Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

Addictive-assisted Construction of All-inorganic $CsSnIBr_2$ Mesoscopic Perovskite Solar Cells with Superior Thermal Stability up to 473 K

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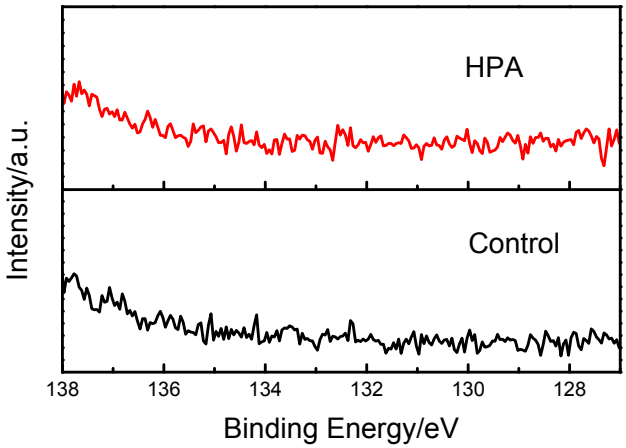

Fig. S1 High-resolution XPS spectra (P 2p) of $CsSnIBr_2$ thin film.

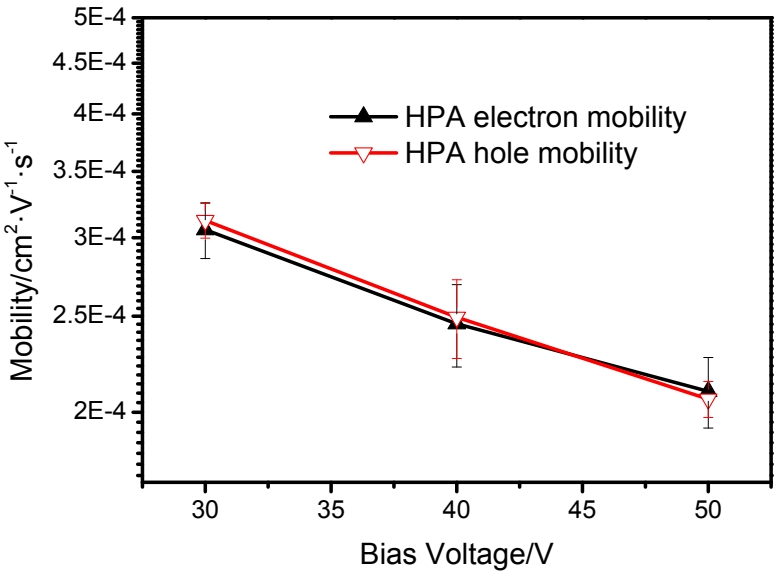

Fig. S2 Electron and hole mobility of $CsSnIBr_2$ films under different bias voltage at room temperature.

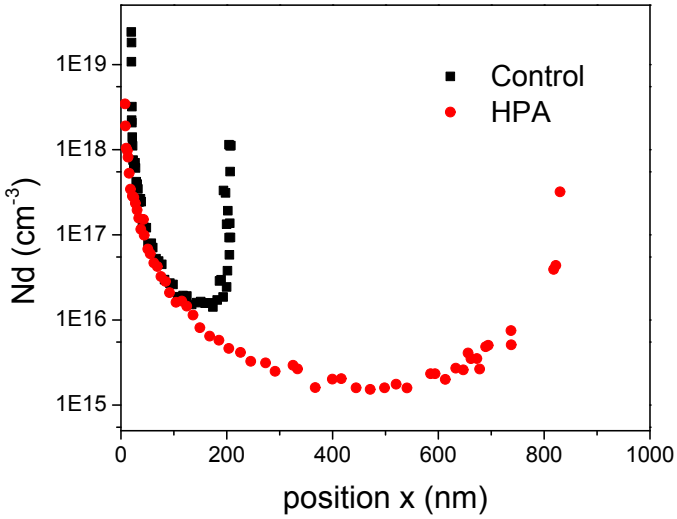

Fig. S3 Apparent doping densities as determined from the Mott-Schottky analysis.

