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Supplementary information

Origin of the Hysteresis in I-V Curves for Planar Structure Perovskite Solar Cells Rationalized with a Surface Boundary Induced Capacitance Model

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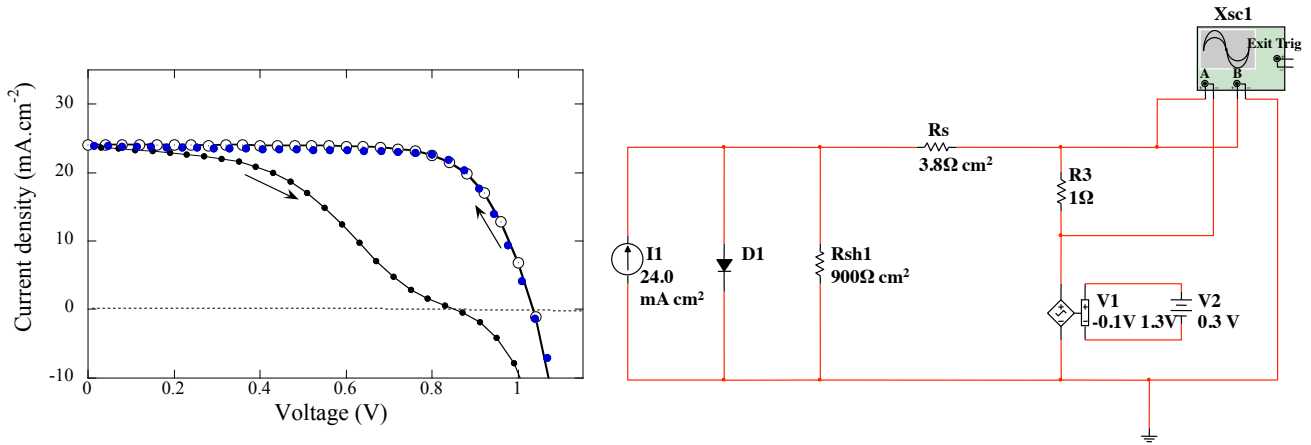(E-mail: cojocaru@dsc.rcast.u-tokyo.ac.jp, uchida@rcast.u-tokyo.ac.jp, csegawa@mail.ecc.u-tokyo.ac.jp)

Fig. S1. Simulated I-V curves of perovskite solar cell using single diode model (black curves from experimental data, blue curves from simulation). From simulations I-V curves using single diode model the reverse and forward scan are overlaps.
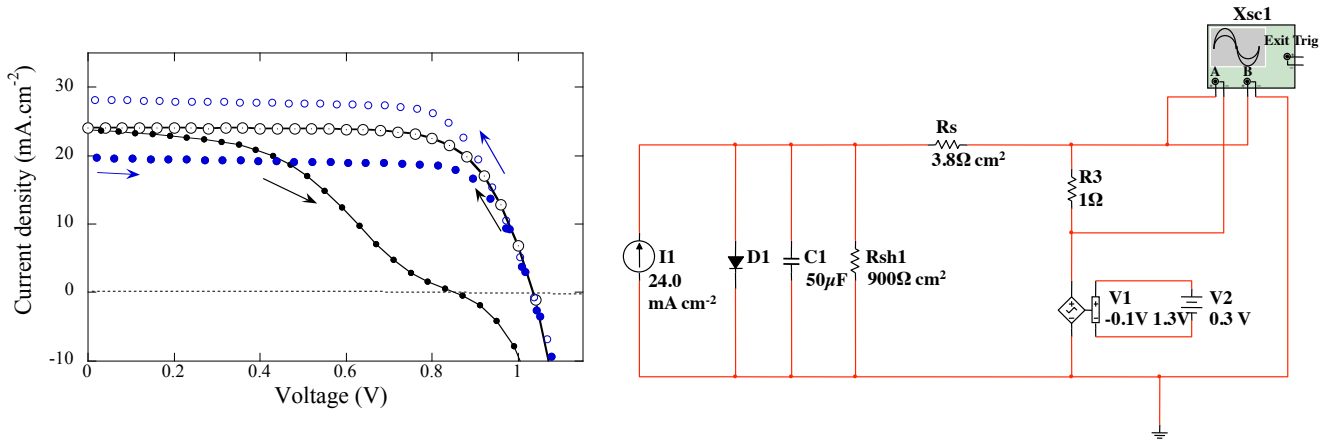

Fig. S2. Simulated I-V curves of perovskite solar cell using single diode model and single capacitor (black curves from experimental data, blue curves from simulation).

Scan directions	$J_{sc}/$ mA cm^{-2}	V_{oc}/V	FF	PCE/%
reverse	24.08	1.028	0.74	18.3
forward	23.89	0.879	0.39	8.2

Table S1. Extracted photovoltaic characteristics from simulated I-V curves using series connected double diodes, capacitors, Rsh and single Rs.
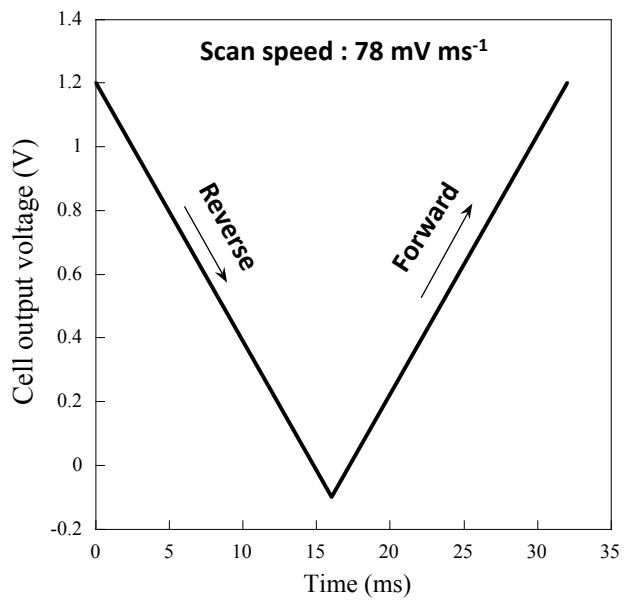
Fig. S3. Cell output voltage versus operating time.