Abstracts

Computer-Aided Desire of Microwave Frequency Doublers Using a New Circuit Structure

Y. Xuan and J.L. Fikart. "Computer-Aided Desire of Microwave Frequency Doublers Using a New Circuit Structure." 1993 Transactions on Microwave Theory and Techniques 41.11 (Dec. 1993 [T-MTT] (1993 Symposium Issue)): 2264-2268.

A new circuit structure for microwave frequency doublers is presented, which features effective suppression of fundamental and odd harmonics (> 50 dB), conversion gain (> 3 dB), and simplicity of the circuit itself. Furthermore, it can be used in both balanced and unbalanced output configurations, without requiring baluns or transformers. A novel differential amplifier developed as part of the doubler circuit is also described in detail. It used an inductor to replace the active current source in conventional differential amplifiers, which simplified the circuit and, more importantly, enabled the amplifier to operate at high microwave frequencies. Experimental results are given in the paper.

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