Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C

Supplementary Information

Inkjet-Printed Organic Thin Film Transistors Based on TIPS Pentacene with Insulating Polymer

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Song Yun Cho and Jung Min Ko contributed equally to this work.

Additional Figures

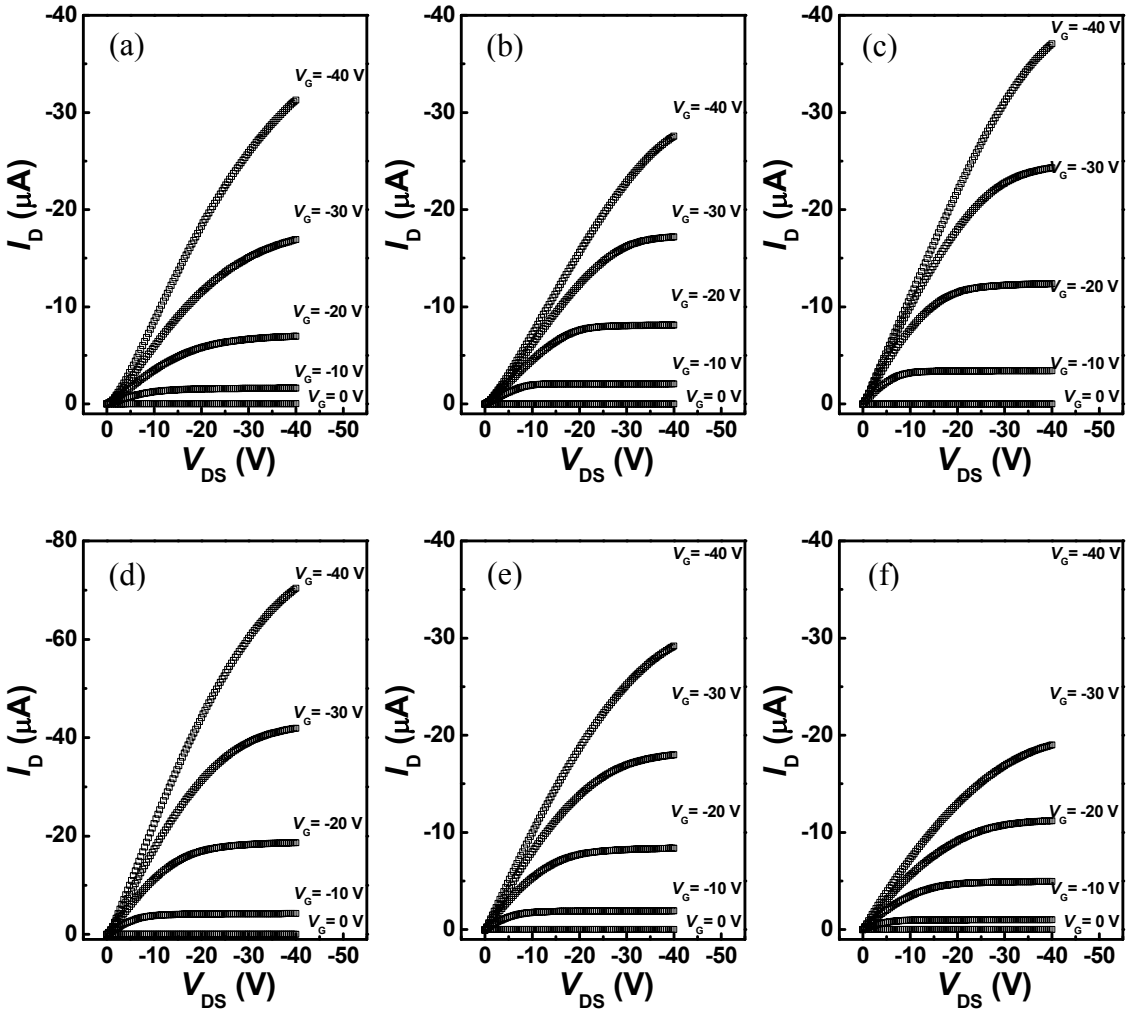
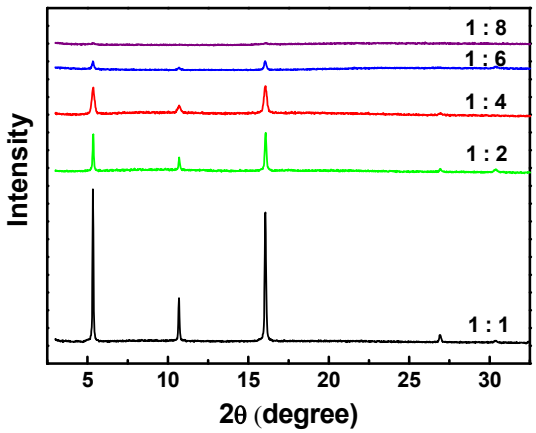


