Abstracts

Modeling and investigation of instabilities in heterojunction interband tunnel diodes for microwave applications

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The existence of Negative Differential Resistance (NDR) in tunneling diode has led to novel, quantum functional devices and circuits. The enhanced functionality of these devices enables design of both digital and analog circuits with reduced complexity, size and better performance. For many of these applications, the study of the stability criteria and the development of comprehensive CAD model is of great importance for both the design and the development of new devices. In this paper we present the results of the modeling and investigation of instability for InGaAs/InAlAs/InGaAs tunnel diodes having different dimensions. Experimental results, which confirm the conclusions, are presented.

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