Abstracts

Oscillators and Amplifiers in Integrated E-Plane Technique

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This paper presents an overview of solid-state oscillators and amplifiers realized in E-plane technology. The circuit topology, basic design procedures, and performance characteristics are described and compared. The paper surveys Gunn oscillators, IMPATT oscillators, transistor oscillators, injection-locked Gunn oscillators, and transistor amplifiers. Gunn and transistor oscillators have been realized successfully for frequencies from 10 to 110 GHz, thus covering almost the entire frequency range suitable for E-plane technology. IMPATT oscillators are difficult to design and to reproduce in quasi-planar form because of the high impedance ratio that must be overcome by the circuit. E-plane FET amplifiers have been built for frequencies up to 60 GHz.

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