**Supporting Information:**

**Photoresponsivity enhancement in monolayer MoS2 phototransistors by rapid O2:Ar plasma treatment**

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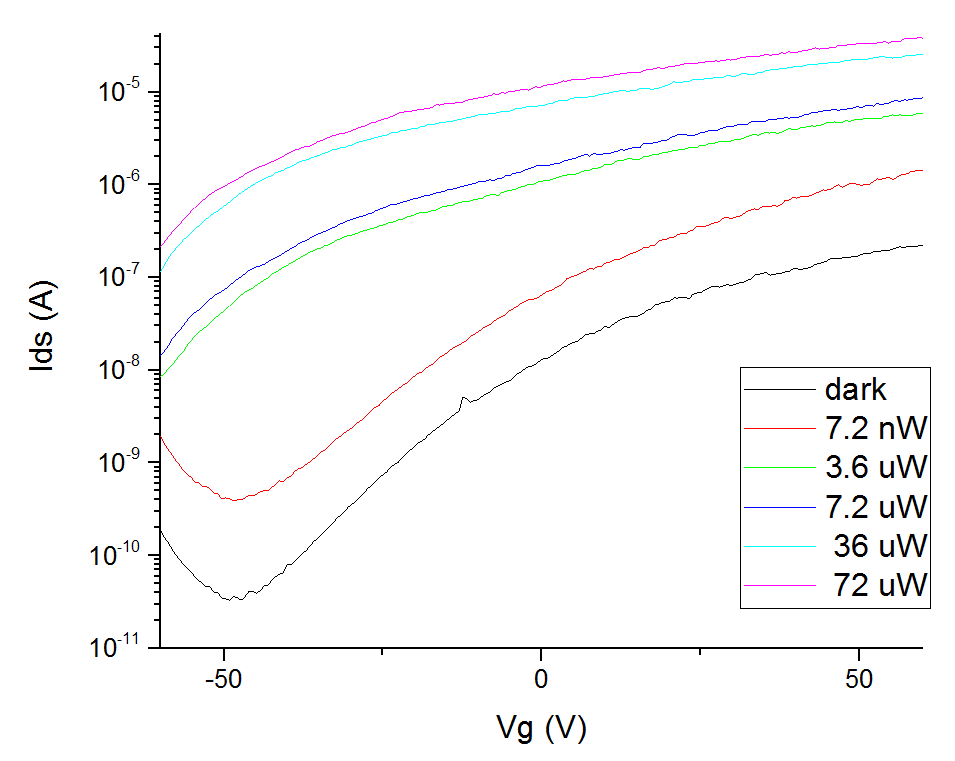
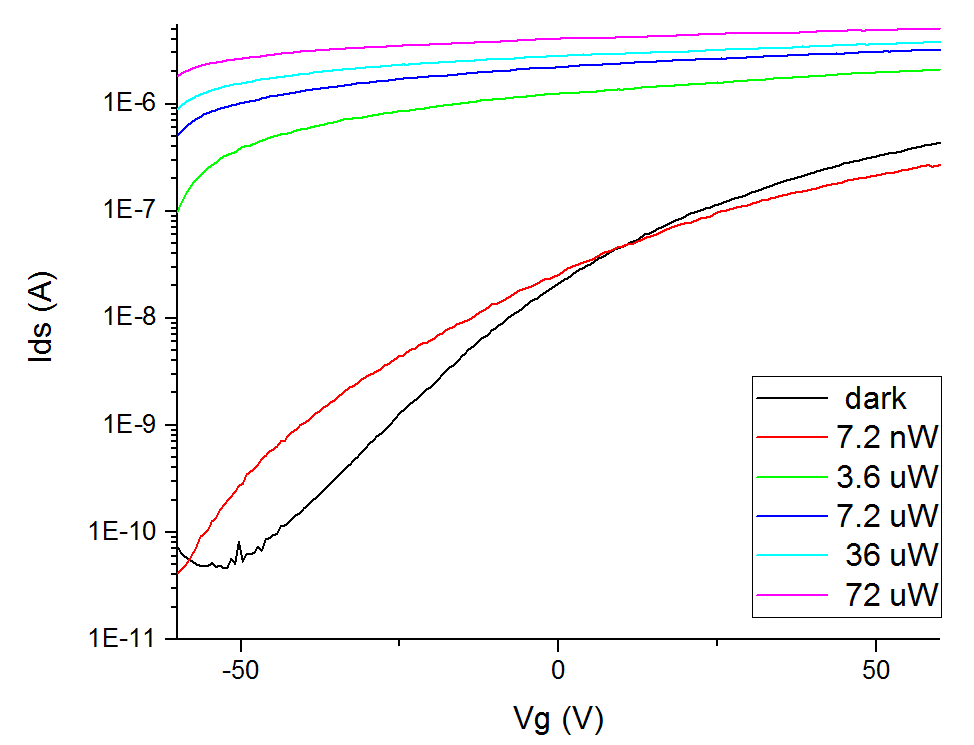
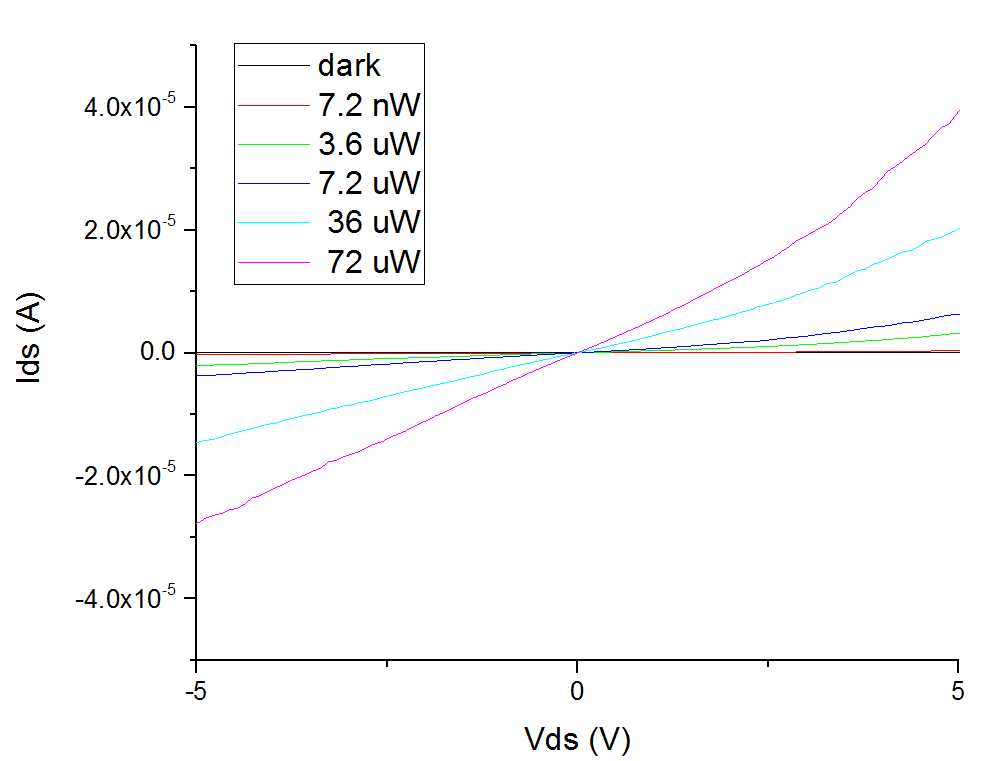
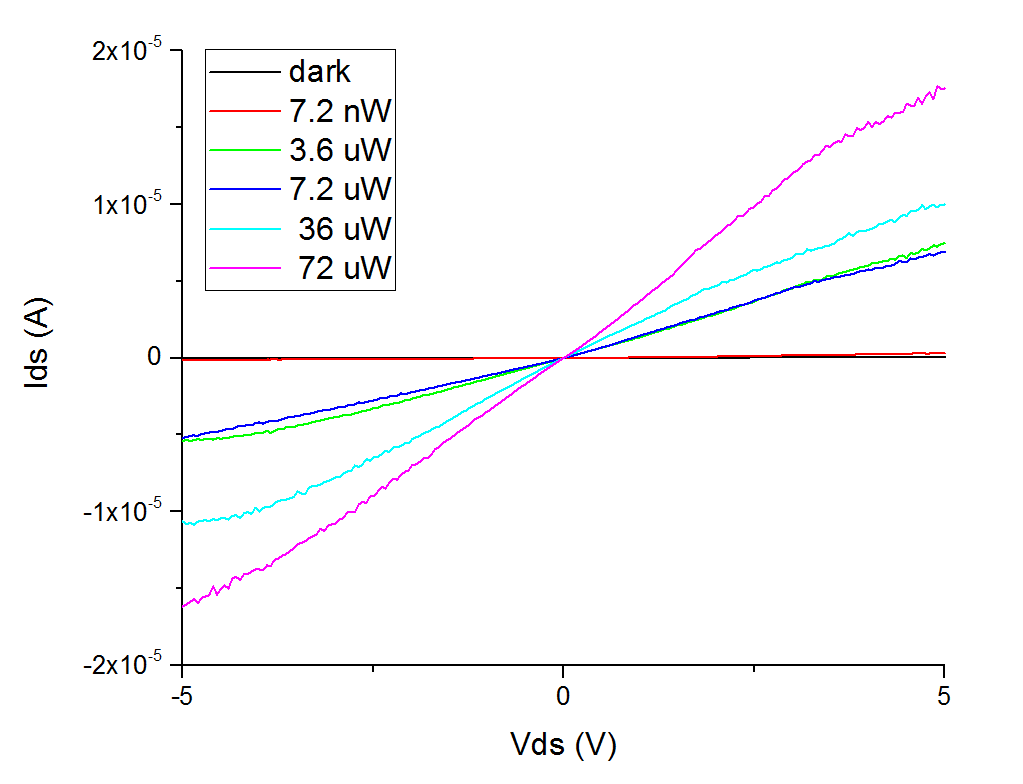
