Abstracts

High Power Gunn Oscillator Diodes on Type-IIA Diamond Heat Sinks

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It has been reported that a parallel connected silicon avalanche oscillator produced 4.7 Watts of CW power at 13.3 GHz. The improved performance of this oscillator resulted from the reduction of the thermal resistance between a wafer and heat sink using a parallel connection of wafers on a diamond pellet. The thermal conductivity of type-IIa diamond has been reported to exceed that of copper. In this report, the type-IIa diamond has been applied to the heat sink of a Gunn oscillator diode in order to reduce the thermal spreading resistance under the wafer of the diode. And a single Gunn oscillator diode with high power output over 600 mW has been developed.

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