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


# Supporting Information for:

# Fabrication of Ultra-flexible, Ultra-thin Organic Field-effect Transistors and Circuits by a Peeling-off Method

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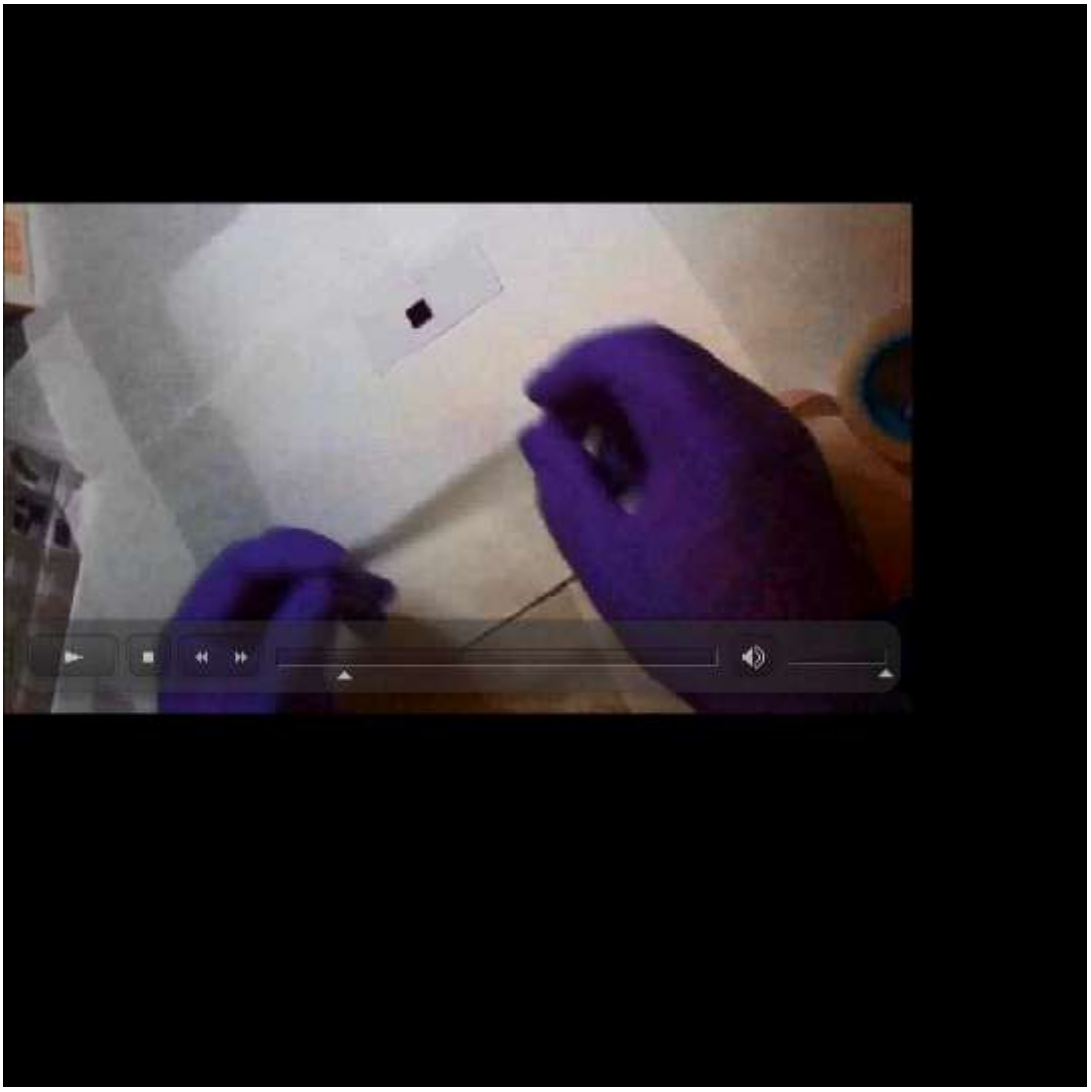
1. Video of processes of fabricating flexbile organic device by the peeling-off method.



