

Support Information

The Defect Passivation of Tin Halide Perovskites Using a Cesium Iodide Modification

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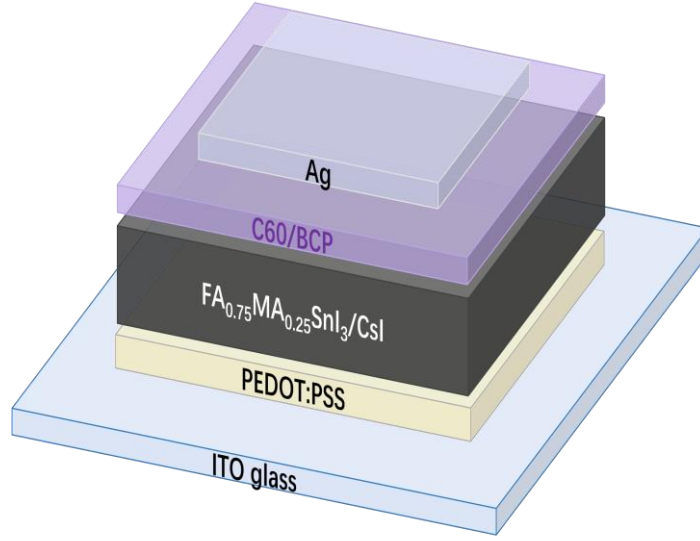


Figure S1. Schematic view of the inverted $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ perovskite solar cells structure with/without CsI thin passivation layer.

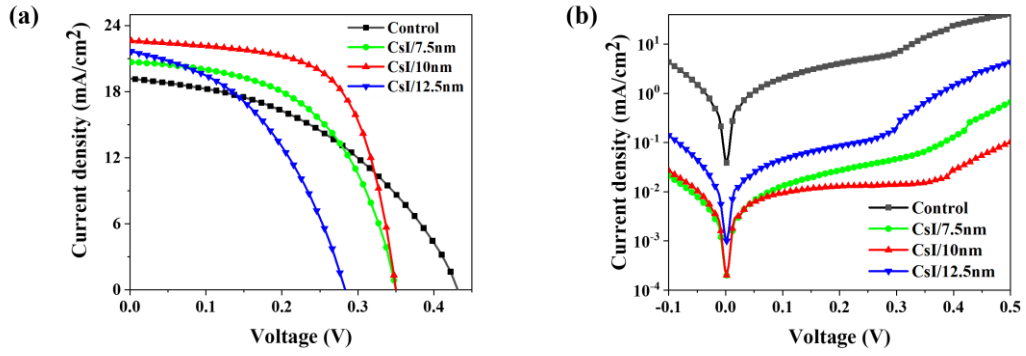


Figure S2. (a) Light current density-voltage (light J - V) characteristic curves; (b) Dark current density-voltage characteristic curves (dark J - V) of the $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ Sn based perovskite solar cells with thin CsI passivation layers (0 nm, 7.5 nm, 10 nm, 12.5 nm).

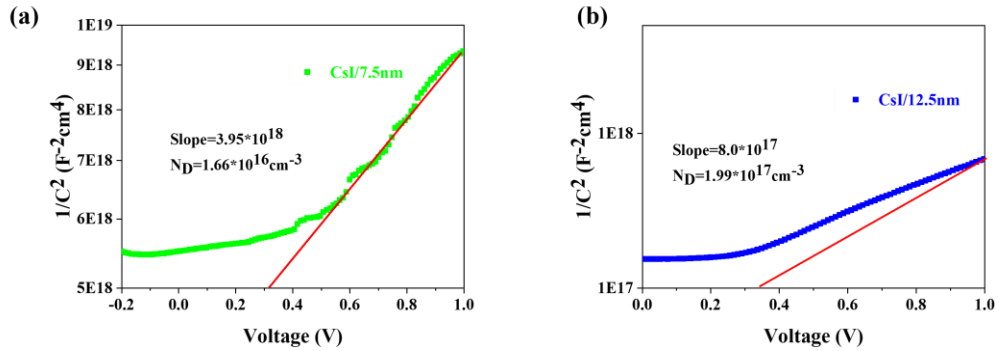


Figure S3. Capacitance-Voltage (C - V) characteristic curves of the $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ Sn based perovskite films spin-coated on PEDOT:PSS layer with varied thickness CsI (a) 7.5 nm and (b) 12.5 nm.

