Supporting Information

Hydrochloric Acid Accelerated Formation of Planar $CH_3NH_3PbI_3$ Perovskite with High Humidity Tolerance

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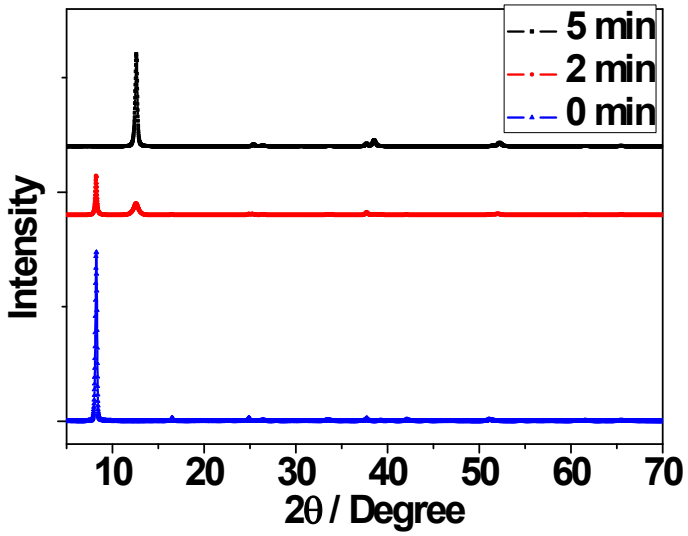

Figure S1. The XRD pattern evolution of planar HCl•PbI_2 film after 100 °C annealing for different durations.

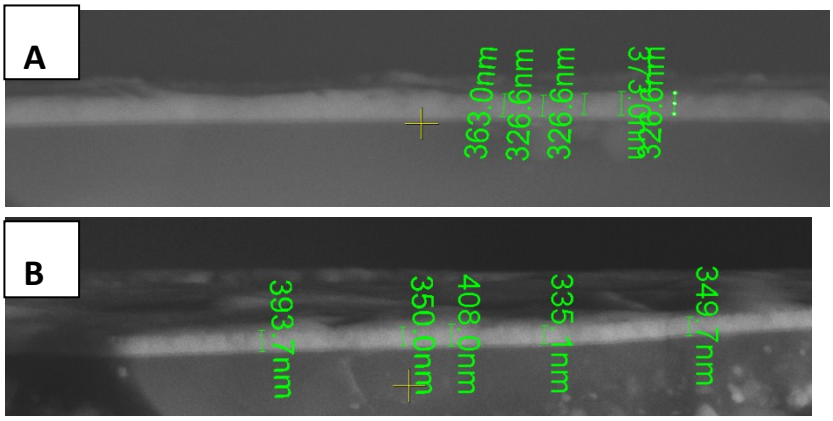

Figure S2. The cross sectional SEM images of HCl.PbI_2 precursor film (A) and the corresponding perovskite film (B).

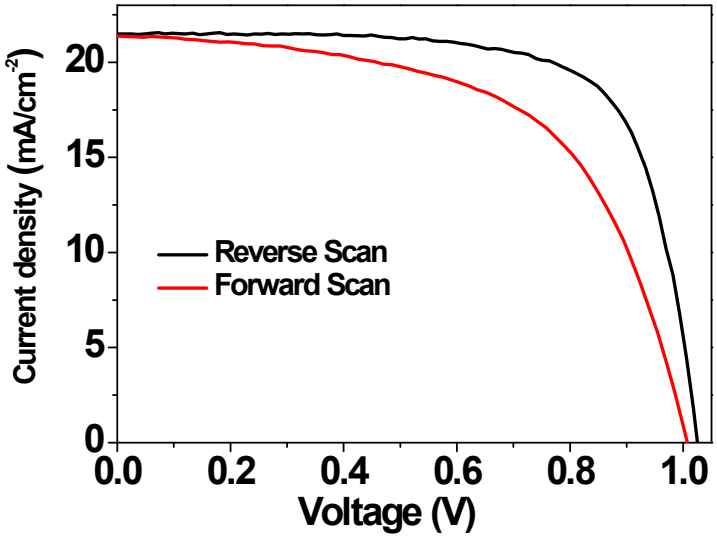

Figure S3. The typical *J*–*V* curve of a planar $MAPbI_3$ solar cell with the highest efficiency of 15.50% (J_{sc}=21.50 mA/cm^2, V_{oc}=1.03 V, FF=0.72) and 12.62% (J_{sc}=21.40 mA/cm^2, V_{oc}=1.00 V, FF=0.59) under reverse/backward voltage scan at simulated one-sun illumination.

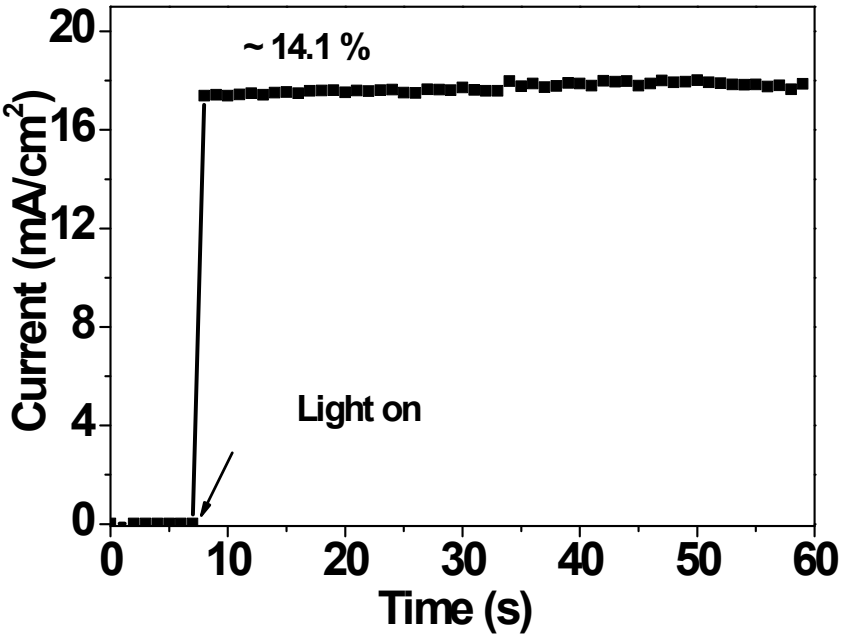

Figure S4. Stability of power conversion efficiency as a function of time for a planar perovoskite solar cells with a 0.81V bias potential under simulated one-sun illumination.