

Supporting Information:

**Open Circuit Potential Build-up in Perovskite Solar Cells from
Dark Conditions to 1 Sun**

*Laxman Gouda,[†] Ronen Gottesman,[†] Adam Ginsburg, David A. Keller, Eynav Haltzi,
Jiangang Hu, Shay Tirosh, Assaf Y. Anderson and Arie Zaban**

Department of Chemistry, Center for Nanotechnology & Advanced Materials,
Bar-Ilan University, Ramat Gan 52900, Israel.

*Pablo P. Boix**

Energy Research Institute @ NTU, Nanyang Technological University, 50 Nanyang Drive,
Research Techno Plaza, X-Frontier Block, Level 5, Singapore, 637553

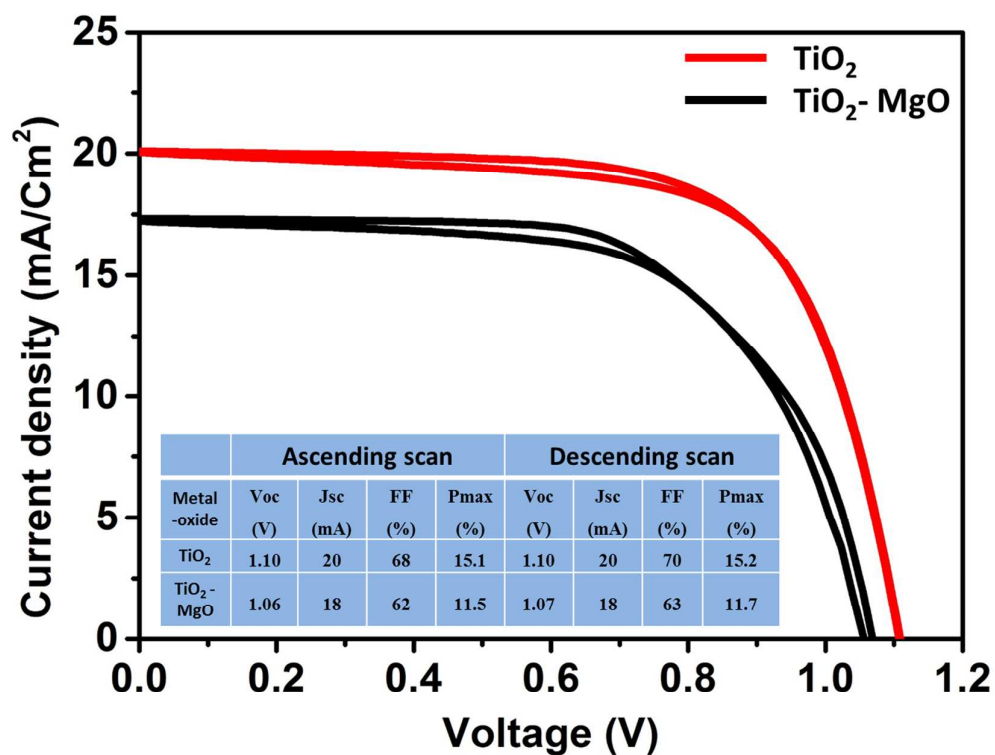


Figure S1. The iV scans of the two champion PSCs from the TiO₂ and TiO₂-MgO PSCs libraries.

