
Supporting Information

A humid-air-operable, NO₂-responsive polymer transistor series circuit with improved signal-to-drift ratio based on polymer semiconductor oxidation

Huidong Fan^{1,2}, Hui Li¹, Jinfeng Han¹, Nathaniel McKeever¹, Junsheng Yu², Howard E. Katz^{1*}

¹Department of Materials Science and Engineering, Whiting School of Engineering, Johns Hopkins University, 3400 North Charles Street, Baltimore, Maryland 21218, United States

²State Key Laboratory of Electronic Thin Films and Integrated Devices, School of Optoelectronic Information, University of Electronic Science and Technology of China (UESTC), Chengdu 610054, P. R. China

**Corresponding author; email hekatz@jhu.edu*

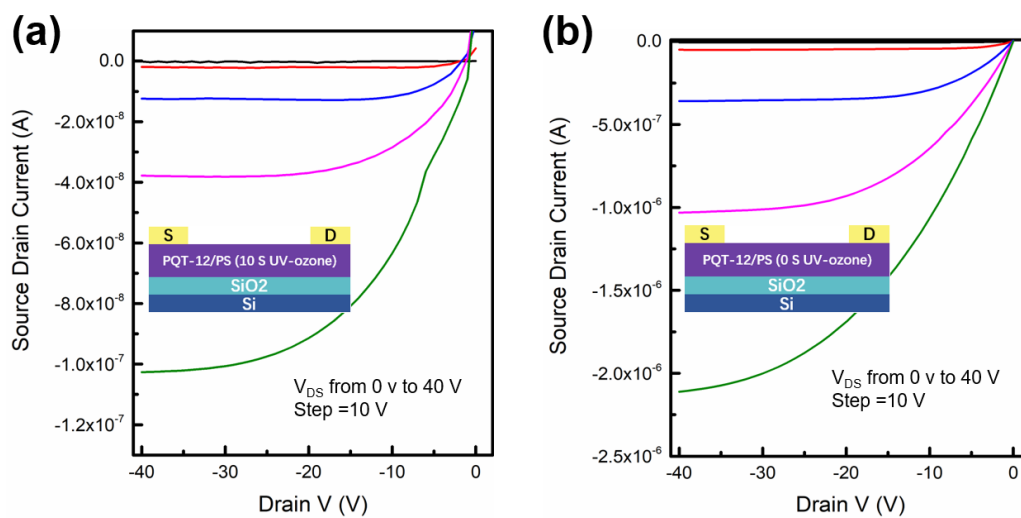


Figure S1. Output curves of the single devices exposed to (a) 10 s UV-ozone (b) 0 s UV-ozone.

