Abstracts

HBT low-noise performance in a 0.18 /spl mu/m SiGe BiCMOS technology (2000 Vol. I [MWSYM])

D.R. Greenberg, D. Ahlgren, G. Freeman, S. Subbanna, V. Radisic, D.S. Harvey, C. Webster and L. Larson. "HBT low-noise performance in a 0.18 /spl mu/m SiGe BiCMOS technology (2000 Vol. I [MWSYM])." 2000 MTT-S International Microwave Symposium Digest 00.1 (2000 Vol. I [MWSYM]): 9-12.

Noise figure and gain are critical parameters in the design of any product featuring a high-frequency receiver. We present here for the first time a noise and gain characterization of HBTs fabricated in a development version of IBM's new 90 GHz, 0.18 /spl mu/m-generation SiGe BiCMOS process with copper interconnects. At 2 GHz, we report a noise figure of less than 0.4 dB and an associated gain of 14 dB, a significant (0.3-0.5 dB) improvement over prior SiGe and GaAs state of the art in a commercial process. At 10 GHz, we observe a noise figure of 1.45 dB, an approximately 0.7 dB improvement over previous offerings. This performance makes the 0.18 /spl mu/m SiGe BiCMOS technology attractive for RF, analog, and mixed-signal circuit design.

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