Abstracts

Highly linear CMOS RF MMIC amplifier using multiple gated transistors and its Volterra series analysis

B. Kim, Jin-Su Ko and K. Lee. "Highly linear CMOS RF MMIC amplifier using multiple gated transistors and its Volterra series analysis." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 515-518 vol.1.

CMOS RF MMIC amplifiers are fabricated with linearization technique using multiple gated transistors. At 900 MHz, double and triple gated amplifiers show 2.5-4.5 dB larger figure of merit (linearity-DC power consumption), which means that only 1/2/spl sim/1/3 of DC power is needed to obtain the same OIP/sub 3/ value. Using Volterra series analysis and harmonic balance simulation, it is shown that the linearization technique with the 2nd harmonic termination can increase IIP/sub 3/ by amount of 16 dB max. without additional DC power consumption at optimal bias condition, which can reduce more than 90% of DC power consumption with the same linearity performance.

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