IOPscience

LETTER

Normally-off GaN HEMTs with InGaN p-gate cap layer formed by polarization doping

Changkun Zeng[1], Weizong Xu[1], Yuanyang Xia[2], Ke Wang[2], Fangfang Ren[1], Dong Zhou[1], Yiheng Li[2], Tinggang Zhu[2], Dunjun Chen[1], Rong Zhang[1]

+Show full author list

Published 17 December 2021 • © 2021 The Japan Society of Applied Physics

Applied Physics Express, Volume 15, Number 1

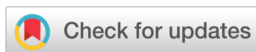
Citation Changkun Zeng *et al* 2022 *Appl. Phys. Express* **15** 016502

wz.xu@nju.edu.cn
hailu@nju.edu.cn

[1] School of Electronic Science and Engineering, Nanjing University, Nanjing 210093, People's Republic of China

[2] CorEnergy Semiconductor Co. Ltd, Suzhou 215600, People's Republic of China

Received 8 October 2021
Revised 21 November 2021
Accepted 5 December 2021
Published 17 December 2021



https://doi.org/10.35848/1882-0786/ac407e

Buy this article in print

Journal RSS

Sign up for new issue notifications

Create citation alert

Abstract

Narrow gate margin has been the critical limiting factor for the p-gate normally-off GaN HEMTs, imposing significant challenges in both gate drive design and gate reliability. In this work, by developing dopant-free p-type polarization doping

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

technique in composition-graded InGaN layer, high-quality Schottky contact between the gate metal and cap layer was demonstrated, achieving excellent gate current blocking performance (10^{-6} mA mm^{-1}) after the turning-on of the gate heterojunction structure. Resultantly, normally-off GaN HEMTs with enhanced gate breakdown voltage up to 15.2 V was realized, being especially beneficial for the simplification of gate drive design and the safe operation of gate terminal.

Export citation and abstract BibTeX RIS

Previous article in issue

Next article in issue

Access this article

The computer you are using is not registered by an institution with a subscription to this article. Please choose one of the options below.

Login

Access through your institution

IOPscience login

JSAP member access

Find out more about journal subscriptions at your site.

Purchase from

Article Galaxy
CCC RightFind

Purchase this article from our trusted document delivery partners.

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

Rent from

This article is available from DeepDyve.

Make a recommendation

To gain access to this content, please complete the Recommendation Form and we will follow up with your librarian or Institution on your behalf.

For corporate researchers we can also follow up directly with your R&D manager, or the information management contact at your company. Institutional subscribers have access to the current volume, plus a 10-year back file (where available).

You may also like

JOURNAL ARTICLES

The impact of gate misalignment on the analog performance of a dual-material double gate junctionless transistor

Ultra-Low Drift Voltage by Using Gate Voltage Control in Oxide-Based Gate ISFET

Impact of Gate Offset in Gate Recess on DC and RF Performance of InAlAs/InGaAs InP-based HEMTs

Direct tunneling gate current model for symmetric double gate junctionless transistor with SiO_2/high-*k* gate stacked dielectric

The Gate Cut Process Window Discussion

A statistical Model to simulate the Geometry of the Tunnel Gates Lips

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.

This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out more, see our Privacy and Cookies policy.