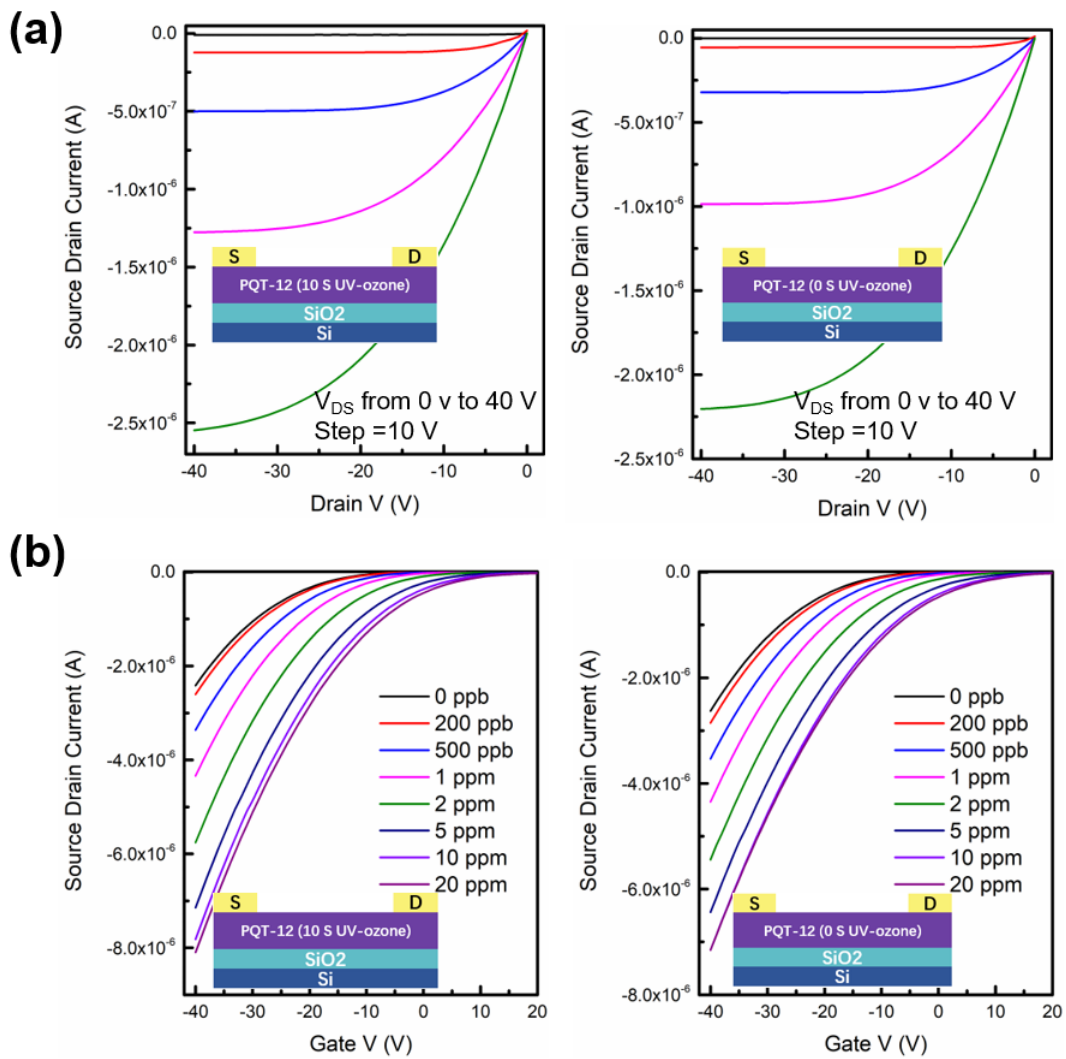


Figure S2. (a) Output curves and (b) the sensing performance of the pure PQT-12 devices with or without 10 s UV-ozone treatment.

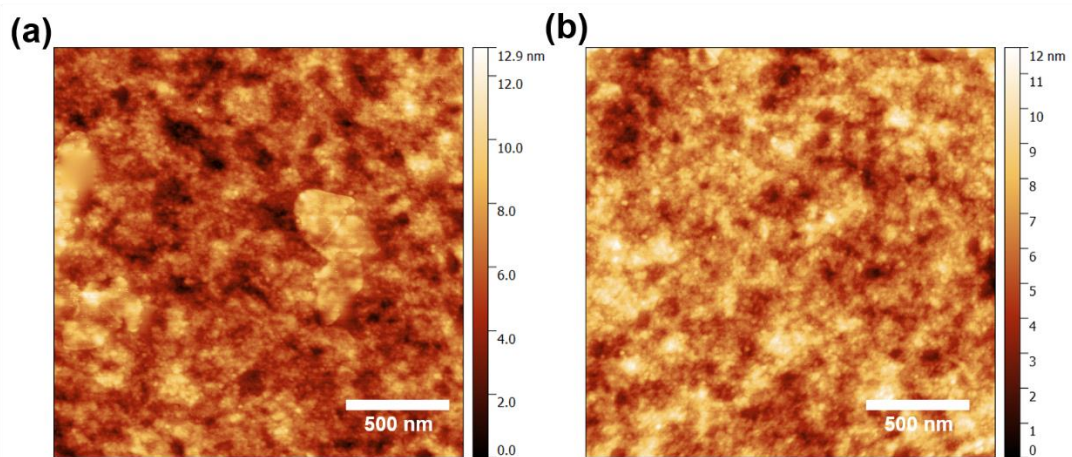


Figure S3. AFM images of PQT-12/PS blend film with (a) 0 s and (b) 10 s UV-Ozone treatment.

