Abstracts

Simulation and measurement results of 150 GHz integrated silicon IMPATT diodes

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The integration of IMPATT diodes and their housing in a single technology process is discussed in this paper. The integrated device is designed to improve reliability and reproducibility compared to conventional beam-lead diodes with quartz ring housing. In a single step, the diode with its housing is bonded onto a diamond heat sink. The device can be employed both in a waveguide resonator and in a planar oscillator circuit. Results presented here are obtained in a rectangular, reduced height waveguide resonator. RF-output power levels of more than 100 mW at 135 GHz and 45 mW at 150 GHz are reported.

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