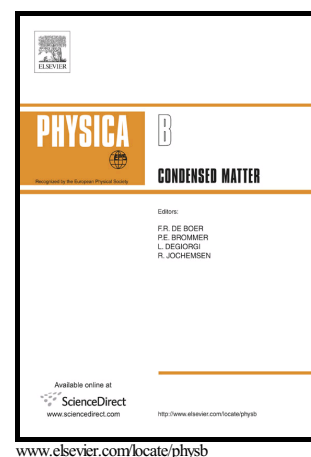


Impacts of growth orientation and N incorporation on the interface-states and the electrical characteristics of Cu/GaAsN Schottky barrier diodes

Chen Dong, Xiuxun Han, Jian Li, Xin Gao, Yoshio Ohshita



PII: S0921-4526(17)30720-2
DOI: <https://doi.org/10.1016/j.physb.2017.09.125>
Reference: PHYSB310351

To appear in: *Physica B: Physics of Condensed Matter*

Received date: 20 August 2017
Revised date: 27 September 2017
Accepted date: 28 September 2017

Cite this article as: Chen Dong, Xiuxun Han, Jian Li, Xin Gao and Yoshio Ohshita, Impacts of growth orientation and N incorporation on the interface-states and the electrical characteristics of Cu/GaAsN Schottky barrier diodes, *Physica B: Physics of Condensed Matter*, <https://doi.org/10.1016/j.physb.2017.09.125>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Impacts of growth orientation and N incorporation on the interface-states and the electrical characteristics of Cu/GaAsN Schottky barrier diodes

Chen Dong^{a,b}, Xiuxun Han^{a,c*}, Jian Li^a, Xin Gao^d, Yoshio Ohshita^e

^a *Laboratory of Clean Energy Chemistry and Materials, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, PR China*

^b *University of Chinese Academy of Sciences, Beijing 100080, PR China*

^c *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou 730000, PR China*

^d *Science and Technology on Vacuum Technology and Physics Laboratory, Lanzhou Institute of Physics, Lanzhou 730000, PR China*

^e *Toyota Technological Institute, 2-12-1 Hisakata, Tempaku, Nagoya, 468-8511, Japan*

* Corresponding author. Tel: +86 931 4968054; E-mail address: xxhan@licp.cas.cn

Abstract

The frequency dependent capacitance-voltage (C-V) and conductance-voltage (G/ω -V) characteristics of Schottky barrier diodes (SBDs) with Cu contacts on Si doped GaAsN epilayers with (100) and (311)A/B orientations have been investigated in the frequency range from 20KHz to 1MHz at room temperature. C, G/ω and the deduced series resistance (R_s) show strong dependences on the applied frequency in the forward bias region, which is closely correlated to the frequency-dependent response of interface states (N_{ss}). In GaAsN SBDs with all three growth orientations, the increasing N

Download English Version:

<https://daneshyari.com/en/article/5491728>

Download Persian Version:

<https://daneshyari.com/article/5491728>

[Daneshyari.com](https://daneshyari.com)