Abstracts

A One Watt CW Avalanche Diode Source or Power Amplifier

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Methods of extending the dynamic range of solid state negative resistance amplifiers have been suggested which employ a "traveling wave" approach, and a cascading approach. This has also been applied to oscillators. There are reports of frequency locking of several coupled oscillators to combine their individual output powers. This paper describes the generation of 1 Watt CW at X-band by a specific method of cascading one avalanche diode oscillator and three avalanche diode power amplifiers. The diodes used are the diffused gallium arsenide units recently constructed in an inverted structure in the Micro State device laboratory, capable of generating over 300 mW CW at X-band.

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