Abstracts

GaAs IMPATT Diodes Pulsed at 40 GHz

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Gallium arsenide double-drift Read IMPATT diodes are under development for use at 40 GHz. Such diodes have offered higher efficiency and average power than silicon diodes. The advantage may be ascribed to both the intrinsic properties of GaAs and the more complex doping structures used. In this paper, we describe diodes which give 16 W peak power at efficiencies up to 15%. Duty cycles between 5% and 30% have been employed at various peak power levels. The techniques used to design the double Read doping profiles and their resulting microwave properties are discussed. The characteristics of the Kurokawa test circuit are described in terms of measured S-parameters.

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