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## **Supporting information**

## High energy and high voltage integrated photo-electrochemical double layer capacitor

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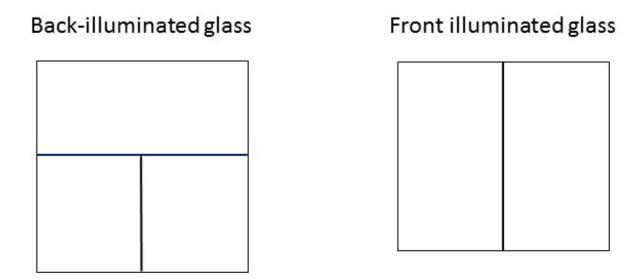


Figure 1S: Back and front DSSC glass after proper cutting FTO layer.

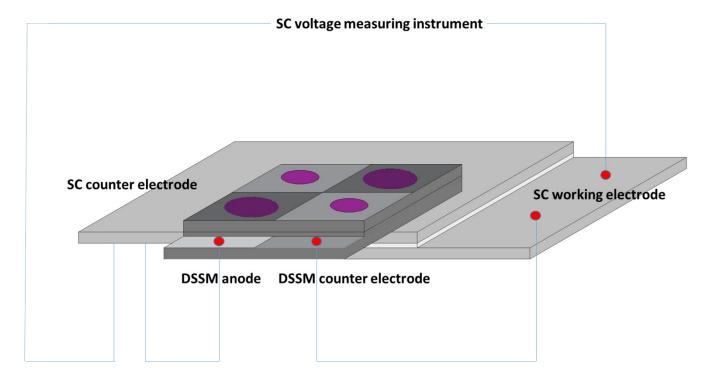
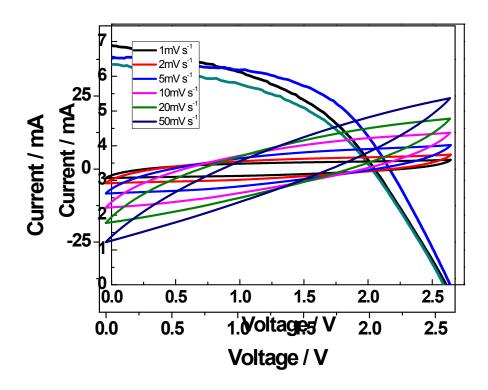


Figure 2S: Electrodes connection between DSSC and SC during photo-charge.



**Figure 3S:** CV curves of the SC section recorded for different scan rate.

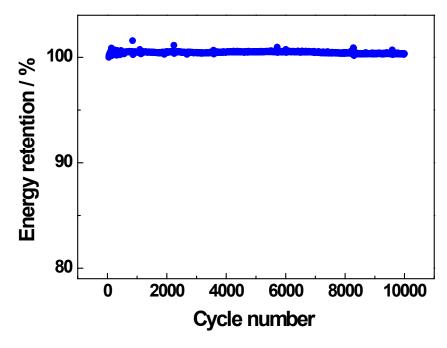
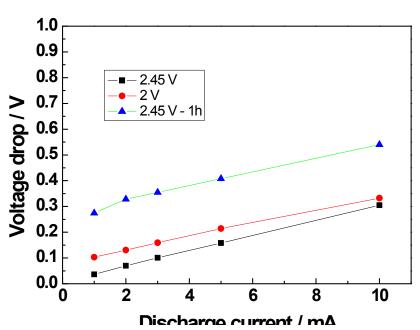


Figure 4S: Energy retention as function of the cycle number

**Figure 5S:** IV curves of three different DSSMs testifying the results' reproducibility.



**Figure 6S:** Voltage drop of the SC section after switching from photo-charge to discharge.