Abstracts

Microwave Mode Locking at X Band Using Solid-State Devices

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A theory of mode locking in the microwave regime is presented. The use of solid-state microwave devices for this application is described. A system that has been built using an IMPATT diode as the gain element and a Schottky barrier diode in the role of a saturable absorber is analyzed. Passive, combined passive, and forced mode locking have been demonstrated experimentally. The system had a round-trip time of 25 or 50 ns. Pulse lengths between 4 and 15 ns were observed. Self-starting and stability requirements are investigated.

❑ Return to main document.