*3Advanced Materials and BioEngineering Research Centre (AMBER), Trinity College Dublin, Dublin 2, Ireland*

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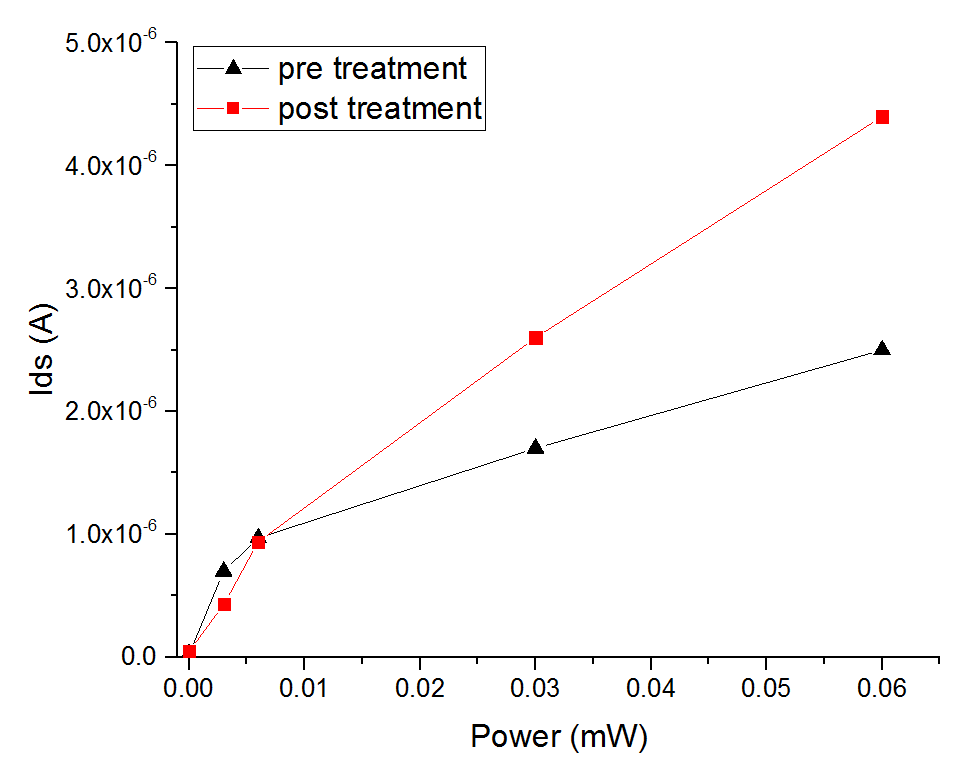
