Abstracts

High Efficiency Millimeter Wave Monolithic IMPATT Oscillators (1985 [MCS])

B. Bayraktaroglu and H.D. Shih. "High Efficiency Millimeter Wave Monolithic IMPATT Oscillators (1985 [MCS])." 1985 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 85.1 (1985 [MCS]): 82-85.

This paper describes methods of integrating GaAs IMPATT diodes and impedance matching circuits on the same chip. Lumped element as well as distributed element matching circuits were used in two separate approaches. The common technology to both approaches is the use of thick layers of polyimide that form the dielectric medium for passive circuit elements. MBE grown double-drift GaAs IMPATT structures with AlGaAs etch stop layers were used to fabricate monolithic oscillators for the 30-90 GHz applications. The best overall performance was achieved at 32.5 GHz with 1.25.W cw output power and 27% efficiency.

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