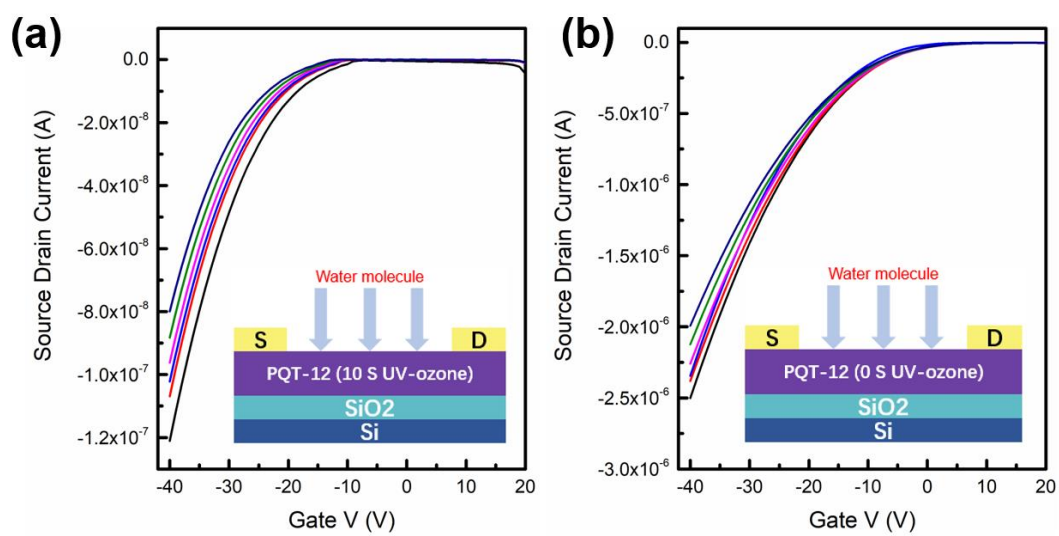


Figure S4. Response towards humid environment of the (a) 10 s UV-ozone device (b) 0 s UV-ozone device.

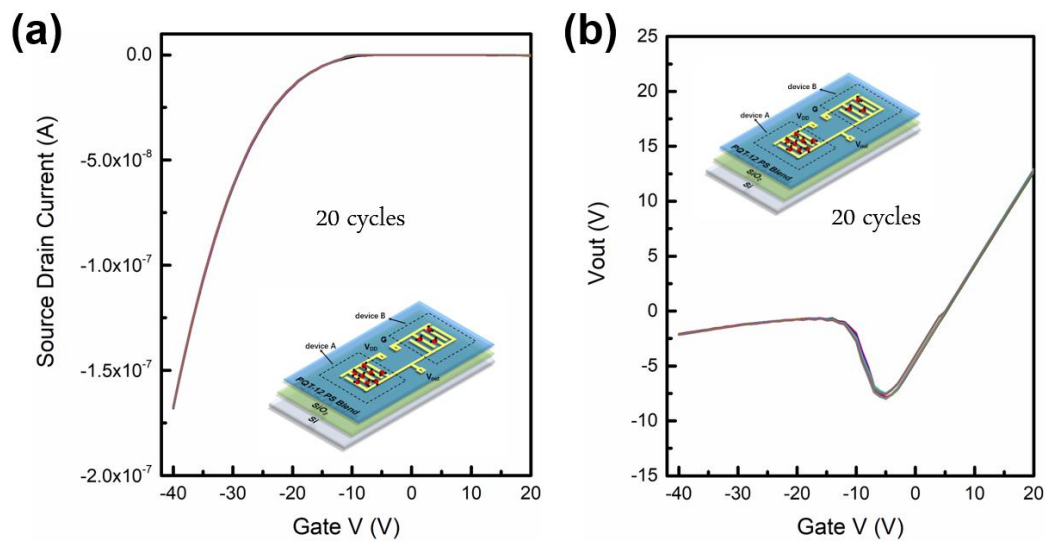


Figure S5. (a) On current and (b) V_{out} of the logic circuit under 20 cycles test.

