Abstracts

Survivability of InP HEMT devices and MMICs under high RF input drive

Y.C. Chen, M. Barsky, R. Tsai, R. Lai, H.C. Yen, A. Oki and D.C. Streit. "Survivability of InP HEMT devices and MMICs under high RF input drive." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1917-1920.

We have investigated the survivability of our 0.1- and 0.15-/spl mu/m InP HEMT devices and MMIC amplifiers under high input RF drive levels. Input destruction powers as high as 22 and 26 dBm were observed for the 0.1- and 0.15-/spl mu/m MMIC amplifiers, respectively. These results shows that InP HEMT is suitable for many applications even where high survivability levels are required. Analytical analysis and harmonic balanced nonlinear simulations suggest that device destruction be due to large drain-gate voltage swing that exceeds the breakdown voltage under high RF drives. The survivability of an MMIC amplifier depends on its impedance matching and can be improved by using large devices.

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