Abstracts

Microwave noise sources in AlGaAs/GaAs HBTs

P. Sakalas, M. Schroter, P. Zampardi, H. Zirath and R. Welse. "Microwave noise sources in AlGaAs/GaAs HBTs." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 2117-2120 vol.3.

Scattering and noise parameters of AlGaAs/GaAs HBTs from Conexant with 30 and 35% of Al mole content were measured and modeled. De-embedding of the pad parasitics was accurately performed by using a "two step" method and small-signal modeling. Small-signal hybrid /spl Pi/ type model parameters were extracted from "cold" and "hot" HBT measurements. Thermal, hot electron and correlated base and collector current shot noises were included in the noise model, which accounted well for the measured noise parameters. From the resolution of noise sources It was found that minimum in noise figure at 5 GHz stems from the correlation of base and collector shot noise. Al content in the alloy does not influence the high frequency noise properties of the AlGaAs/GaAs HBTs.

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