Abstracts

An Ultra-Wideband MMIC Balanced Frequency Doubler Using Line-Unified HEMTs

T. Takenaka and H. Ogawa. "An Ultra-Wideband MMIC Balanced Frequency Doubler Using Line-Unified HEMTs." 1992 Transactions on Microwave Theory and Techniques 40.10 (Oct. 1992 [T-MTT]): 1935-1940.

A very small, ultra-wideband MMIC balanced frequency doubler, which employs line-unified HEMT configurations, is proposed, A chip size of 1.0 mm x 0.9 mm is achieved with a conversion loss of 8-10 dB in the 4-40 GHz output harmonics frequency range and fundamental frequency signal isolation of better than 21 dB above the input fundamental frequency of 7 GHz. Circuit parameters are optimized in a novel and simple prediction using an equation derived from HEMT's dc characteristic and a linear-state CAD software package. The doubler promises to realize miniaturized, wideband MMIC transmitters/receivers.

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