Abstracts

BiCMOS MOSFET high frequency features for radiofrequency (RF) applications. Hot carrier effects on dynamic and noise parameters, impact on RF design features

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BiCMOS 0.35 /spl mu/m MOSFET high frequency (HF) features for radiofrequency (RF) applications are presented: Ft, Fmax and HF noise parameters (the minimum noise figure: NFmin, the noise equivalent resistance: Rn and the source optimum reflection coefficient: GammaOPT). The effects of Hot Carrier (HC) degradations have been studied on these features, the whole characterization being achieved on a full automated on wafer HF measurement station. A comparison with bipolar device characteristics is made. In conclusion, even for stress conditions with high level of HC degradation (20% degradation on Ids, 8% on Ft, 10% on Fmax and 50% on real part of GammaOPT), MOSFET remains attractive for RF design achievement and stability in term of noise figure.

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