Abstracts

Using a negative capacitance to increase the tuning range of a varactor diode in MMIC technology (Dec. 2001 [T-MTT])

S. Kolev, B. Delacressonniere and J.-L. Gautier. "Using a negative capacitance to increase the tuning range of a varactor diode in MMIC technology (Dec. 2001 [T-MTT])." 2001 Transactions on Microwave Theory and Techniques 49.12 (Dec. 2001 [T-MTT] (Special Issue on 2001 International Microwave Symposium)): 2425-2430.

An original method to increase the tuning range of a monolithic-microwave integrated-circuit (MMIC) varactor diode is presented in this paper. An active circuit simulating a negative capacitance is connected to the varactor diode. This method allows to increase the varactor's tuning range more than ten times and to compensate its series resistance at the same time. A MMIC simulating a negative capacitance have been successfully fabricated and measured. To the best of the authors' knowledge, this is the first realization of a MMIC simulating a negative capacitance.

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