Abstracts

Experimental Performance of a Back-to-Back Barrier-N-N/sup +/ Varactor Tripler at 200 GHz (Short Papers)

D. Choudhury, A.V. Raisanen, R.P. Smith, M.A. Frerking, S.C. Martin and J.K. Liu. "Experimental Performance of a Back-to-Back Barrier-N-N/sup +/ Varactor Tripler at 200 GHz (Short Papers)." 1994 Transactions on Microwave Theory and Techniques 42.4 (Apr. 1994, Part II [T-MTT]): 755-758.

This paper describes the performance of planar back-to-back Barrier-N-N/sup +/ (bbBNN) devices for frequency multiplier applications. A tripling efficiency of 3.3% has been achieved using these devices in a 200 GHz crossed waveguide mount. This is the first experimental result with a bbBNN waveguide frequency multiplier. A technique has been developed for characterizing planar bbBNN devices with a network analyzer, which gives both the series resistance and voltage dependent capacitance of the device. The experimental results are compared with the theoretical multiplier performance, calculated using a large signal analysis approach.

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