

## Support information

### Double-side responsive polymer infrared photodetectors via transfer-printed electrode

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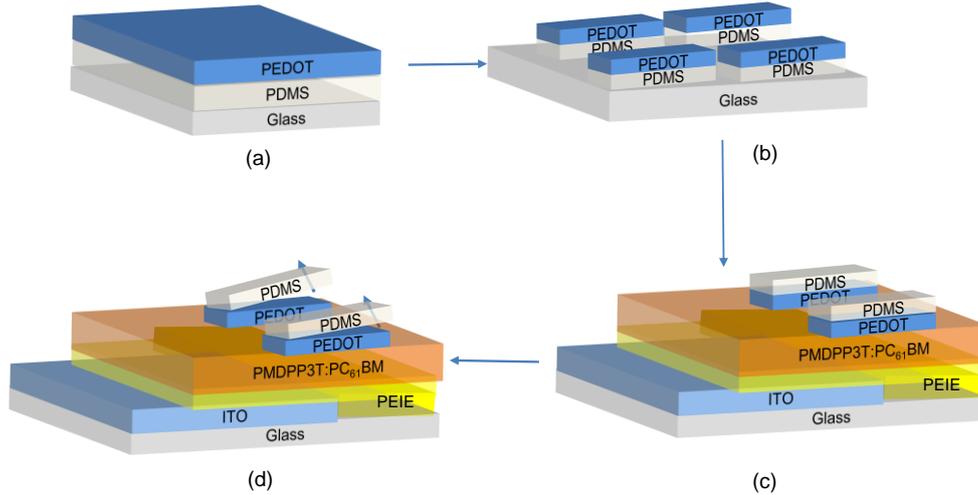


Figure S1 Schematic drawing of the procedure of fabricating the transfer-printed PEDOT:PSS top electrode using PDMS as the transfer medium

First, a piece of polydimethylsioxane (PDMS) was adhered on a clean glass substrate and then the sample was treated by oxygen plasma for 50 s to tune its surface hydrophilic. Poly(3,4-ethylenedioxythiophene):poly(styrene sulfonate) (PEDOT:PSS) (Heraeus) PH1000 with 5 wt.% ethylene glycol (Sigma-Aldrich) and 0.5 wt.% surfactant (superwet-304, SurfyChem) was spin-coated onto the PDMS at 1000 rpm for 1 min and dried in air for 6 min at 55% humidity (as shown in Fig. S1a). After that, the PDMS with PH1000 was cut into finger-shaped PDMS/PEDOT:PSS pieces (Fig. S1b). The samples of glass/ITO/PEIE/PMDPP3T:PC<sub>61</sub>BM were exposed to a flash of oxygen plasma for about 5 s to tune the surface more hydrophilic. Then, the PDMS with PH1000 was put onto the top surface of the glass/ITO/PEIE/PMDPP3T:PC<sub>61</sub>BM with PH1000 film surface contacting the photoactive layer (Figure S1c). Finally, the top PDMS was slowly peeled off and the PEDOT:PSS layer was left on the active layer to finish the fabrication of the transfer-printed conducting polymer (tp-CP) electrode.

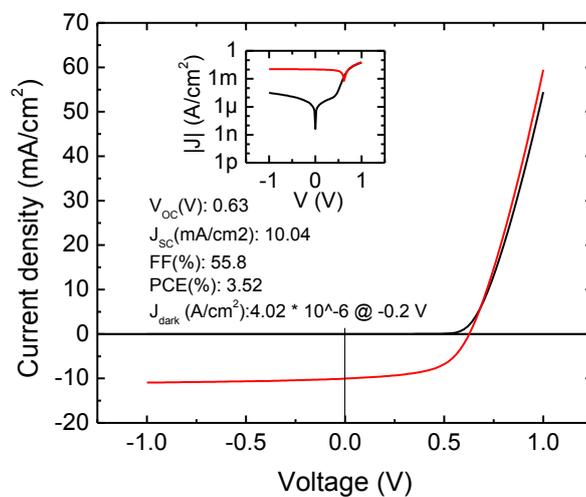


Figure S2  $J$ - $V$  characteristics of the device structure with structure of glass/ITO/PEIE/PMDPP3T:PC61BM/MoO<sub>3</sub>/PEDOT:PSS (tp-CP) in the dark and under simulated 1 sun illumination. The dark current is  $4.02 \times 10^{-6} A/cm^2$  at -0.2 V which implies the possible migration of MoO<sub>3</sub> into the active layer during the thermal deposition.