Abstracts

On the Matching of Transmission Cavity Stabilized Microwave Oscillators

K. Schunemann and R. Nochel. "On the Matching of Transmission Cavity Stabilized Microwave Oscillators." 1978 Transactions on Microwave Theory and Techniques 26.3 (Mar. 1978 [T-MTT]): 147-155.

A matching condition is derived for a transmission cavity stabilized microwave oscillator, which takes account for the power loss in the diode mounting structure. In addition, the power dissipated in the damping resistor--which is commonly used in order to eliminate mode jumping problems--is minimized, thus leading to a useful improvement in both output power and loaded Q-factor of the compound oscillator structure. The effectiveness of the design procedure is finally demonstrated by applying it to a Gunn oscillator realization: at 15 GHz a loaded Q-factor of 6500 could be achieved at the sacrifice of only 2.4-dB overall power loss.

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