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| **Title:** | Temperature comparison of GaAs/AlGaAs based double barrier resonant tunneling diode considering NEGF | | |
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| **Published Journal Name:** | 2017 4th International Conference on Advances in Electrical Engineering (ICAEE) | | |
| **Type of Publication:** | Conference paper | | |
| **Volume:** |  | Issue |  |
| **Publisher:** | IEEE | | |
| **Publication Date:** | 15 January 2018 | | |
| **ISBN:** | 978-1-5386-0869-2 | | |
|  |  | | |
| **DOI:** | [10.1109/ICAEE.2017.8255324](https://doi.org/10.1109/ICAEE.2017.8255324) | | |
| **URL:** | https://ieeexplore.ieee.org/document/8255324 | | |
| **Other Related Info.:** |  | | |
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| **Abstract:** |  |
| The present and projected trends of semiconductor electronics are low power consumption, high speed, small in size and high-level reliability. To continue this trends we need a new technology over conventional CMOS technology. The Resonant Tunneling Diode (RTD) has very impressive characteristics, such as a high intrinsic cut-off frequency (theoretical value in the approximate THz range), low voltage operation and current peaks associated with Negative Differential Resistance (NDR) regions which can overcome this type of matters and take an important role in the field of nanoscale digital and analog applications. In this paper, Gallium Arsenide/ Aluminium Gallium Arsenide (GaAs/AlGaAs) based Double Barrier Resonant Tunneling Diode (DBRTD) is studied for two different models: semi-classical Thomas-Fermi model and Hartree quantum charge model to evaluate the performance of those model in different temperature. | |