Abstracts

Designing periodically driven varactor circuits with guaranteed stability

I.W. Sandberg and G.J.J. van Zyl. "Designing periodically driven varactor circuits with guaranteed stability." 1999 Microwave and Guided Wave Letters 9.6 (Jun. 1999 [MGWL]): 230-232.

In this work we show how input-output stability theory bears on the problem of obtaining a frequency-domain stability criterion that can be used to design periodically driven varactor circuits with guaranteed stability. The design criterion requires that the locus of j/spl omega/Z(j/spl omega/) for -/spl infin/</spl omega/</spl infin/ avoids a critical disk in the complex plane, where Z(j/spl omega/) is the Thevenin equivalent driving-point impedance presented to the varactor at frequency /spl omega/. The location and size of the disk is a function only of the minimum and maximum incremental capacitance of the varactor. We present an example of how a varactor frequency doubler with guaranteed stability may be designed using this criterion.

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