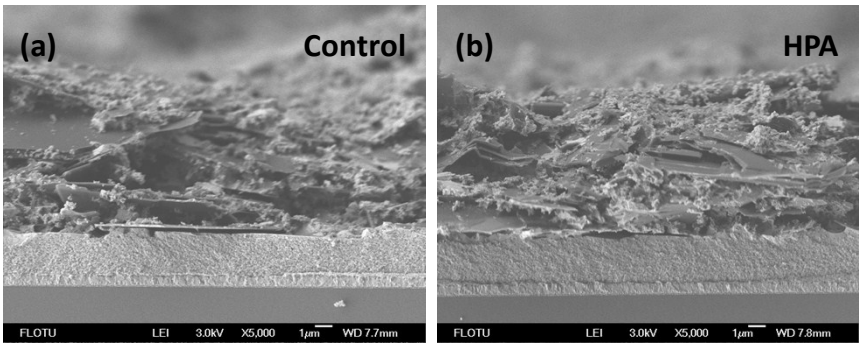

Fig. S4 Cross-section SEM images of mesoscopic PSCs.

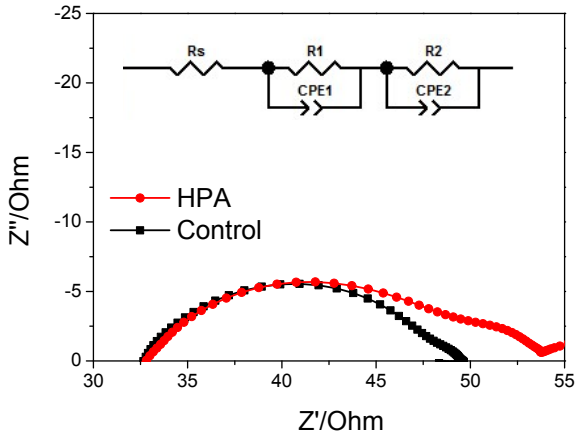

Fig. S5 Nyquist plots of the devices under illumination at a bias of −0.25 V.

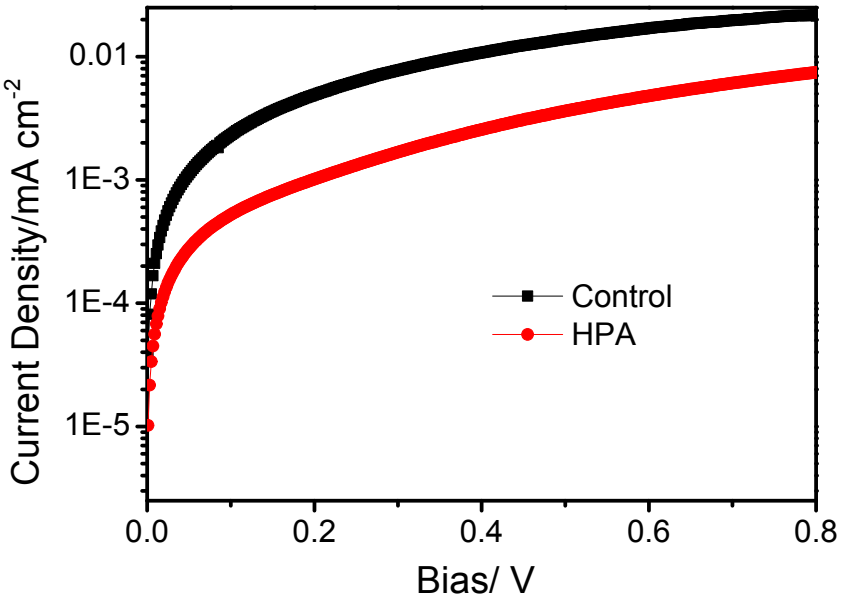

Fig. S6 Dark current of the devices.

