Abstracts

A 94-GHz overmoded waveguide oscillator with Gunn diodes

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Spatial power combining of Gunn diodes with an efficiency of more than 80% has been demonstrated at W-band using an overmoded waveguide resonator with an array of TE/sub 10/ mode waveguides. This resonator makes use of selective coupling between an mxn TE/sub 10/ mode in the waveguide Gunn diode array and the TE/sub m0/ mode in the overmoded waveguide to produce high power. An efficiency of 84 % and an output power of about 0.23 W at 94 GHz, has been achieved using three Gunn diodes. The output mode of TE/sub 30/ in the oscillator has been converted to the fundamental TE/sub 10/ mode with an efficiency of about 80 % using an oversized waveguide with an H-corner.

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