

Abstracts

Theory of the Varactor Frequency Halver

R.G. Harrison. "Theory of the Varactor Frequency Halver." 1983 MTT-S International Microwave Symposium Digest 83.1 (1983 [MWSYM]): 203-205.

A basic theory for broadband balanced frequency-halving circuits is presented. The analysis is applicable to both Schottky-barrier and reverse-biased abrupt-junction varactors and is based on the solution of exact nonlinear differential equations. An approximate algebraic method yields the global steady-state amplitude and phase solutions, while numerical integration gives transient solutions under specific conditions. These circuits are useful in bandwidth-compression, frequency-translation, PSK carrier-recovery and for stabilizing RF sources to LF references.

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