Abstracts

Distributed Bragg Reflector Gunn Oscillators for Dielectric Millimeter-Wave Integrated Circuits

T. Itoh and F.-J. Hsu. "Distributed Bragg Reflector Gunn Oscillators for Dielectric Millimeter-Wave Integrated Circuits." 1979 Transactions on Microwave Theory and Techniques 27.5 (May 1979 [T-MTT] (Special Issue on Solid-State Microwave/Millimeter-Wave Power Generation, Amplification, and Control)): 514-518.

A new Gunn oscillator is proposed for microwave and millimeter-wave integrated circuits. The device consists of a Gunn diode placed in a dielectric waveguide in which grating structures are created. The gratings provide frequency-selective feedback to the diode enabling a stable oscillation. After the design principle is presented, observed oscillation characteristics of prototype oscillators are reported. Some problems as well as future directions for improvement are discussed. Potential applications as multiple-element high-power oscillators are also proposed.

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