Abstracts

K-Band High-Power Single-Tuned IMPATT Oscillator Stabilized by Hybrid-Coupled Cavities (Dec. 1972 [T-MTT])

Y. Ito, H. Komizo, T. Meguro, M. Shinoda, T. Oya and Y. Daido. "K-Band High-Power Single-Tuned IMPATT Oscillator Stabilized by Hybrid-Coupled Cavities (Dec. 1972 [T-MTT])." 1972 Transactions on Microwave Theory and Techniques 20.12 (Dec. 1972 [T-MTT] (1972 Symposium Issue)): 799-805.

A K-band high-power and highly stable power source has been developed using a cavity-stabilized IMPATT-diode oscillator followed by a one-stage high-power reflection-type IMPATT-diode amplifier. The power source shows an output power of 0.7 W, a temperature coefficient of 6x10/sup -7//°C, and an FM noise level of 92-Hz rms/1-kHz /bar BW/ at 100 kHz from the carrier. To achieve a highly stable oscillation, free from mode jumping, a new hybrid-coupled cavity circuit with a passivating absorber is applied to stabilize the oscillation. The high-power amplifier is designed using a measured large signal device admittance and a power-adding concept.

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