFIERS FOR PLASMA HEATING AND CONTROL

Radio Frequency Heating - Princeton University

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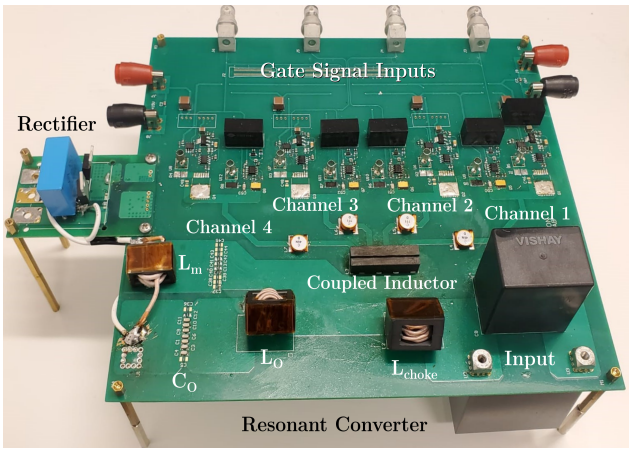
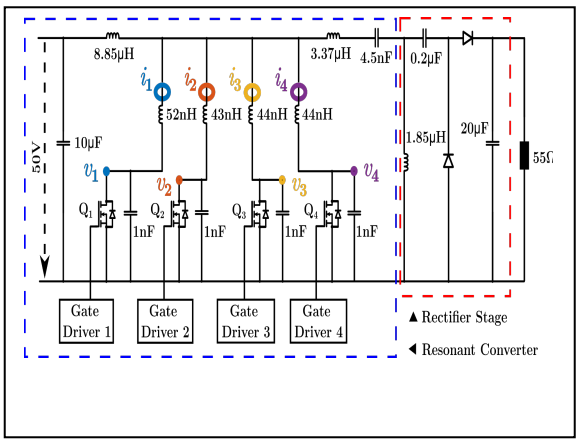
The Class E inverter with switching devices in parallel is used as the radio-frequency heating topology. A coupled inductor is used for current balancing among paralleled devices. Wide Band Gap Devices were used as the switches and were operated at frequencies above 1 MHz.

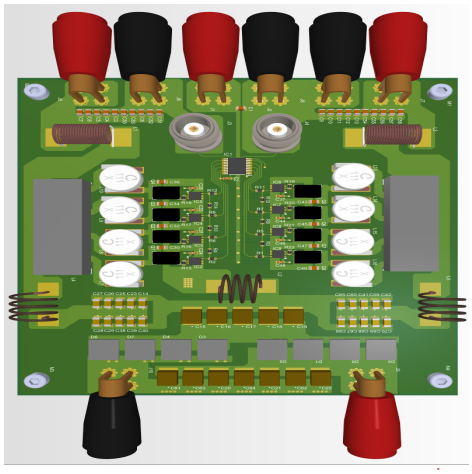


Class E Converter Hardware Implementation

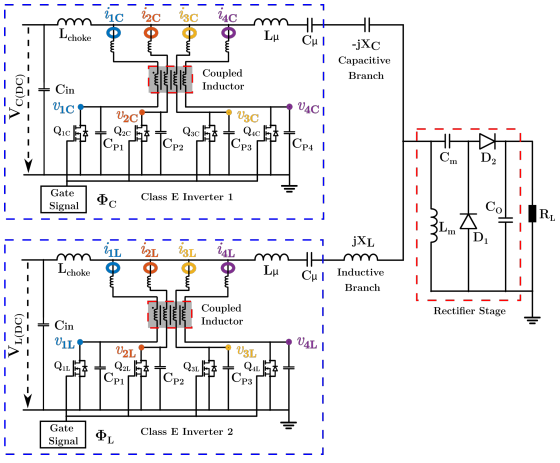


Class E Converter with parallel switches

Reactance Steering makes Class E inverter less sensitive to the output impedance changes and increase power handling capacity.



Class E converter with Reactance Steering



Class E amplifier with reactance steering