GaAs Power MESFET Performance Sensitivity to Profile and Process Parameter Variations

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Large signal performance sensitivities are calculated and compared for power GaAs MESFETs fabricated with uniform, ion-implanted, and lo-hi-lo doping profiles. Variations in RF power, power-added efficiency, gain, and device linearity are determined for the various devices as a function of process dependent parameters. It is demonstrated that the channel doping profile design and breakdown voltage have the most significant influence upon large-signal RF performance.

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