Abstracts

Improved Performance of Fundamental and Second Harmonic MMW Oscillators through Active Device Doping Concentration Contouring

J. Ondria and R.L. Ross. "Improved Performance of Fundamental and Second Harmonic MMW Oscillators through Active Device Doping Concentration Contouring." 1987 MTT-S International Microwave Symposium Digest 87.2 (1987 Vol. II [MWSYM]): 977-980.

The overall performance of mmW Gunn oscillators operating in their fundanmental and second harmonic nodes has been significantly enhanced as a result of several active device design improvements. The effects of altering the active layer doping concentration are compared with standard n/sup ++/nn/sup +/ flat profile GaAs Gunn structures. The standard integral heat sink (IHS) process was used to permit substrate thinning to the extent that overall device thickness was reduced to 10 µm nominally. Profile tailoring to minimize temperature gradients and to permit device operation in the more efficient heat sink-anode configuratiom resulted in an output power of 325 nW near 34 GHz with 6.6 percent efficiency. An output power of 90 mWat 2.75 percent efficiency was achieved at the second harmonic frequency near 68 GHz.

❑ Return to main document.