Abstracts

Computer-Aided Time and Frequency Domain Measurements of TRAPATT Diode Oscillators

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Because of the multiple frequency nature of TRAPATT diode oscillator operation, circuit optimization is accomplished experimentally, and critical adjustments are usually required for high efficiency operation. In the study reported here, both experimentally-optimized high efficiency and deliberately mistuned TRAPATT circuits were measured in the time domain by a computer-aided time domain automatic network analyzer (TDANA) specifically designed for this application. Time domain reflectometer (TDR) data was used to obtain both the circuit impulse response and circuit admittance as referred to the diode chip. By comparing the results for both optimized and mistuned circuits, it is possible to obtain information on necessary circuit requirements for high efficiency operation.

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