**Fig. S1** Water contact angle of (a) bare SiOx substrate (40.4°), (b) SiOx substrate after printing with a flat PDMS mold during 10min at 130°C (62.3°), (c) SiOx substrate after printing with air plasma-treated PDMS mold during 10min at 130°C (41°) and (d) SiOx substrate after printing with air plasma-treated PDMS mold during 10min at room temperature (42°).

**Fig. S2** The AFM images which reveal the thickness of residue layers of patterned photoactive layer prepared by (a) Thermal-assisted and (b) solvent-assisted soft nanoimprinting lithography on the PEDOT:PSS layer (30nm).
**Fig. S3** Wide-angle GIXRD spectra of P3HT/PCBM photoactive layer films on the PEDOT:PSS coated ITO substrate. 2D image of (a) nanopatterned photoactive layer by the successive solvent-assisted SNL and thermal annealing in the presence of PDMS mold. 1D plot of (b) out-of-plane and (c) in-plane diffraction.