Fig. S1. The output characteristics of the TIPS pentacene/APC TFTs fabricated using various TIPS pentacene/APC ratios in an inkjet-printing process: (a) 1:0, (b) 1:1, (c) 1:2, (d) 1:4, (e) 1:6, and (f) 1: 8.

(a)



(b)

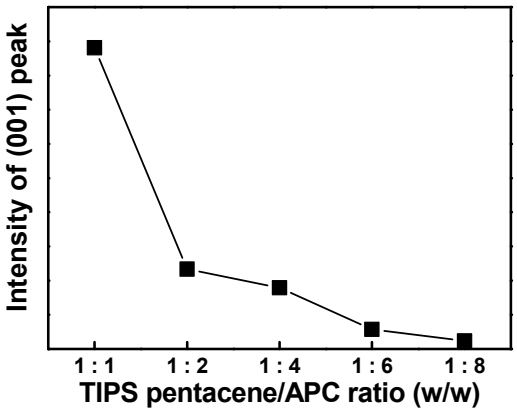


Fig. S2. (a) XRD patterns and (b) intensity of (001) peak of inkjet-printed polymer/TIPS pentacene with respect to various TIPS pentacene/APC ratios.

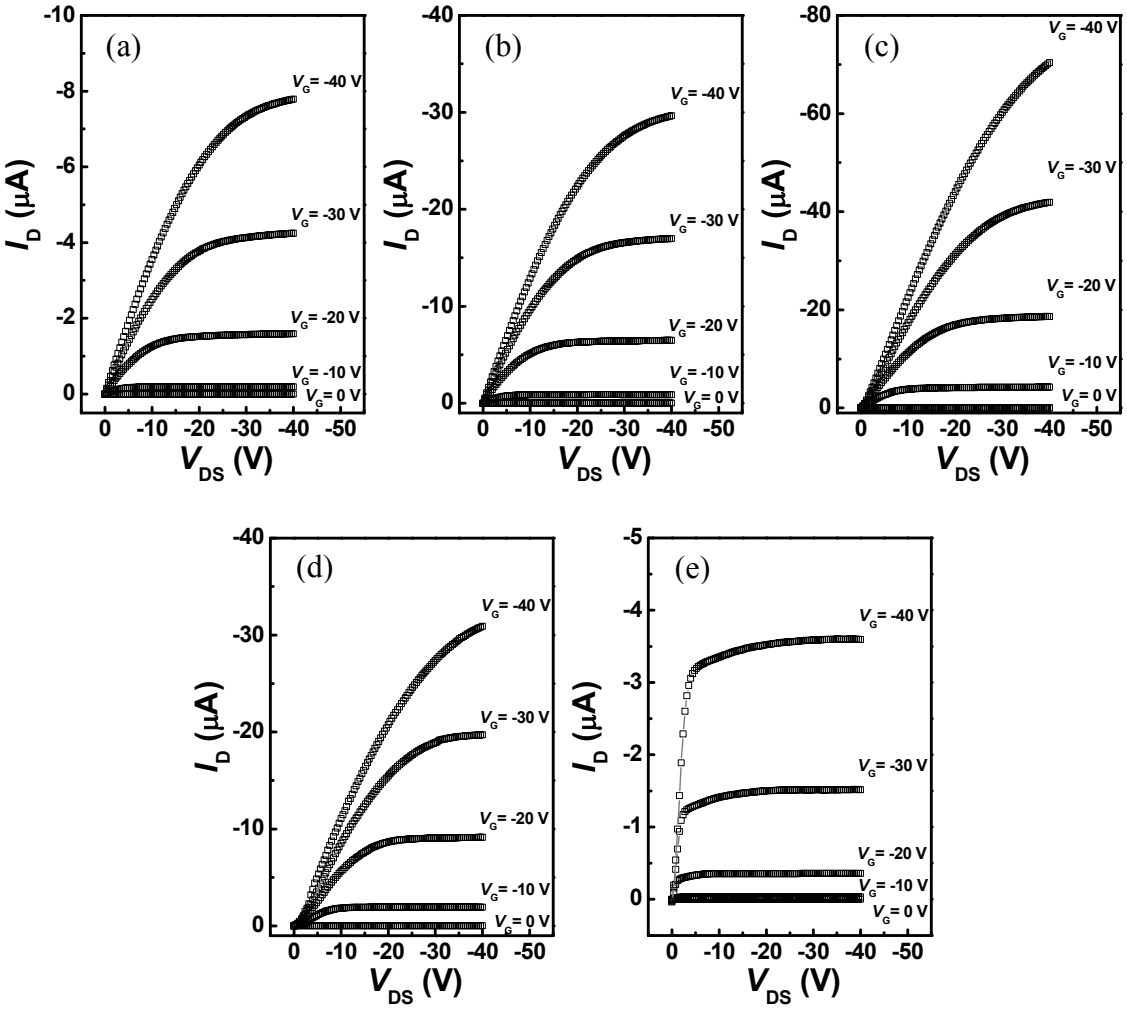


Fig. S3. The output characteristics of the TIPS pentacene/APC TFTs depending on the TIPS pentacene/APC ink concentration: (a) 0.1, (b) 0.5, (c) 1.0, (d) 1.5, and (e) 2.0 wt%.

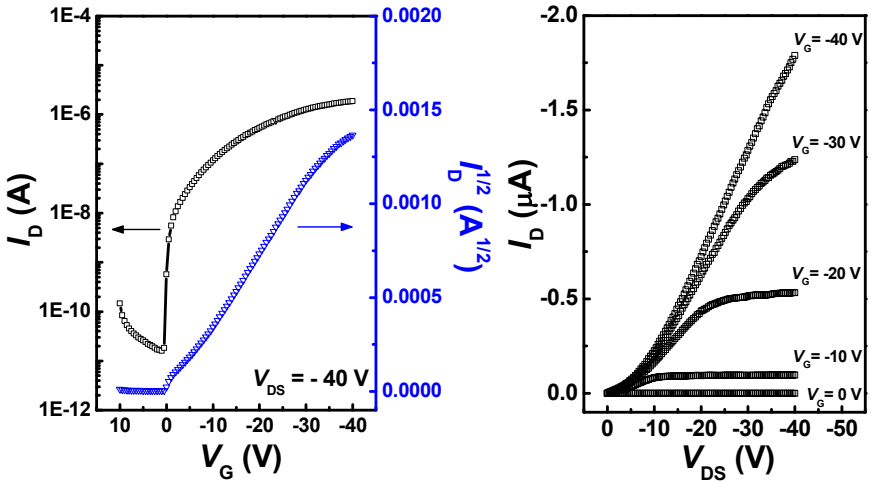


Fig. S4. The transfer and output characteristics of the TIPS pentacene/APC TFTs with a bottom-gate/bottom contact structure, showing a carrier mobility of 0.018 $cm^2 V^{-1} s^{-1}$.

