

Supporting information
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Efficient Mesoscopic Perovskite Solar Cells based on CH₃NH₃PbI₂Br Light Absorber

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1. XRD patterns of the MAPbI₂Br film and MAPbI₃ film

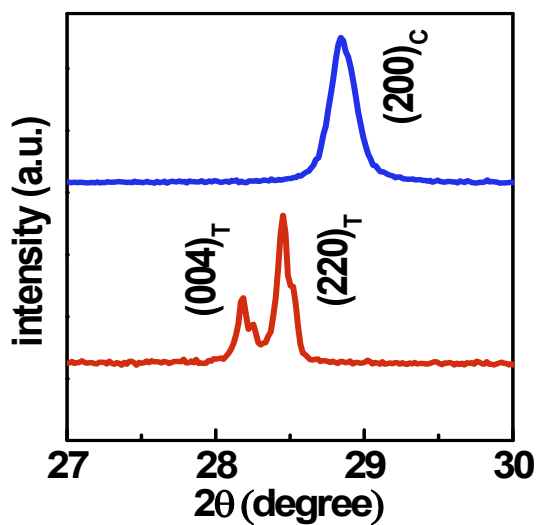


Fig. S1 XRD patterns of the MAPbI₂Br film and MAPbI₃ film magnified in the region of the tetragonal (004)_T and (220)_T and cubic (200)_C peaks ($2\theta = 27-30^\circ$).

2. Photoluminescence of MAPbI₂Br film

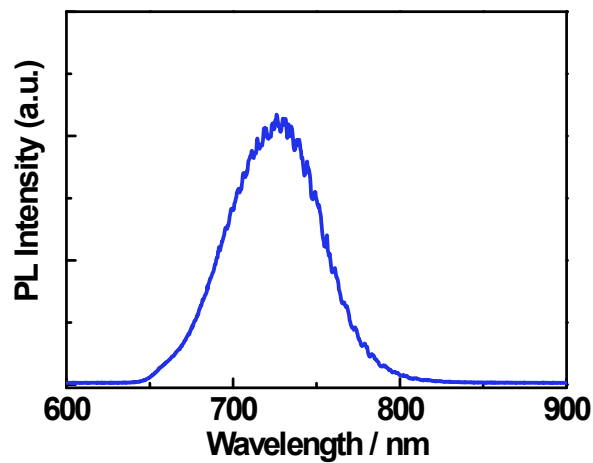


Fig. S2 Photoluminescence of MAPbI₂Br film

3. Statistic of the open circuit voltage (V_{OC})

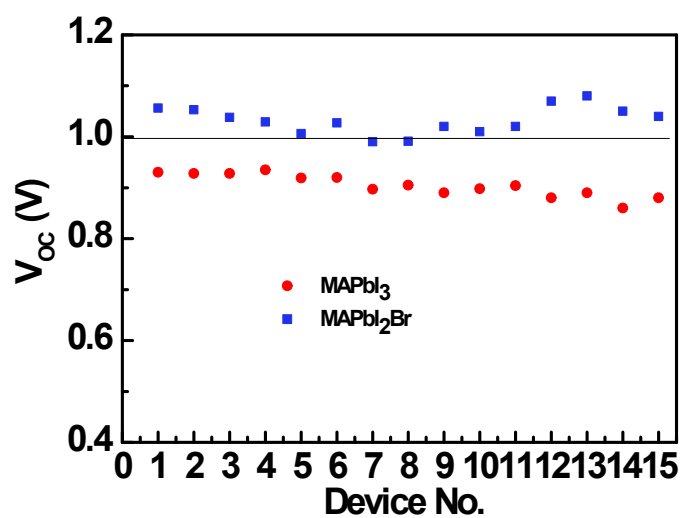


Fig. S3 Statistic of the open circuit voltage (V_{OC}) for a batch of 15 devices based on MAPbI₂Br and MAPbI₃ perovskites.

