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Accession number:20113614302181 Title:Simulation and calculation of I-V characteristics of GaAs MESFET in THz detection Authors:Li, Fan (1); Shi, Yanli (1); Zhao, Lusheng (1); Xu, Wen (2) Author affiliation:(1) Kunming Institute of Physics, Kunming 650223, China; (2) Hefei Institute of Solid Physics, Chinese Acad. of Sci., Hefei 230037, China Corresponding author:Li, F.(supernjr@gmail.com) Source title:Hongwai yu Jiguang Gongcheng/Infrared and Laser Engineering Abbreviated source title: Hongwai yu Jiguang Gongcheng Infrared Laser Eng. Volume:40 Issue:7 Issue date:July 2011 Publication year:2011 Pages:1205-1208 Language:Chinese ISSN:10072276 Document type: Journal article (JA) Publisher: Chinese Society of Astronautics, P.O. Box 225-32, Tianjin, 300192, China Abstract: The compound semiconductor material GaAs whose intrinsic carriver concentration is about 104 times lower than that of the material Si,and electron mobility is about 5 times larger than that of the material Si,and resistance rate is about 108 Ωcm,can reduce the parasitic capacitance and leakage current. The device processing is also easily to realize large-scale

integration.GaAs MESFET could be made.At present,terahertz(THz) detection based on bulk plasmons in GaAs MESFET has obtained a larger development in abroad.In order to further study the MESFET devices characteristics,GaAs MESFET devices model was established in this paper,which referred the present abroad device structures.Synopsys device simulation software was used to solve Poisson equation,and calculate its current-voltage characteristics.The simulation

result and measurement results agree well with each other.

Number of references:8