Abstracts

Self-Linearizing Technique for L-Band HBT Power Amplifier: Effect of Source Impedance on Phase Distortion

H. Yamada, S. Ohara, T. Iwai, Y. Yamaguchi, K. Imanishi and K. Joshin. "Self-Linearizing Technique for L-Band HBT Power Amplifier: Effect of Source Impedance on Phase Distortion." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2398-2402.

L-band power amplifiers operating with high efficiency and high linearity at a single and low supply voltage are in strong demand for mobile communication systems. This paper presents a new self-linearizing technique for power heterojunction bipolar transistors (HBT's). Utilizing the nonlinear input conductance of the device itself and setting the source impedance to the self-linearizing impedance, the phase distortion and the adjacent channel leakage power (ACP) for pi/4-shift QPSK modulated signal of our InGaP/GaAs power HBT's have been greatly improved. As a result, the HBT exhibited the ACP at 50 kHz offset frequency of -49.2 dBc with a power-added efficiency (PAE) of 56 % at an output power (P/sub out/) of 31 dBm under a supply voltage of 3.5 V.

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