Abstracts

FDTD analysis of a quasi-planar MM-wave frequency doubler

W. Thiel and W. Menzel. "FDTD analysis of a quasi-planar MM-wave frequency doubler." 1998 MTT-S International Microwave Symposium Digest 98.2 (1998 Vol. II [MWSYM]): 881-884.

A quasi-planar frequency doubler based on the junction of a coplanar waveguide and a finline using two silicon Schottky diodes mounted across this junction is analyzed. The extended Finite Difference Time Domain (FDTD) method is used with a newly developed excitation scheme for harmonic waves feeding a defined power with the proper field distribution into the circuit. This harmonic signal is fed to the diodes via the coplanar line. The output signal, containing even harmonics only, is analyzed on the finline and compared to measurements. Operating frequencies are 20 to 25 GHz and 40 to 50 GHz, respectively.

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