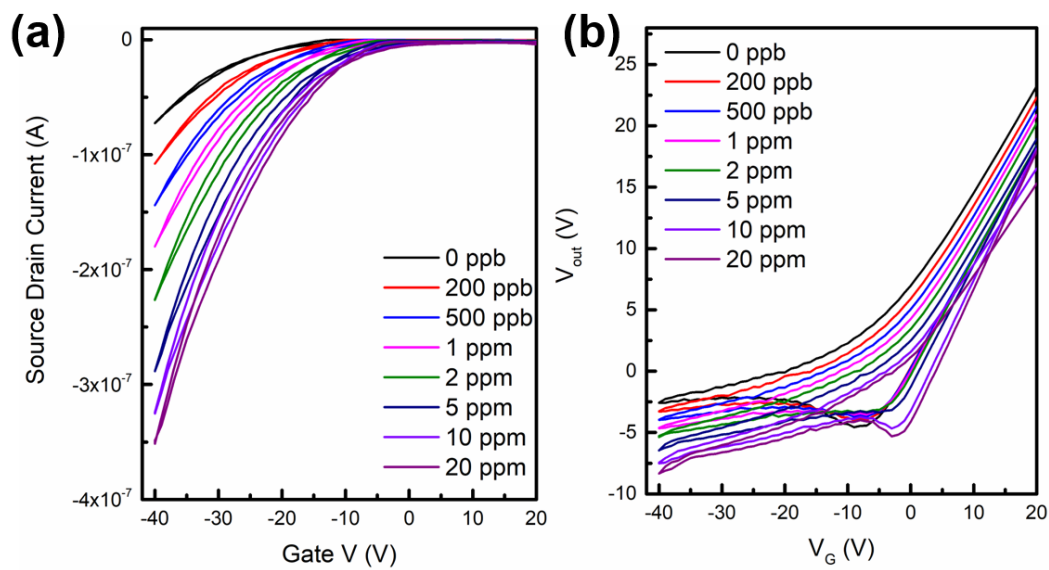


Figure S6. After being stored in air for 2 weeks, (a) I_{DS} and (b) V_{out} of the logic series circuit when exposed to different NO₂ concentrations

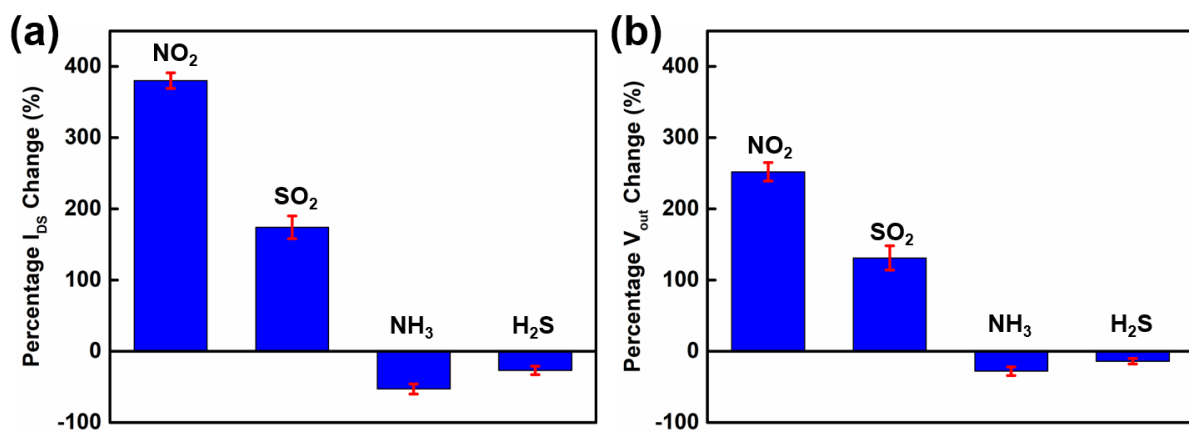


Figure S7. Response of (a) I_{DS} and (b) V_{out} after exposure to common gases, NO_2 (5 ppm), SO_2 (5 ppm), NH_3 (5 ppm), H_2S (5 ppm)