2. The properties of typical N2200 device with PS dielectric prepared by the peeling-off method.

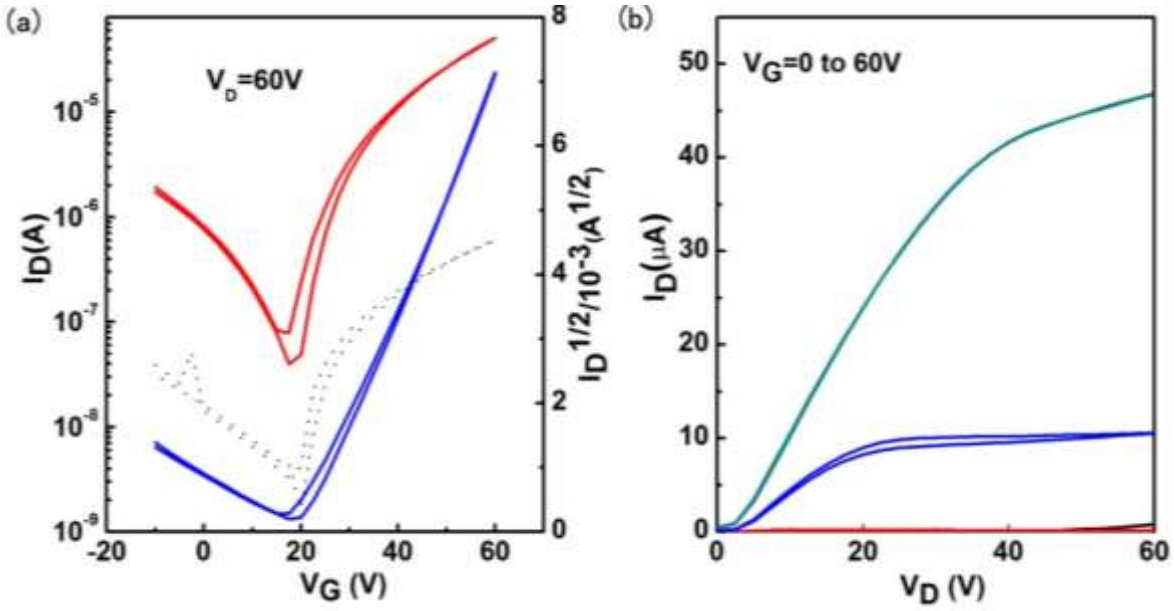



**Fig. S1** (a) Transfer and (b) output characteristics of the N2200 device using PS as the dielectric.

3. Summarized parameters characterizing electrical performance of the flexible devices.

**Table S1** Electrical parameters of the flexible devices made by peeling-off methods (an average of 5 devices for each semiconductor material)

| | Mobility ($cm^2/Vs$) | Threshold voltage (V) | On/off ratio |
|---|---|---|---|
| N2200 | 0.13±0.02 | 23±3 | $5\times10^3$ |
| pBTTT | 0.27±0.08 | -20±2 | $10^5$ |

4. Comparison of device performance before and after peeling-off process.

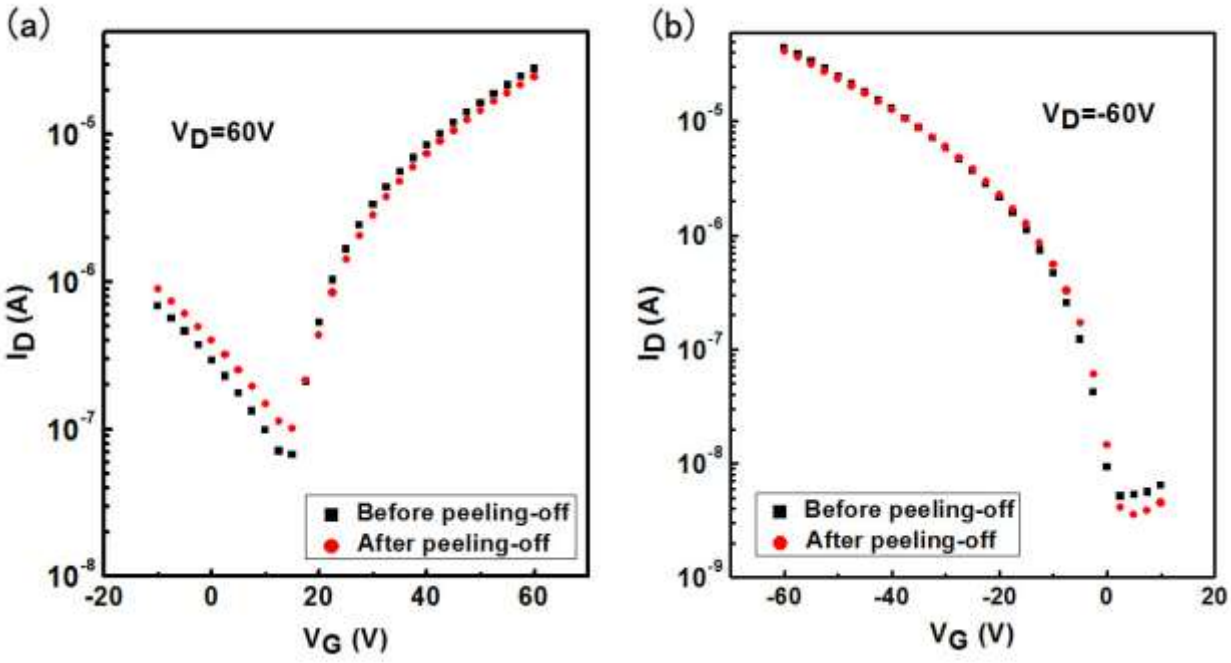



**Fig. S2** Transfer curves of the (a) N2200 and (b) pBTTT devices before (i.e. on the rigid $SiO_2$ substrates) and after the peeling-off process.

