Abstracts

Some rules for the choice of the C(V) characteristic for the design of frequency triplers with symmetrical varactors

J.M. Duchamp, P. Ferrari, J.W. Tao and D. Lippens. "Some rules for the choice of the C(V) characteristic for the design of frequency triplers with symmetrical varactors." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 359-362 vol.1.

In this paper we consider multipliers designed with varactors that have a symmetric C(V) capacitance-voltage characteristic, i.e. triplers, quintuplers, ... We show that for a tripler the optimal C(V) characteristic is not the most abrupt one, as stated in much works, but rather a cosine-like one. Our work is validated with the design of a frequency tripler based on the use of HBVs non-linear transmission lines. We obtained a significant improvement for the maximum conversion efficiency when a cosine C(V) is used instead of an abrupt one, for a 15 HBVs NLTL frequency tripler.

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