Abstracts

Reduction of intermodulation distortion in microwave active bandpass filters-theory and experiments

K.-K.M. Cheng and Siu-Chung Chan. "Reduction of intermodulation distortion in microwave active bandpass filters-theory and experiments." 2000 Transactions on Microwave Theory and Techniques 48.2 (Feb. 2000 [T-MTT] (Mini-Special Issue on Research Reported at the 1999 Radio Frequency Integrated Circuits (RFIC) Symposium)): 221-225.

This paper examines, both theoretically and experimentally, the dependency of the third-order intermodulation (IM) distortion and power saturation upon circuit and device parameters of an active bandpass filter using negative-resistance compensation. Nonlinear analysis is performed by means of the Volterra series formulation. We show that the IM distortion can be reduced by several orders of magnitude with suitable choice of external gate-source and feedback capacitance values. Measured performances of some 900-MHz experimental MESFET bandpass filters are presented.

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