Fast Patterning of Oriented Organic Microstripes for Field-effect Ammonia Gas Sensors

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Fig. S1 Molecular structure of DTBDT-C6 molecule and SEM image of DTBDT-C6 microstripes dip-coated on bare SiO$_2$/Si substrate and evaporated in toluene,

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Fig. S2 The area-selective behavior of DTBDT-C6 on hydrophobic surfaces with different geometry of the gold electrodes. The treatment time with OTS is 6 h, pulling direction is upwards, lifting rate is 2000 μm/s and scale bar is 500 μm.
Fig. S3. Output characteristics of top-contact OFETs with DTBDT-C6 microstripes grown on (a) Si/SiO$_2$ substrate, Output characteristics of bottom-contact OFETs with DTBDT-C6 microstripes grown on (b) Si/SiO$_2$ substrate treated with OTS for 6 h and evaporated in the toluene vapor atmosphere slowly, (c) Si/SiO$_2$ substrate treated with OTS for 6 h and evaporated fast in air. The channel length is 50 μm.
Fig. S4 (a) Sensing curve, i.e., plot of absolute source-drain current versus time with exposure to NH$_3$/N$_2$ mixed gas or pure N$_2$. $V_{GS}$ and $V_{DS}$ are fixed at -40 V. The grey bars indicate the exposure of 50 ppm NH$_3$/N$_2$ mixed gas. (b) Enlarged panel in (a), showing the detailed shape of sensing curves and definition of response/recovery time.

Fig. S5 Plot of absolute source-drain current versus time with exposure to NH$_3$/N$_2$ mixed gas or pure N$_2$ for patterned OFETs with microstripes evaporated in toluene vapor. $V_{GS}$ and $V_{DS}$ are fixed at -40 V. The grey bars indicate the exposure of 50 ppm NH$_3$/N$_2$ mixed gas.
Fig. S6 Plot of absolute source-drain current versus time with exposure to NH$_3$/N$_2$ mixed gas or pure N$_2$ for patterned OFETs with microstripes evaporated in air. $V_{GS}$ and $V_{DS}$ are fixed at -40 V. The grey bars indicate the exposure of 50 ppm NH$_3$/N$_2$ mixed gas.