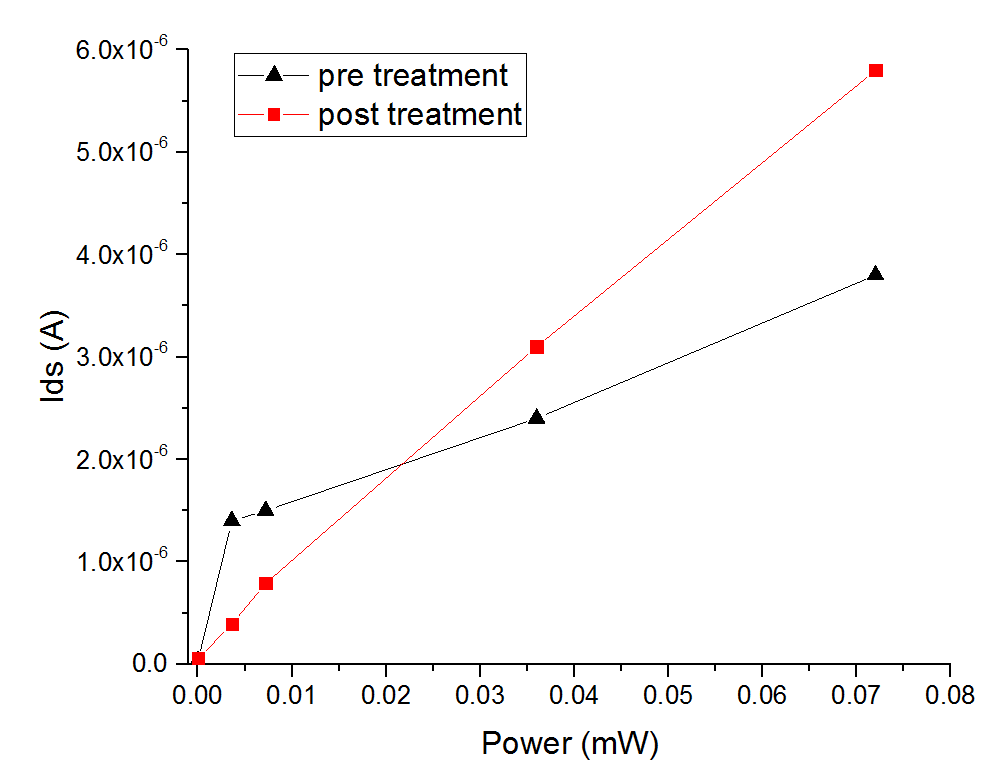
*5School of Material Science and Engineering, Nanchang University, Youxun W Rd, Xinjian Qu, Nanchang Shi, Jiangxi Sheng, China*

