Abstracts

A broad-band balanced HEMT frequency doubler in uniplanar technology

A.S. Yanev, B.N. Todorov and V.Z. Ranev. "A broad-band balanced HEMT frequency doubler in uniplanar technology." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part I [T-MTT]): 2032-2034.

Design and performance of a simple balanced high electron-mobility transistor doubler in uniplanar technology are described. The uniplanar in-phase and out-of-phase T-junctions with 2-octave bandwidth and a hybrid ring coupler with more than octave bandwidth have also been developed and investigated as a part of the doubler circuits. Measurements show more than 3-dB conversion gain, effective fundamental- and odd-harmonics suppression (>25 dB) in octave bandwidth (output frequency from 6 to 12 GHz), and maximum conversion gain of 8.8 dB at 3-dBm-input power level. The uniplanar design and simplicity of the circuit itself make the proposed frequency doubler suitable for monolithic-microwave integrated-circuit fabrication in millimeter-wave range.

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