

Lead-free perovskite homojunction-based HTM-free perovskite solar cells: Theoretical and experimental viewpoints

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Supporting Information

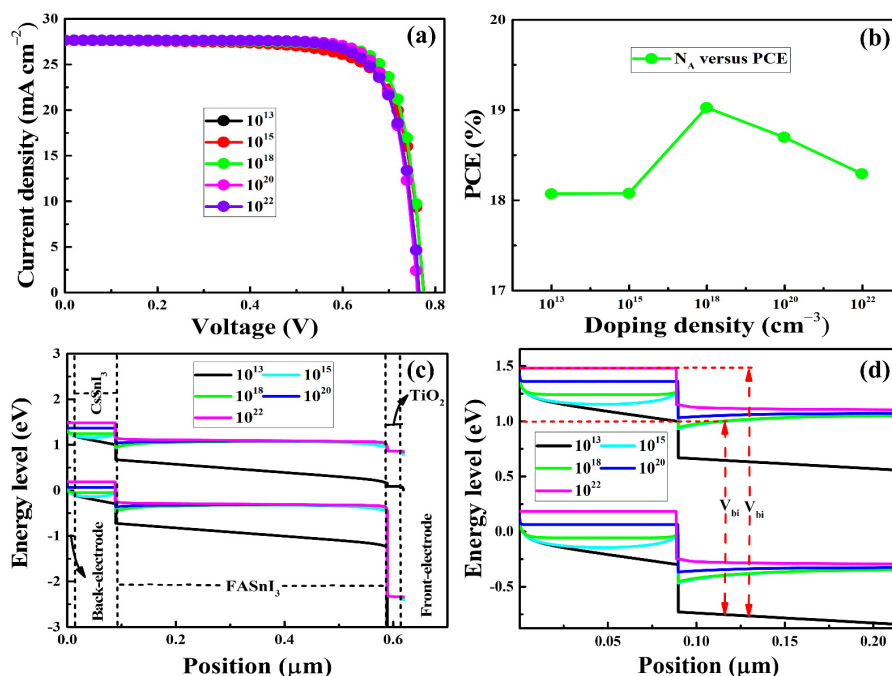


Figure S1. The current-voltage (J-V) characteristic curves (a), power conversion efficiencies (PCEs) (b), energy levels (c) and zoomed-in energy levels (d) of the as-simulated homojunction-based HTM-free PSCs as a function of doping density of CsSnI₃. Note that the FASnI₃/CsSnI₃ region is where the zoomed-in energy levels were taken.

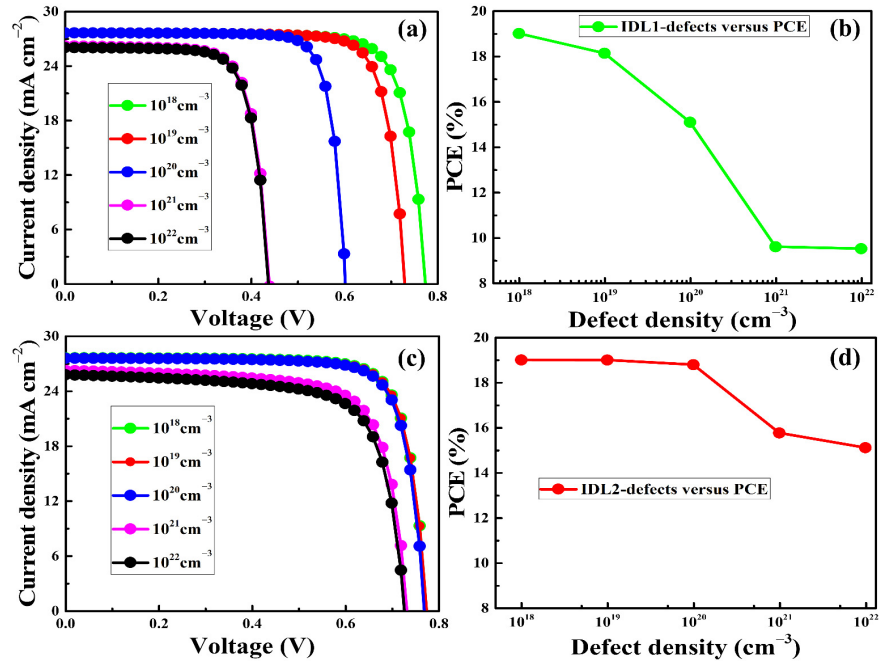


Figure S2. The current-voltage (J-V) characteristic curves and power conversion efficiencies (PCEs) of the as-simulated homojunction-based HTM-free PSCs as a function of defect density in IDL1 (a, b) and IDL2 (c, d).