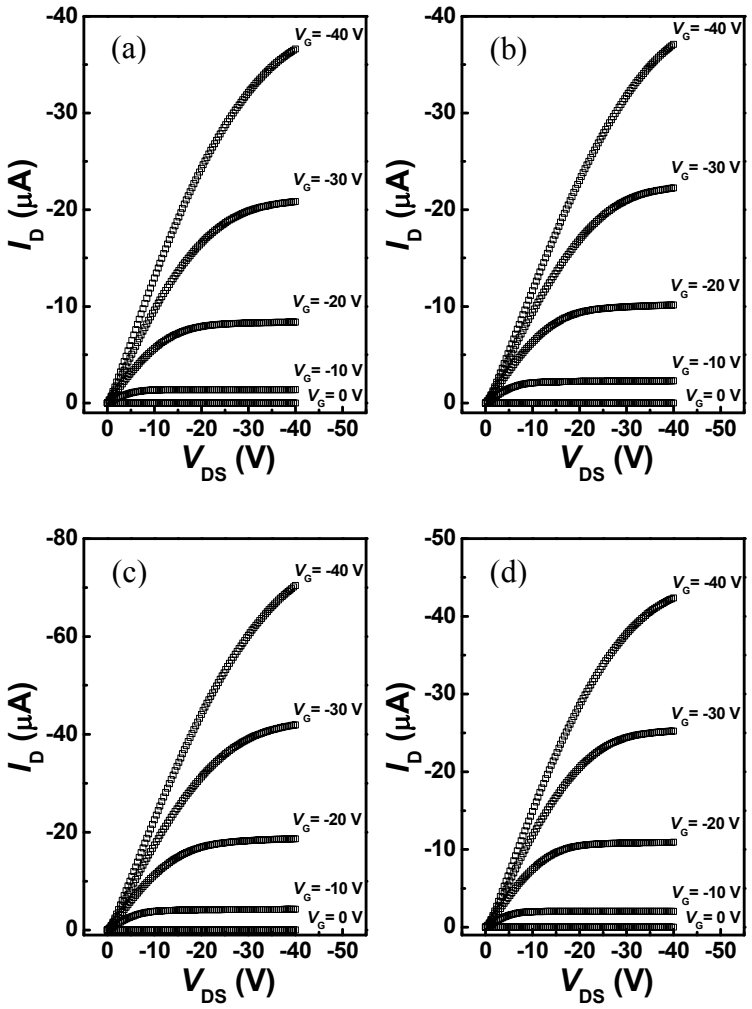


Fig. S5. The output characteristics of the TIPS pentacene/APC TFTs depending on the solvent mixtures: (a) toluene/chloroform, (b) toluene, (c) toluene/*p*-xylene, and (d) toluene/tetralin.

