Abstracts

Millimeter-Wave Device Technology

A. Rosen, M. Caulton, P. Stabile, A.M. Gombar, W.M. Janton, C.P. Wu, J.F. Corboy and C.W. Magee. "Millimeter-Wave Device Technology." 1982 Transactions on Microwave Theory and Techniques 30.1 (Jan. 1982 [T-MTT]): 47-55.

We have investigated novel techniques for the fabrication of silicon IMPATT diodes for use at frequencies of 220 GHz and beyond. We report on diodes yielding 25 mW CW at 102 GHz with 2-percent conversion efficiency, and 16 mW CW at 132 GHz with 1-percent conversion efficiency. The basic techniques described are ion implantation, laser annealing, unique secondary-ion mass spectrometry (SIMS) profile diagnostics, and novel wafer thinning, yielding ultrathin, reproducible wafers. The utilization of these technologies, as they are further refined, can result in the development of silicon monolithic integrated sources.

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