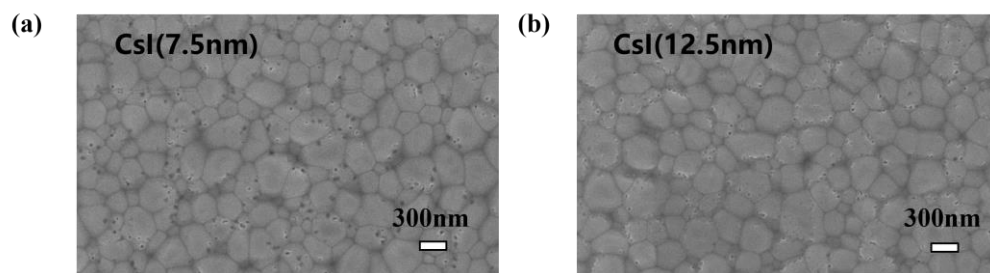


Figure S4. Top-view SEM images of the $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ perovskite films spin-coated on PEDOT:PSS layer with varied thickness CsI: (a) 7.5 nm and (b) 12.5 nm.

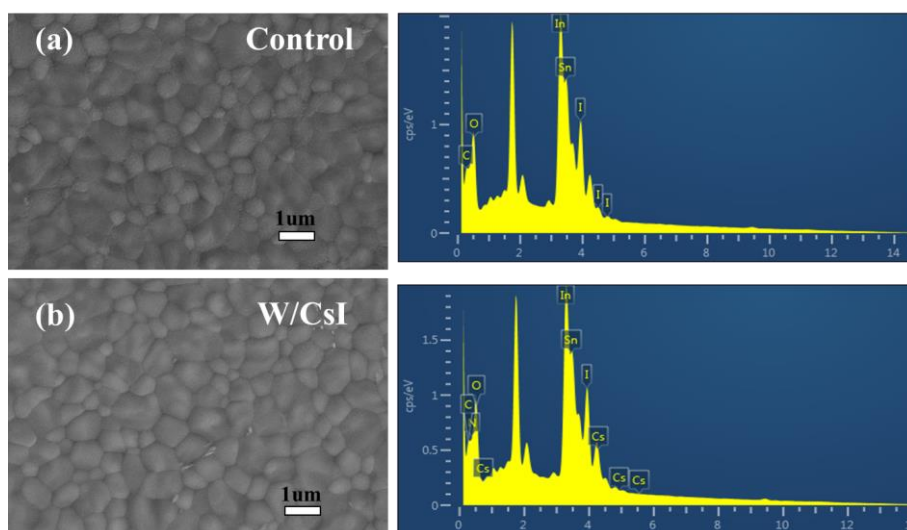


Figure S5. Energy Dispersive Spectrometer (EDS) spectrum of the $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ perovskite films spin-coated on ITO substrate (a) without CsI layer modification (control); (b) with CsI layer modification (W/CsI).

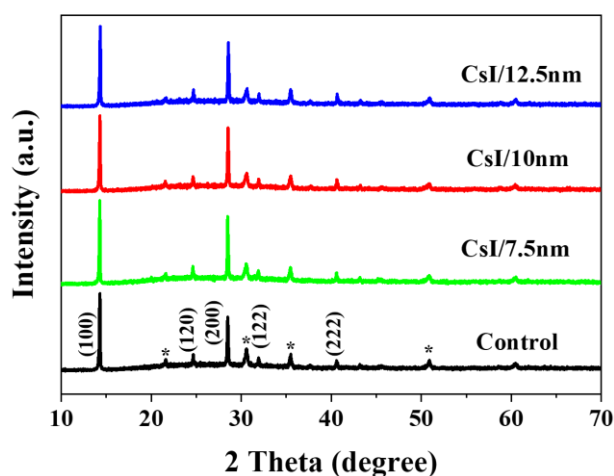


Figure S6. X-Ray Diffraction (XRD) patterns of $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ perovskite films spin-coated on PEDOT:PSS layer with varied thickness CsI (0 nm, 7.5 nm, 10 nm, 12.5 nm) and * is represent the peak of ITO.

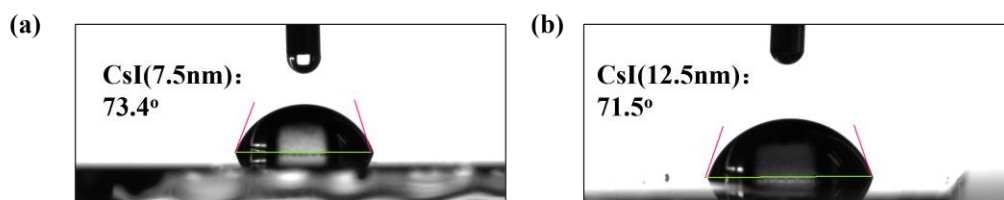


Figure S7. Contact angle measurement of deionized water on $\text{FA}_{0.75}\text{MA}_{0.25}\text{SnI}_3$ Sn based perovskite films spin-coated on PEDOT:PSS layer with varied thickness CsI (7.5 nm, 12.5 nm).