Abstracts

High efficiency MMIC frequency triplers for millimeter and submillimeter wavelengths

N.R. Erickson, R.P. Smith, S.C. Martin, B. Nakamura and I. Mehdi. "High efficiency MMIC frequency triplers for millimeter and submillimeter wavelengths." 2000 MTT-S International Microwave Symposium Digest 00.2 (2000 Vol. II [MWSYM]): 1003-1006.

A complete wideband tripler circuit with optimized input, idler and output matching has been integrated onto GaAs. The circuit consists of a matched pair of antiparallel varactor diodes with provision for DC bias. The input impedance is near 50 /spl Omega/ in microstrip, while the output couples directly to reduced height waveguide. Circuits have been fabricated and tested for frequencies near 300 GHz. These triplers achieve a peak efficiency of 11% with a power output of 5-7 mW. While peak efficiency occurs over a narrow band, the efficiency exceeds 1% over a band of 230-325 GHz.

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