5. Extremly bending test of the pBTTT device.

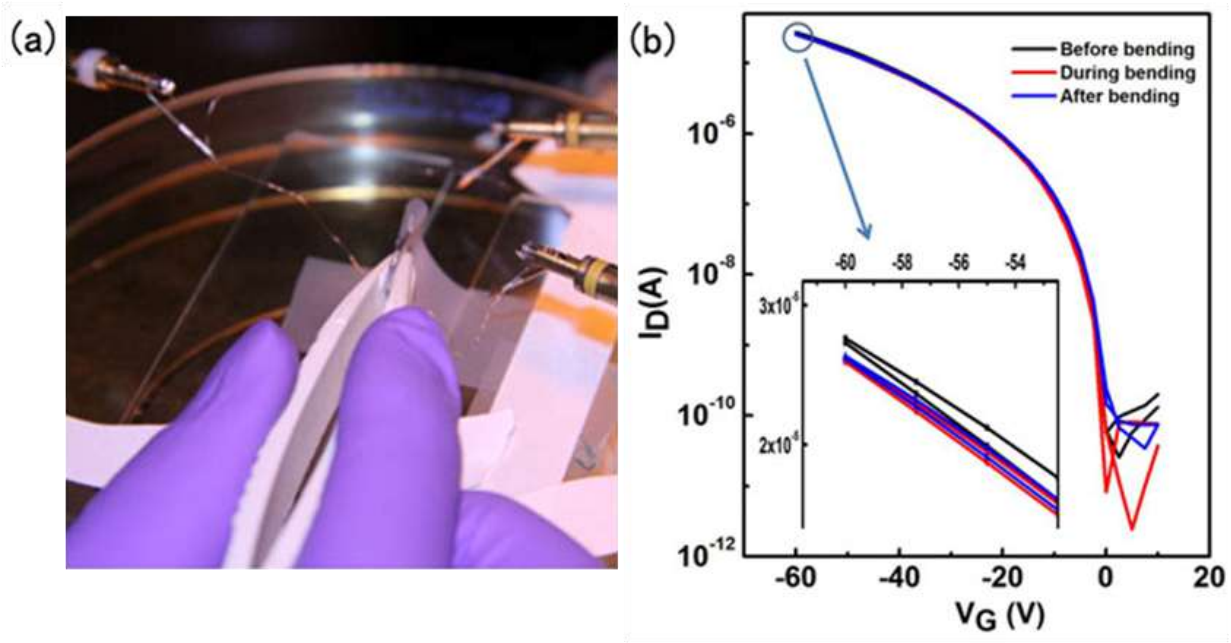



**Fig. S3** (a) Optical image of bending the flexible device to a great degree. (b) Transfer characteristics of the pBTTT device measured before, during and after bending process.

