Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

A modified two-step sequential deposition method for preparing perovskite CH3NH3PbI3 solar cells

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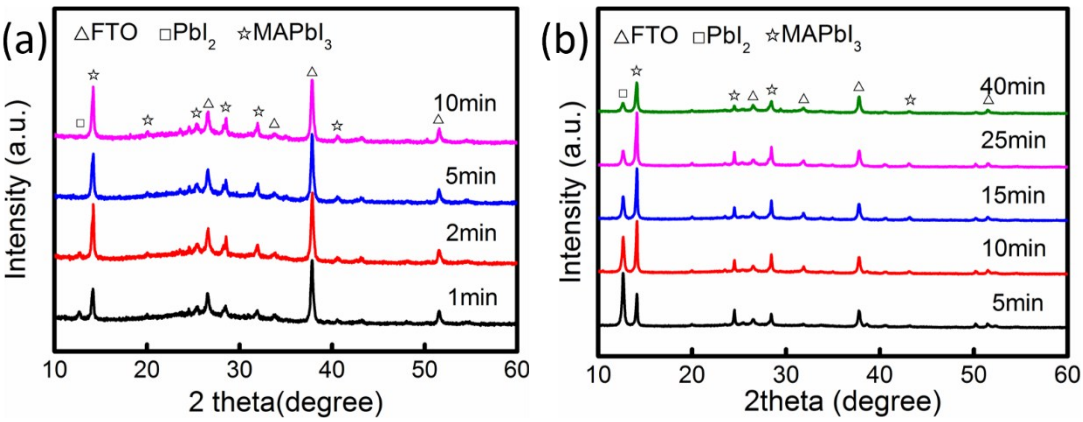

Figure S1 XRD patterns of (a) SSE-PbI_2 films and (b) SC-PbI_2 films with different immersing time in MAI 2-propanol solution.

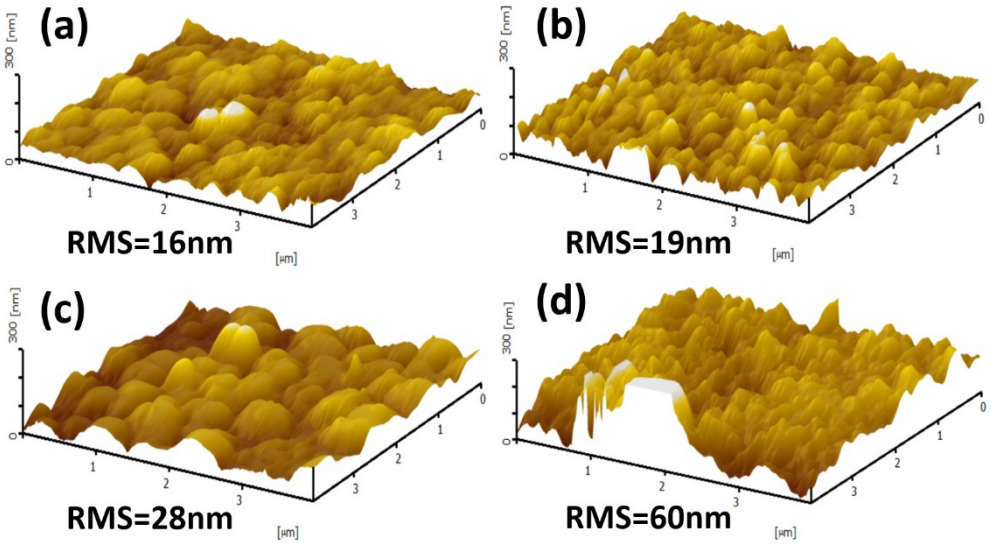

Figure S2 AFM images of (a) SC-SS-MAPI film, (b) SSE-SS-MAPI film, (c) SC-immerse-MAPI film, and (d) SSE-immerse-MAPI film.

