Abstracts

Applications of SiC MESFETs and GaN HEMTs in power amplifier design

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Very high power densities have been shown for both SiC MESFET and GaN HEMT devices. Both of these active devices benefit from the high breakdown voltages afforded by their wide-bandgap semiconductor properties. The GaN device also benefits from current densities as high as 1 A/mm. This high power density, along with good efficiency and linearity, provide an excellent base for future military and commercial power amplifier applications. High power densities are possible using narrow band power-matching networks. Although the gain-bandwidth limitation is exacerbated due to the high-impedance load lines required, high power design is possible even over multi-octave bandwidths.

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