

Abstracts

Spatial power combining of Gunn diodes using an overmoded-waveguide resonator at millimeter wavelengths

Jongsuck Bae, T. Unou, T. Fujii and K. Mizuno. "Spatial power combining of Gunn diodes using an overmoded-waveguide resonator at millimeter wavelengths." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part II [T-MTT] (1998 Symposium Issue)): 2289-2294.

A millimeter-wave oscillator which incorporates an overmoded-waveguide resonator with an array of TE₁₀-mode waveguides containing Gunn diodes, has been developed as a means for achieving highly efficient spatial power combining. This oscillator makes use of mode conversion of radiation power from Gunn diodes in the waveguide array to the overmoded-waveguide resonator to produce high power at millimeter wavelengths. An efficiency of about 83% and an output power of 1.5 W (continuous wave) at 61.4 GHz, has been achieved with a 3/spl times/3 waveguide Gunn diode array.

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