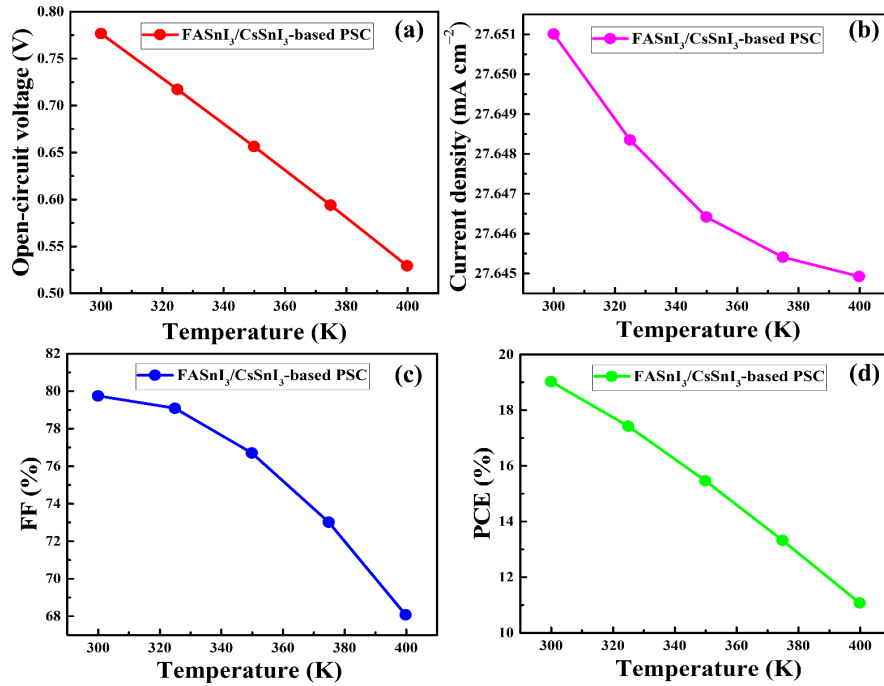


Figure S3. Photovoltaic performance of the as-simulated homojunction-based PSCs as a function of temperature.

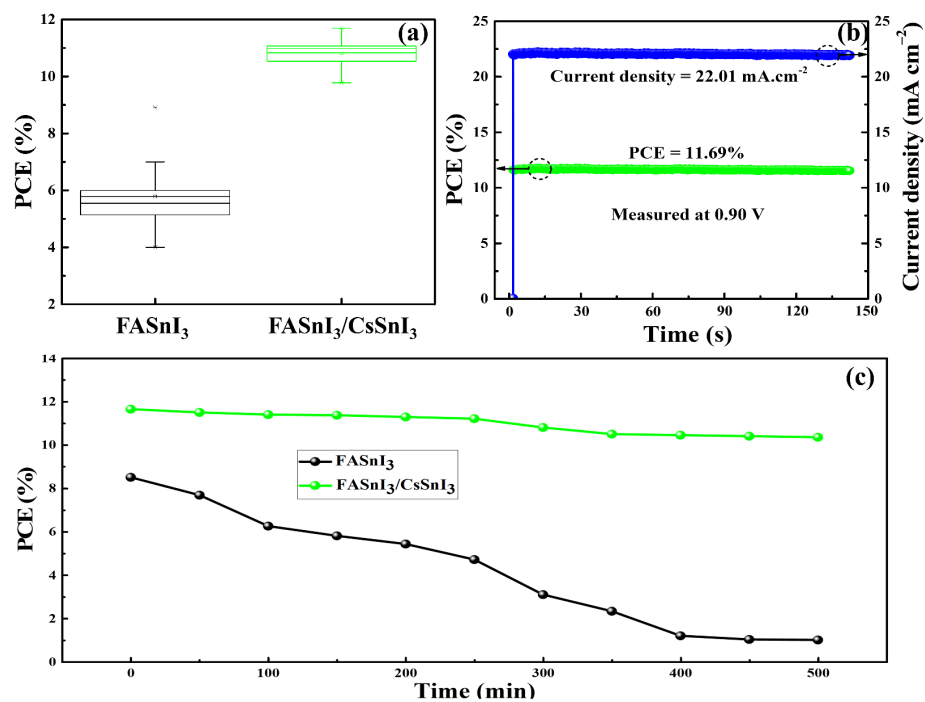


Figure S4. Statistics of the HTM-free PSCs with FASnI₃ or FASnI₃/CsSnI₃ (a). Efficiency and current density of FASnI₃/CsSnI₃ homojunction-based HTM-free PSC at maximum power point tracking (b), long-term stability of the FASnI₃-based devices and FASnI₃/CsSnI₃-based devices at 25°C in air (c).