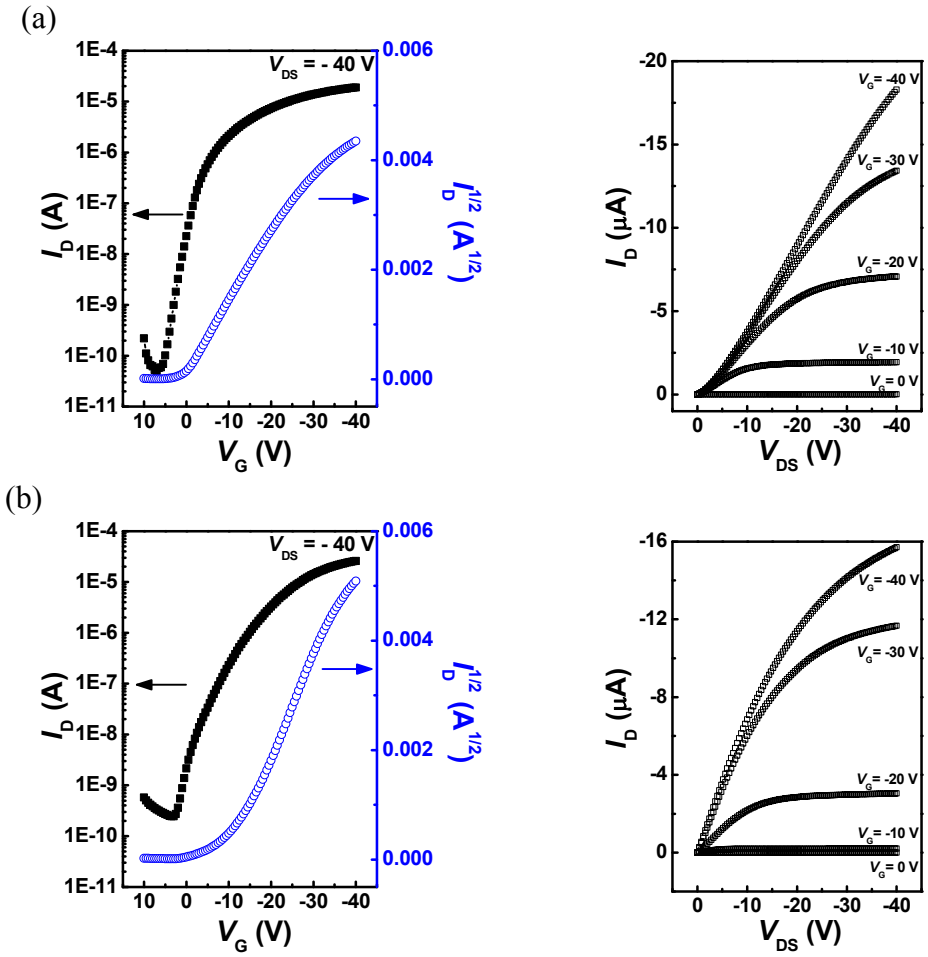
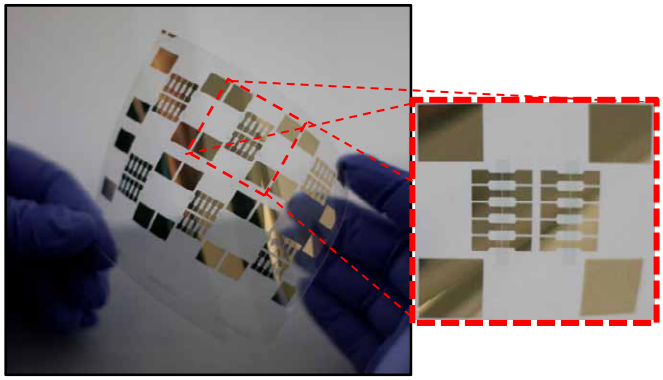


Fig. S6. The transfer and output characteristics of the (a) TIPS pentacene/PS and (b) TIPS pentacene/PαMS TFTs fabricated in an inkjet-printing process.

(a)



(b)

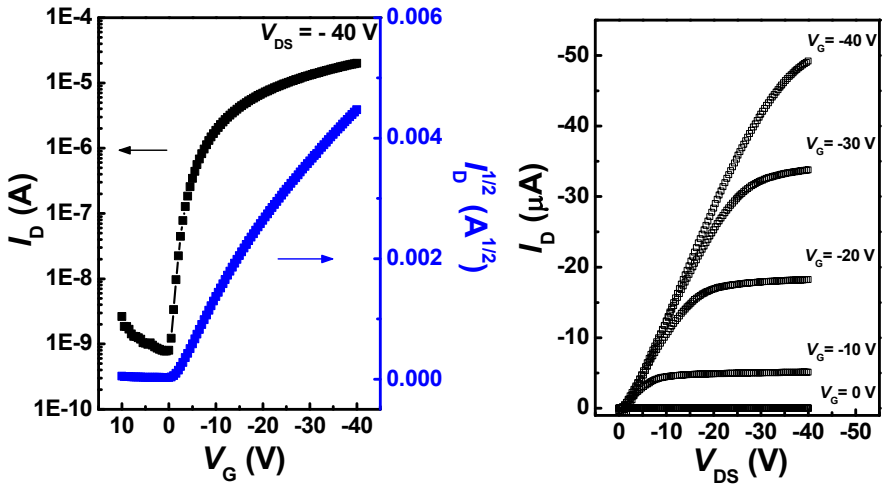


Fig. S7. (a) Photographs of the inkjet-printed TIPS pentacene/APC TFT array on the PET substrate and (b) the transfer and output characteristics of one single unit TFT in the array.