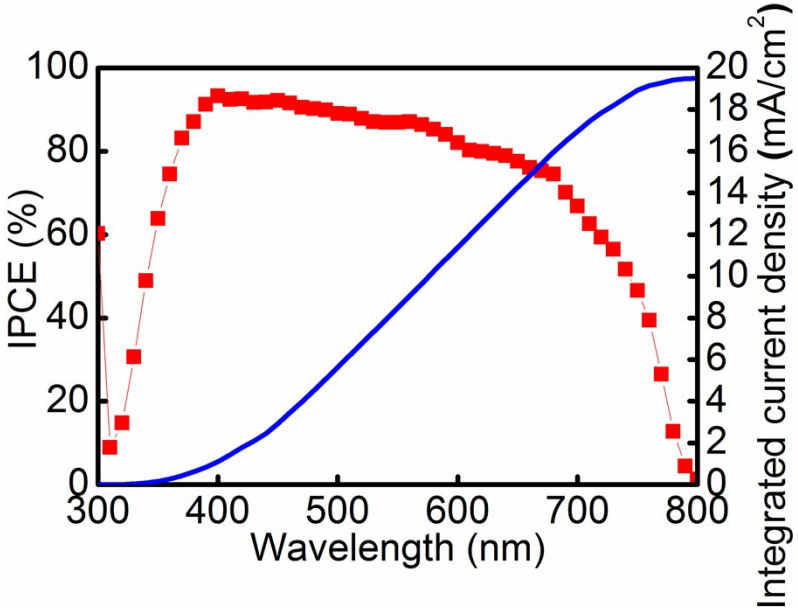

Figure S3 The EQE spectrum (red) and the integrated photocurrent density (blue) of the best performed device fabricated with the SSE-SS-MAPI film expected to be generated under AM 1.5G irradiation.

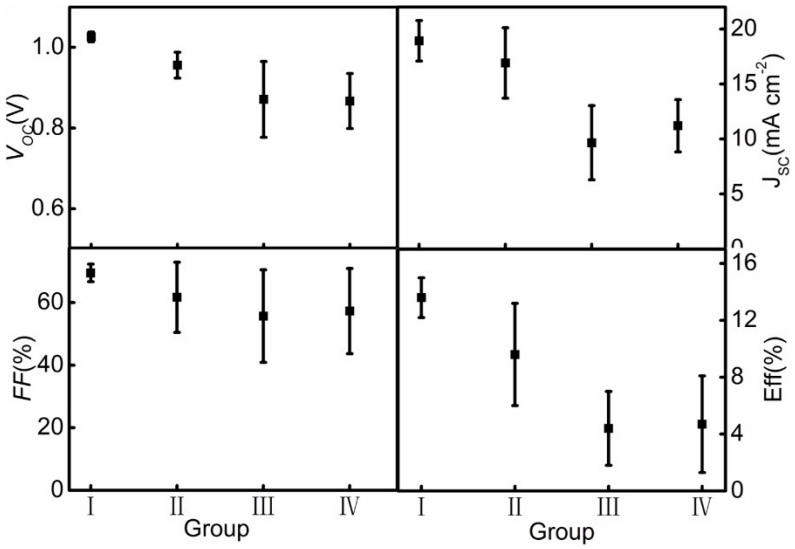

Figure S4 Statistical average device parameters extracted from J-V curves as a function of four groups of devices prepared with four different kinds of MAPI films. Group Ⅰ: SSE-SS-MAPI; Group Ⅱ: SC-immerse-MAPI; Group Ⅲ: SSE-immerse-MAPI; Group Ⅳ: SC-SS-MAPI.

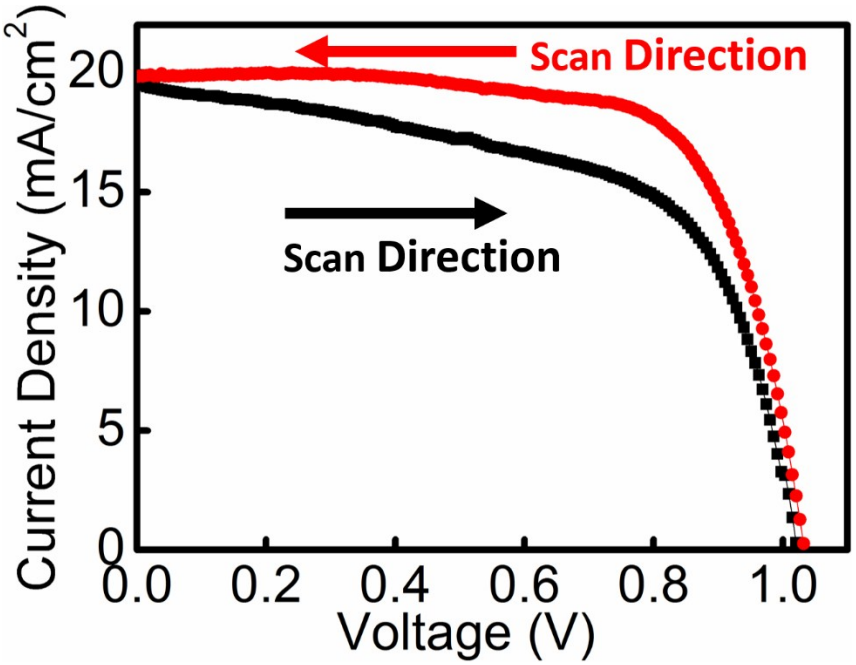

Figure S5 J-V curves of the best performed device fabricated with the SSE-SS-MAPI film with different scan rate.

Table S1 Summary of performance parameters of the best performed device fabricated with the SSE-SS-MAPI film with different scan direction at scan rate of 57.5 mV s-1.

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Scan direction	V_{oc} (V)	J_{sc} (mA cm^{-2})	*FF* (%)	η (%)
Backward	1.032	19.85	69.9	14.3
Forward	1.023	19.55	59.3	11.9