Abstracts

New technique for the determination through commercial software of the stable-operation parameter ranges in nonlinear microwave circuits

V. Iglesias, A. Suarez and J.L. Garcia. "New technique for the determination through commercial software of the stable-operation parameter ranges in nonlinear microwave circuits." 1998 Microwave and Guided Wave Letters 8.12 (Dec. 1998 [MGWL]): 424-426.

In this paper, a new technique is presented for the global stability analysis of nonlinear microwave circuits using harmonic balance commercial software. The stable operation region in any two-parameter plane is determined from a combination of the bifurcation conditions and a new continuation technique. In the case of asynchronous instability, the quasi-periodic solution paths are entirely traced and their stability is analyzed, which allows the prediction of possible chaotic responses. The new method makes both kinds of analysis, limited so far to in-house simulators, accessible to any circuit designer. Here, it has been applied to a varactor-based frequency doubler with excellent agreement with the experimental results.

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