

Supporting Information for

Electron-transport-layer-free two-dimensional perovskite solar cells based on a flexible poly(3,4- ethylenedioxythiophene):poly(styrenesulfonate) cathode

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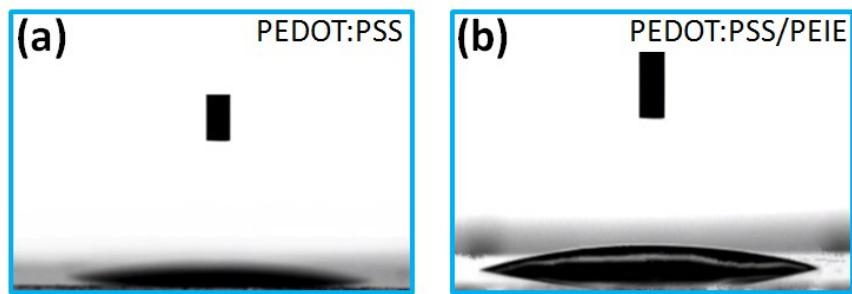


Fig. S1. Surface contact angle measurements of (a) PEDOT:PSS film and (b) PEDOT:PSS/PEIE film.

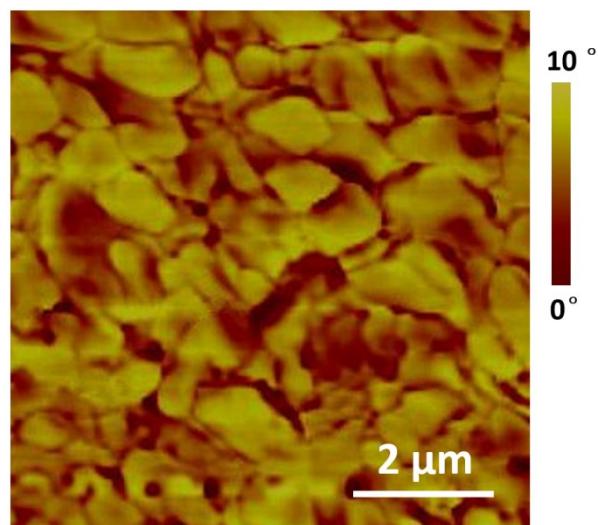


Fig. S2. AFM phase image of the prepared $(\text{BA})_2(\text{MA})_3\text{Pb}_4\text{I}_{13}$ perovskite film.

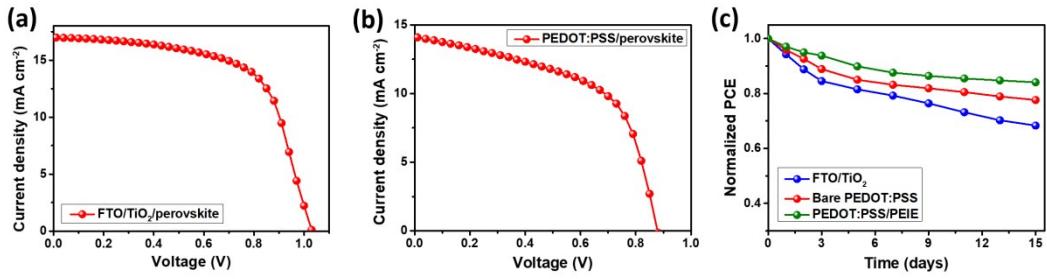


Fig. S3. J – V characteristics of the PSCs based on a structure of (a) FTO/TiO₂ and (b) bare PEDOT:PSS; (c) Stability performance of the FTO/TiO₂-, bare PEDOT:PSS- and PEDOT:PSS/PEIE-based PSCs, in terms of their normalized PCEs, plotted *vs.* time.

Table S1. Device parameters (under forward scans) of the PSCs using PEDOT:PSS/PEIE, bare PEDOT:PSS and FTO/TiO₂ as the cathode (on glass substrate).

Configuration	V_{oc} (V)	J_{sc} (mA cm ⁻²)	FF (%)	PCE (%)
PEDOT:PSS/PEIE	1.03 ± 0.01	15.3 ± 0.3	64.6 ± 1.3	10.2 ± 0.3
Bare PEDOT:PSS	0.88 ± 0.01	14.2 ± 0.3	59.8 ± 1.5	7.5 ± 0.3
FTO/TiO ₂	1.02 ± 0.01	17.1 ± 0.3	64.2 ± 1.5	11.2 ± 0.3

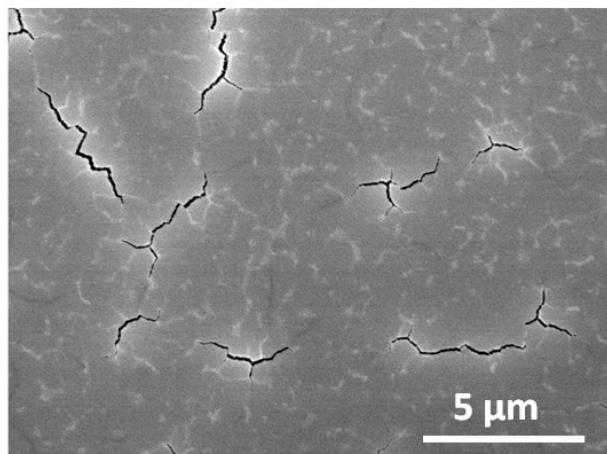


Fig. S4. SEM image of the perovskite film after the bending test.