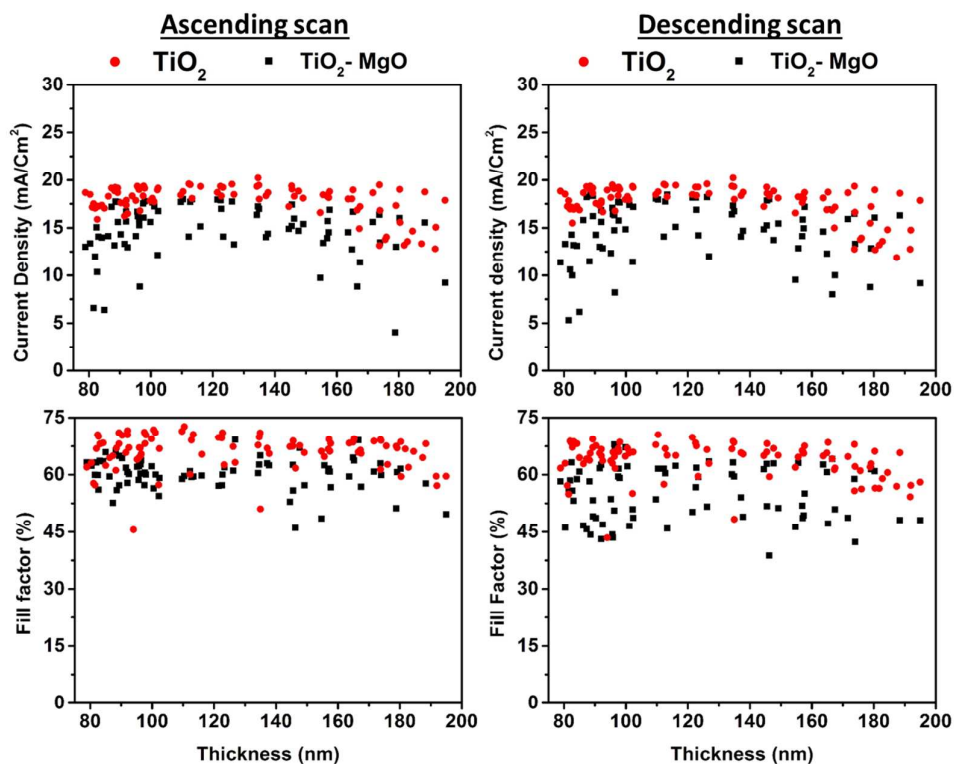


Figure S2. The current density and Fill factor parameters of both ascending and descending scans of the TiO₂ and TiO₂-MgO PSCs libraries vs. thickness of the TiO₂ blocking layer.

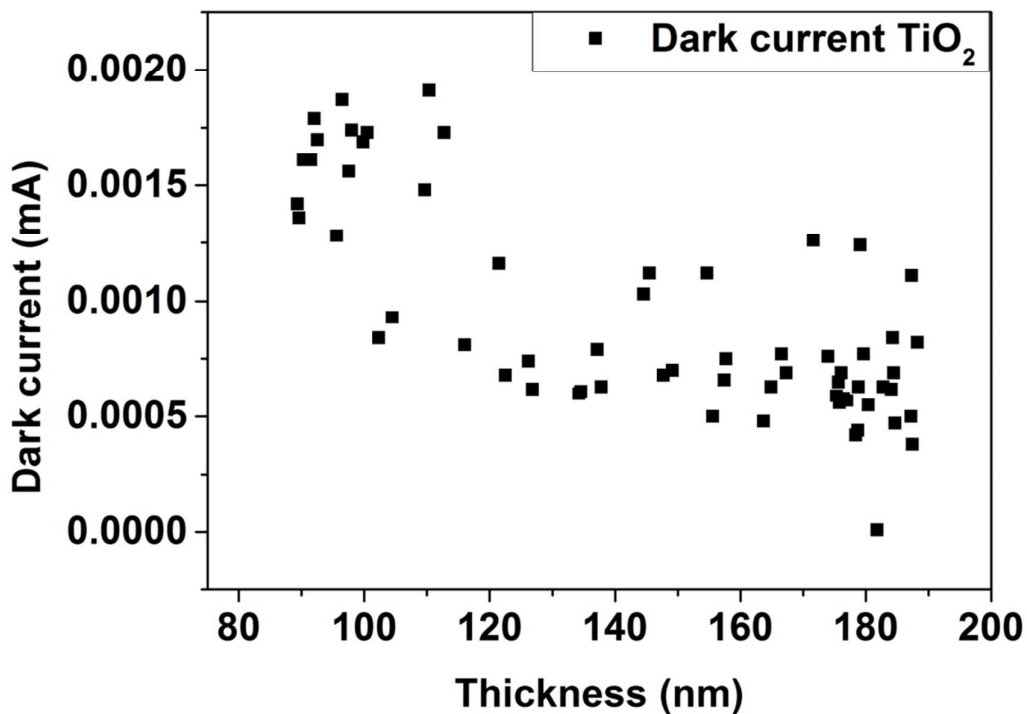


Figure S3. Dark current vs. compact layer thickness of the PSCs in the TiO₂ library. The data was collected at a voltage of 0.75 Volt.

