Abstracts

High-Power 50-GHz Double-Drift-Region IMPATT Oscillators with Improved Bias Circuits for Eliminating Low-Frequency Instabilities

Y. Hirachi, T. Nakagami, Y. Toyama and Y. Fukukawa. "High-Power 50-GHz Double-Drift-Region IMPATT Oscillators with Improved Bias Circuits for Eliminating Low-Frequency Instabilities." 1976 Transactions on Microwave Theory and Techniques 24.11 (Nov. 1976 [T-MTT] (Special Issue on Millimeter Waves: Circuits, Components, and Systems)): 731-737.

Low-frequency instabilities in millimeter-wave double-drift-region (DDR) IMPATT diodes are investigated and new oscillator circuits with the improved bias circuits for eliminating the low-frequency instability are developed. DDR IMPATT diodes mounted in these circuits exhibited a maximum free-running oscillation power of 1.6 W at 55.5 GHz with 11.5-percent conversion efficiency. A highly stabilized oscillator was also constructed with the maximum output power of 1 W and the frequency stabflity 0.3 ppm/mA at 51.86 GHz.

❑ Return to main document.