

High-frequency Power Electronics using eGaN Devices

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The growing need for high-power applications has prompted research and development into resonant power converters with high power density. By utilizing advanced wide bandgap devices like enhancement mode gallium nitride (eGaN) transistors and Silicon Carbide (SiC) MOSFETs, we can push the boundaries of size, switching frequency, and efficiency in power converters, enabling them to operate under high-frequency, high-power conditions. Nevertheless, GaN FETs have relatively low breakdown voltage and a notable positive thermal coefficient in their conduction characteristics. In this presentation, I will describe the performance of eGaN FETs in MHz, KW resonant power converters and demonstrate how to optimize power converter design using eGaN FETs for high-frequency, high-power operation.