Abstracts

Comparative study of hot-electron reliability of PHEMT vs. MESFET for high efficiency power amplifiers

Y. Tkachenko, A. Klimashov, C. Wei, Y. Zhao and D. Bartle. "Comparative study of hot-electron reliability of PHEMT vs. MESFET for high efficiency power amplifiers." 1999 MTT-S International Microwave Symposium Digest 99.2 (1999 Vol. II [MWSYM]): 799-802 vol.2.

Hot electron induced degradation of PHEMTs and MESFETs was compared. For both types of transistor, a decrease of open channel current, a small increase of near pinch-off current, an increase of breakdown voltage and on resistance are observed as a result of stress. For both types of devices hot electron injection into SiN passivation and hot hole injection into the buffer is responsible for degradation. The (Stress)x(Lifetime) figure of merit for PHEMT is 1.3 A A/spl middot/hr/cm, which is one order of magnitude lower than that for MESFET.

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