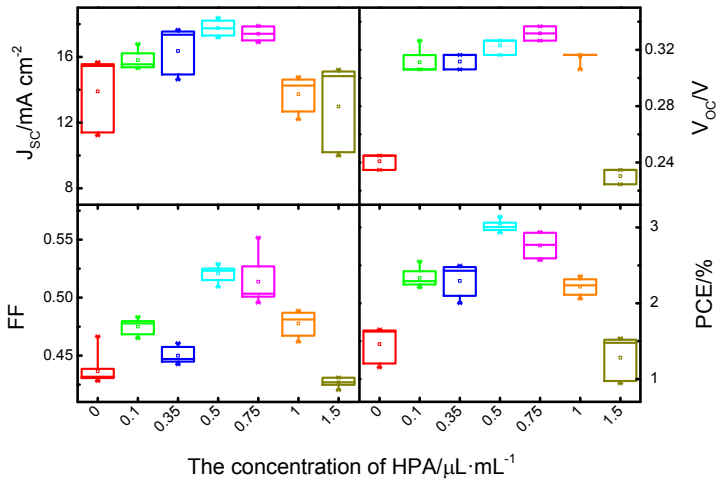

Fig. S7 Device performances with different HPA concentration

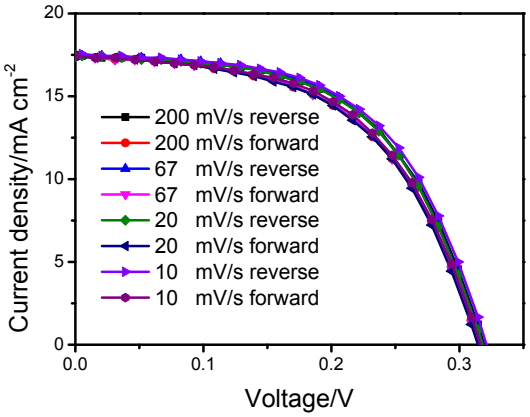

Fig. S8 *J-V* curves scanned with different speed.

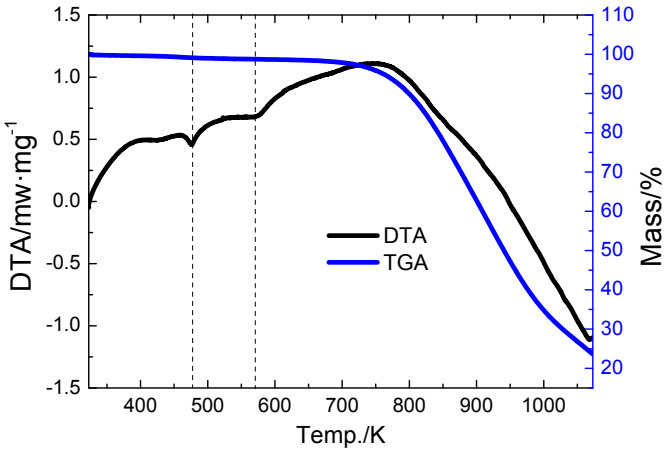

Fig. S9 Weight loss and differential scanning calorimetry (DSC) plot as a function of temperature for the powdered perovskite $CsSnIBr_2$. Thermogravimetric analysis was performed at a rate of 5 ^oC min^{-1} under an argon atmosphere.

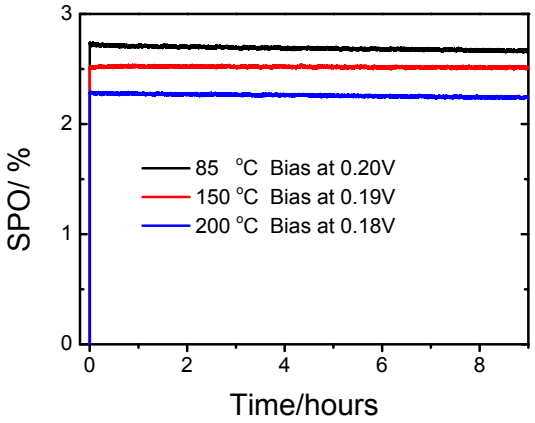

Fig. S10 SPO results of the devices at high temperature and vacuum.

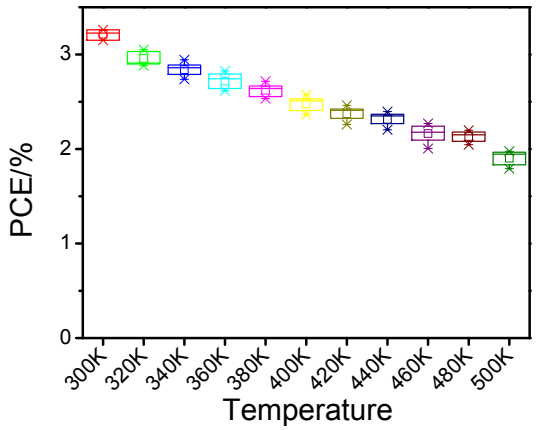

Fig. S11 Statistical PCE of the devices obtain from *J-V* curves at 300 to 500K temperature.