Abstracts

Bias-Dependent Noise Up-Conversion Factor in HBT Oscillators

X. Zhang and A.S. Daryoush. "Bias-Dependent Noise Up-Conversion Factor in HBT Oscillators." 1994 Microwave and Guided Wave Letters 4.12 (Dec. 1994 [MGWL]): 423-425.

This paper reports on the low-frequency noise up-conversion process in HBT transistors and their contributions to the close-in carrier phase noise of the HBT based oscillators. The experimental results of an HBT oscillator at 5.6 GHz demonstrate that the low-frequency noise up-conversion factor is primarily function of the transistor's phase variation to its quiescent point. Thus, in addition to the transistor's noise parameters of f/sub c/ and N/sub F/, the phase sensitivity to the bias point provides another important transistor parameter in design of low phase noise oscillators. This concept can also be extended to oscillators based on other devices, such as BJT's, MESFET's and HEMT's.

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