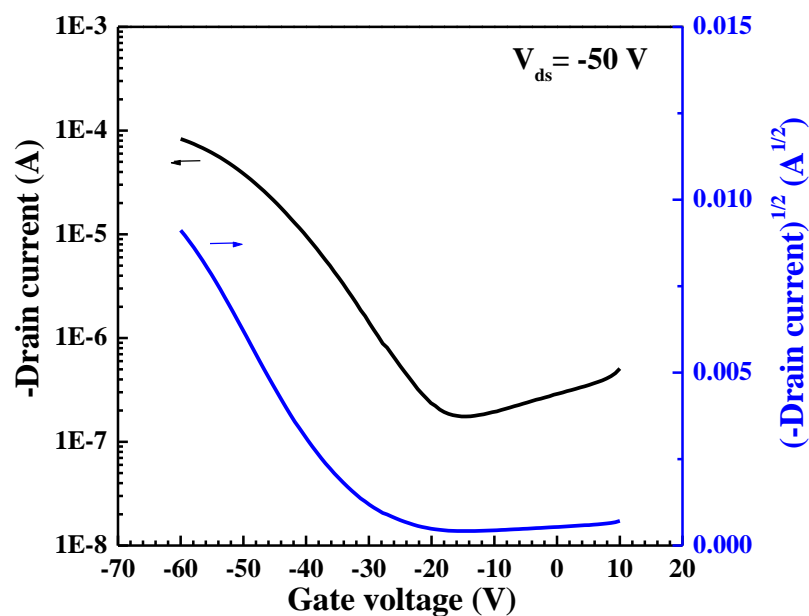


**Fig. S1** Transfer characteristic curves ( $I_{ds}$  vs.  $V_{gs}$ , and  $I_{ds}^{1/2}$  vs.  $V_{gs}$ ) of the C<sub>10</sub>-BTBT TFT with a KPI gate insulator.

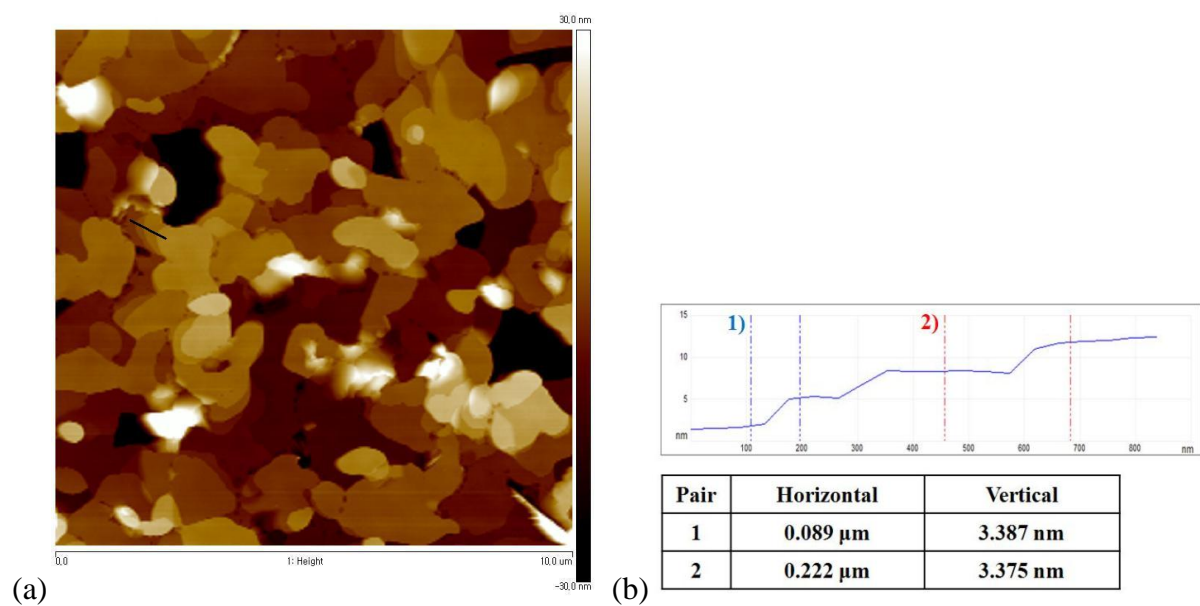


**Table S1** Electrical characteristics of the C<sub>10</sub>-BTBT TFTs with KPI and KPI-C<sub>18</sub> gate insulators

Performance parameter [ $L/W = 50/3000$ ] <sup>a</sup>					
Gate insulator	Mobility	$I_{on}/I_{off}$	$I_{off}$ (A)	S-slope (V/Dec)	$V_{th}$ (V)
	( $\text{cm}^2/\text{V}\cdot\text{s}$ )				
KPI	0.34	$4.7 \times 10^2$	$-1.7 \times 10^{-7}$	11.6	-30.9
KPI-C <sub>18</sub>	0.56	$1.3 \times 10^5$	$-3.1 \times 10^{-10}$	4.6	-44.0

<sup>a</sup> Ratio of channel length to width.

**Fig. S2** (a) AFM image and (b) the height profile of the F<sub>4</sub>TCNQ-doped C<sub>10</sub>-BTBT layer on KPI-C<sub>18</sub>. The height profile is given for the black line.



**Fig. S3** AFM images of the C<sub>10</sub>-BTBT layer on KPI.

