Electrical Characteristics and Photodetect Mechanism of TiO$_2$/AlGaN/GaN Heterostructure-Based Ultraviolet Detectors with Schottky Junction

Teng Zhan,$^{a,c}$ Jianwen Sun,$^{b}$ Tao Feng,$^{a,c}$ Yulong Zhang,$^b$ Binru Zhou,$^{a,c}$ Banghong Zhang,$^a$ Junxi Wang,$^{a,c}$ Pasqualina M. Sarro,$^d$ and Guoqi Zhang,$^d$ Zewen Liu,$^{*,b}$ Xiaoyan Yi,$^{*,a,c}$ Jinmin Li$^{*,a,c}$

a. Research and Development Center for Solid State Lighting, Institute of Semiconductors, Chinese Academy of Sciences, Qinghua East Road 35A, 100083, Beijing, China.
b. Institute of Integrated Circuits, Tsinghua University, 100084, Beijing, China.
c. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, No. 19A Yuquan Road, Beijing, 100049, China.
d. Department of Microelectronics, Delft University of Technology, 2628 CD Delft, the Netherlands.

‡ Teng Zhan and Jianwen Sun contributed equally to this paper.

* Coresspondence to: liuzw@tsinghua.edu.cn, spring@semi.ac.cn, jmli@semi.ac.cn.
Figure S1 The optical image of a single chip and TO-46 package
**Figure S2** Schematic drawing of the cross-section of the TiO$_2$/AlGaN/GaN heterostructure photodetector with a Schottky junction
Figure S3 $I-V$ characteristics of the Schottky junction–based TiO$_2$/AlGaN/GaN heterostructure UV photodetector under 274 nm light illumination with different intensities of applied voltages ranging from −5 V to 0 V on a linear current scale.