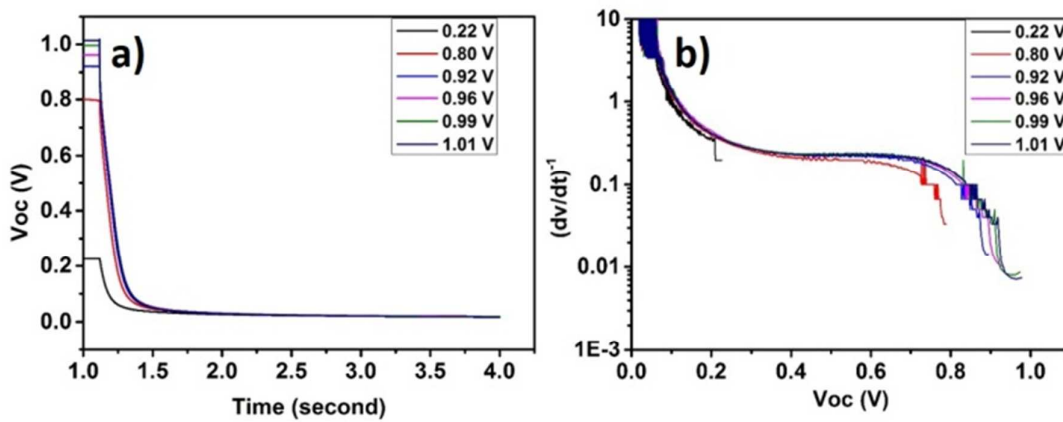


Figure S4. a) V_{oc} decay of mesoscopic TiO₂ PSC from different V_{oc}'s, b) electron lifetimes vs V_{oc} calculated using the data from a.

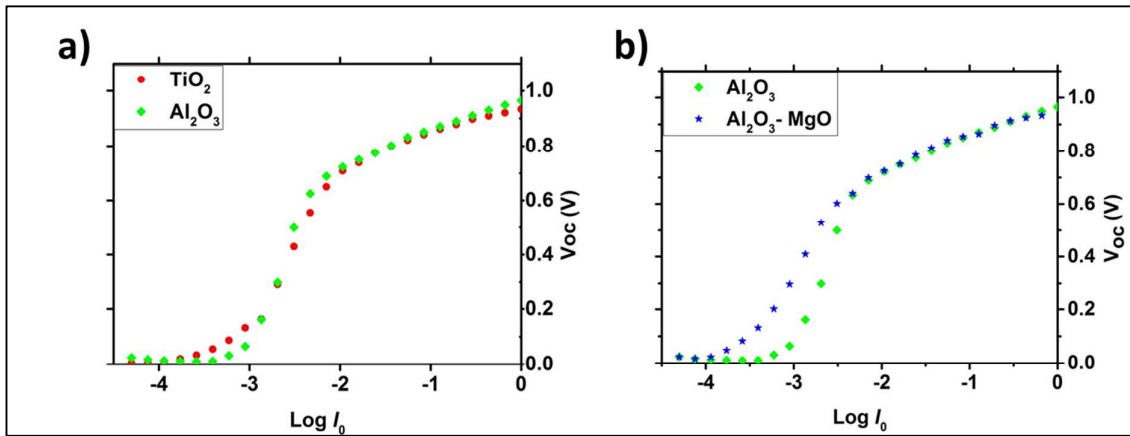


Figure S5. V_{oc} vs. $\log I_0$ curves of an exemplary a) TiO_2 and Al_2O_3 PSCs, b) Al_2O_3 and Al_2O_3 -MgO PSCs.