6. Typical free-standing device fabricated by the peeling-off method.

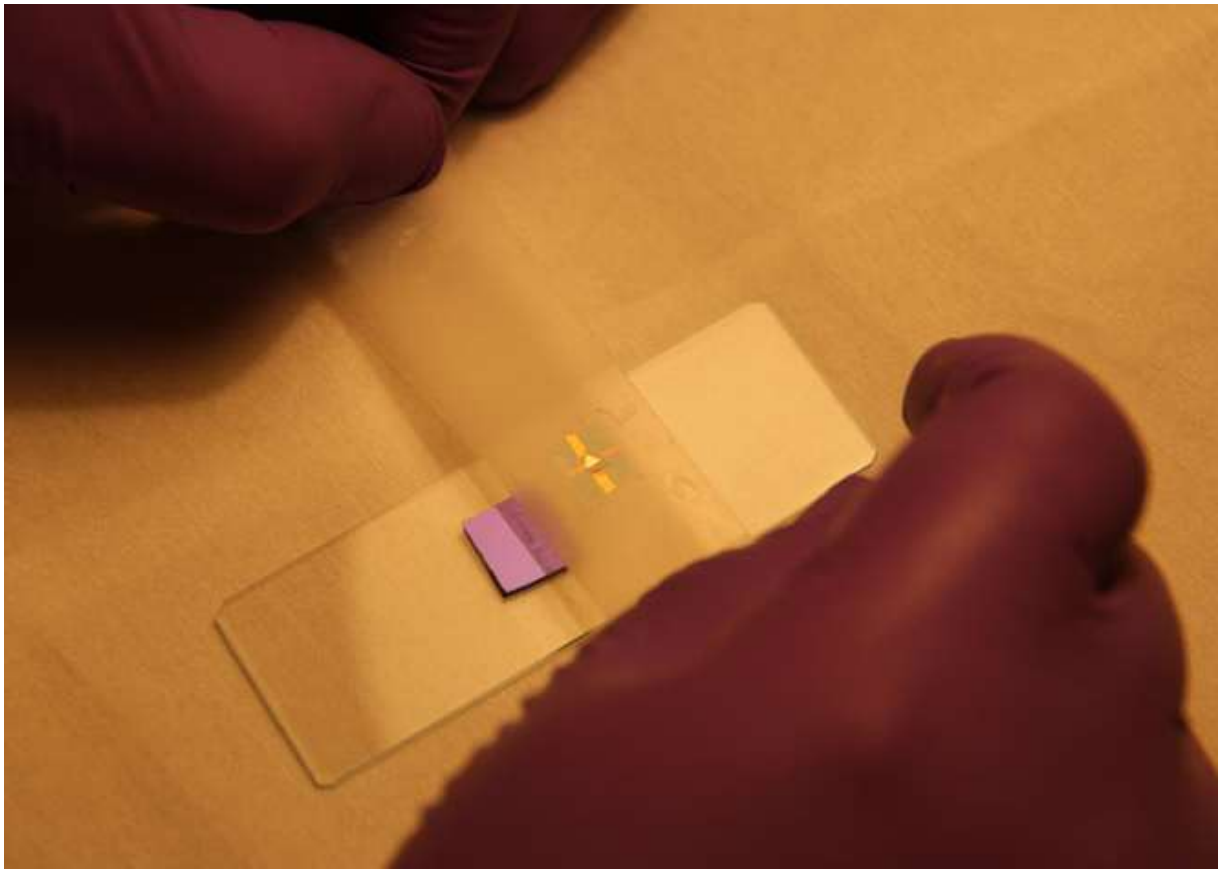


**Fig. S4** Photo of a free-standing device peeled off from an OTS-treated $SiO_2$ substrate. There is a hole in the middle of the tape and this hole is aligned exactly to the device when placing the tape onto the substrate. After peeling off process, the device is free-standing without substrate.

7. The properties of typical free-standing N2200 device with PMMA as dielectric.

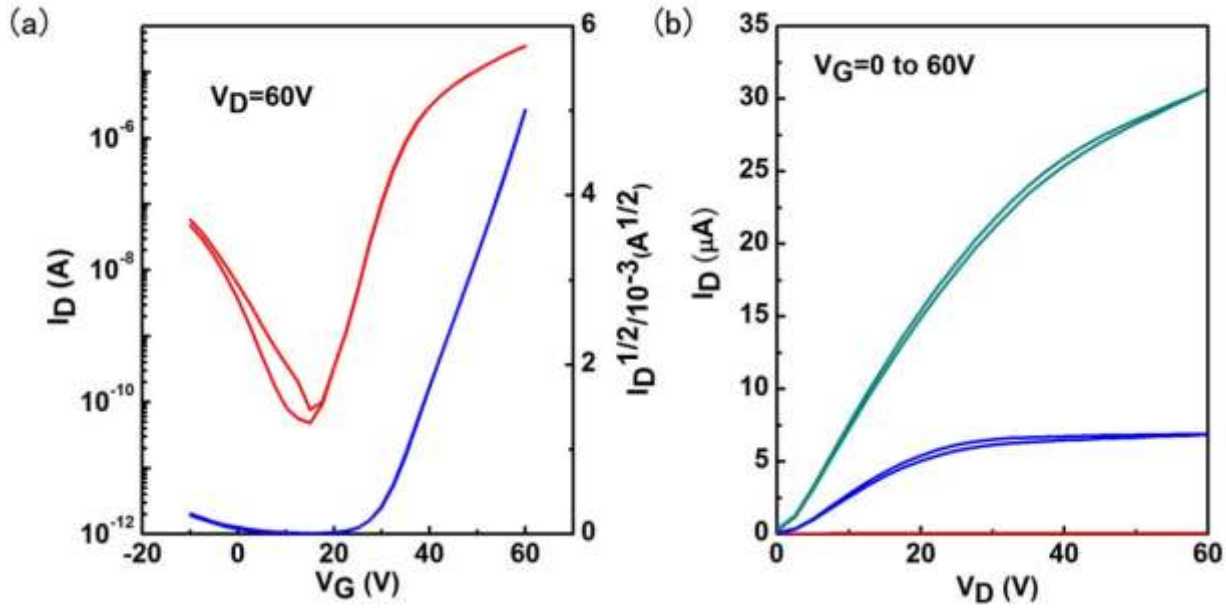



**Fig. S5** (a) Transfer and (b) output characteristics of the free-standing N2200 device with PMMA as dielectric.