Abstracts

AlGaN/GaN HFET amplifier performance and limitations

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Wide bandgap semiconductor field-effect transistors based upon the AlGaN/GaN heterostructure often demonstrate premature saturation and degradation of the RF output power, power-added efficiency, and gain as the device is driven into saturation. The effect is generally accompanied by 'current slump', where the dc current decreases with increasing RF drive. It is demonstrated that charge non-confinement in the 2DEG under large-signal conditions can produce source resistance modulation that degrades RF performance consistent with experimental data.

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