

Abstracts

Highly Stabilized Half-Watt IMPATT Oscillator (Nov. 1970 [T-MTT])

S. Nagano and H. Kondo. "Highly Stabilized Half-Watt IMPATT Oscillator (Nov. 1970 [T-MTT])." 1970 Transactions on Microwave Theory and Techniques 18.11 (Nov. 1970 [T-MTT] (Special Issue on Microwave Circuit Aspects of Avalanche-Diode and Transferred Electron Devices)): 885-890.

An X-band IMPATT oscillator having a stabilized output power of over 0.5 watt has been developed. The oscillator consists of a main cavity and a directly coupled reaction-type cavity for stabilization. The oscillator has a frequency stability of 2.6×10^{-5} over a temperature variation ranging from 0° to 50°C and an rms noise deviation of 15 Hz/1-kHz bandwidth at 500 kHz from the carrier. Design considerations have been made concerning the admittance characteristics of the circuit and of the diode to determine preferable circuit conditions for stabilization. The output-power loss due to the stabilization is as small as 0.4 dB. The oscillator is capable of operation in a frequency range of 10.7 to 11.7 GHz.

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