4. Dark current density-voltage (J-V) curves

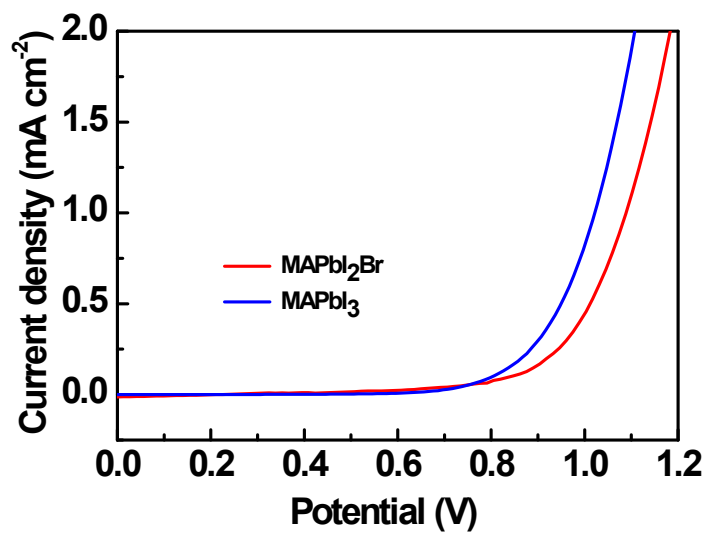


Fig. S4 Dark current density-voltage (J-V) curves of TiO₂/Al₂O₃/carbon(MAPbI₂Br) configuration and TiO₂/Al₂O₃/carbon (MAPbI₃) solar cells

5. Current density-voltage (J-V) curves under different light intensities

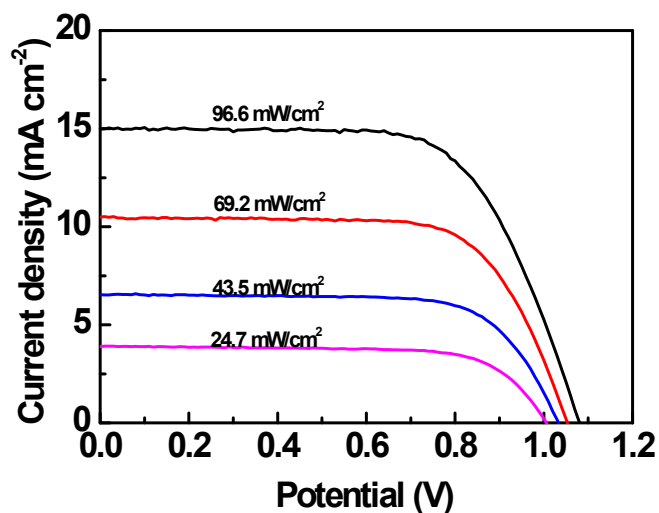


Fig.S5 Current density-voltage (J-V) curves of the $\text{TiO}_2/\text{Al}_2\text{O}_3/\text{carbon}(\text{MAPbI}_2\text{Br})$ device under different light intensity.

6. Colour change of the MAPbI_3 and MAPbI_2Br cells

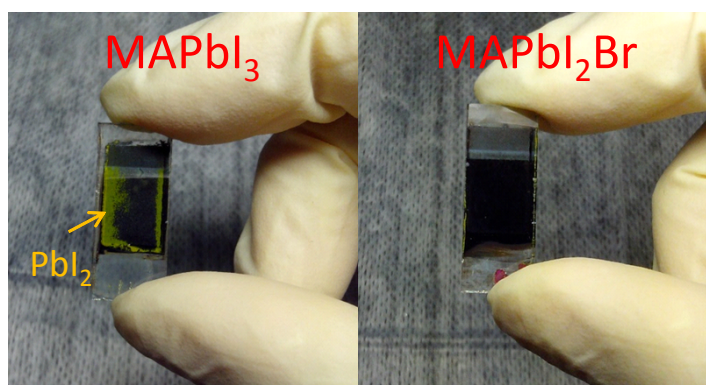


Fig.S6 Colour change of the MAPbI_3 and MAPbI_2Br cells subjected to light soaking using white light emitting diodes (about 25 mW cm^{-2}) in ambient air without encapsulation.