[\*hozhang@tcd.ie](mailto:*hozhang@tcd.ie)

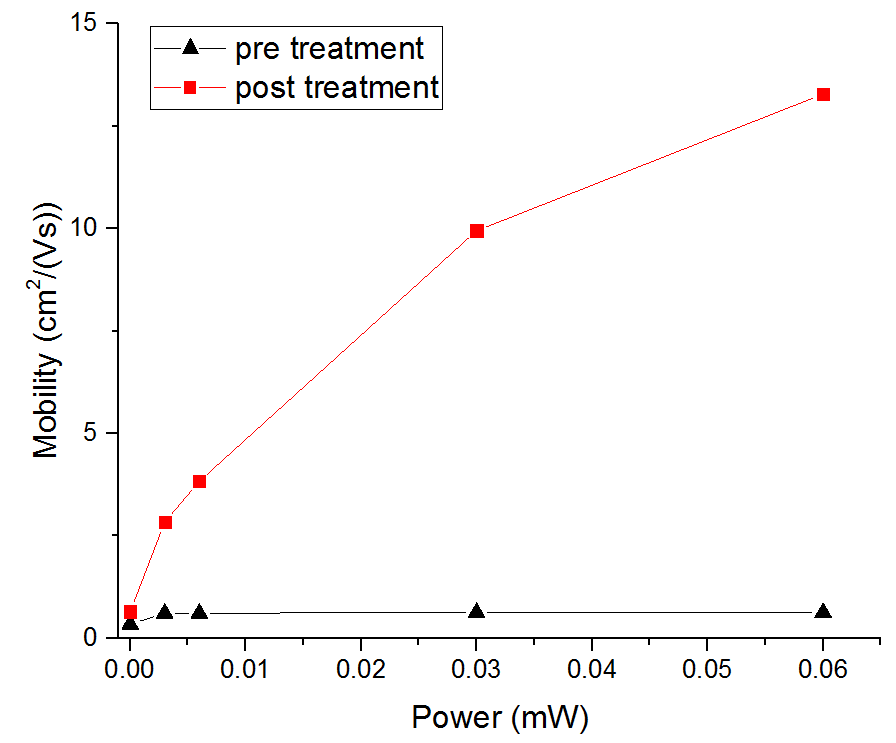
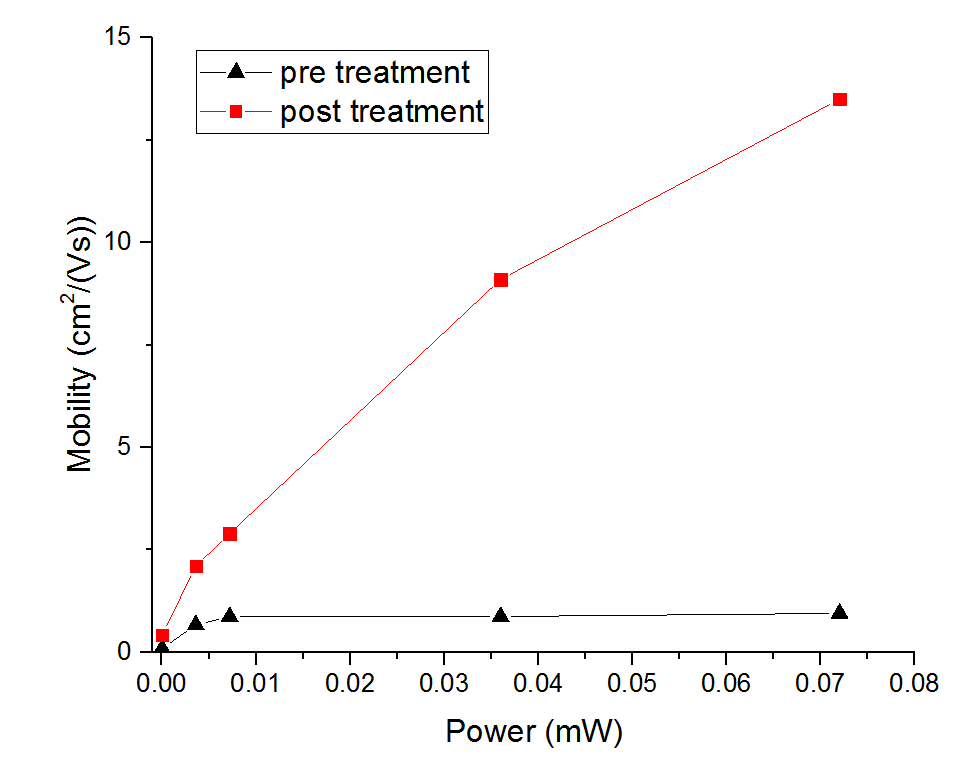
Mobility was evaluated using…



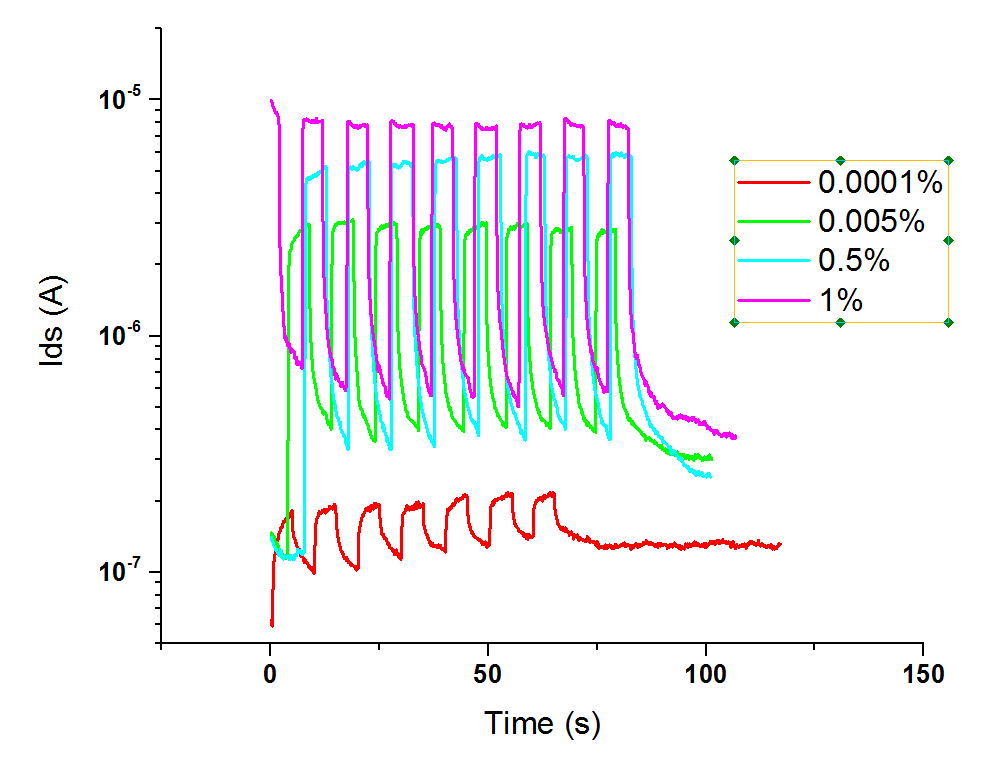
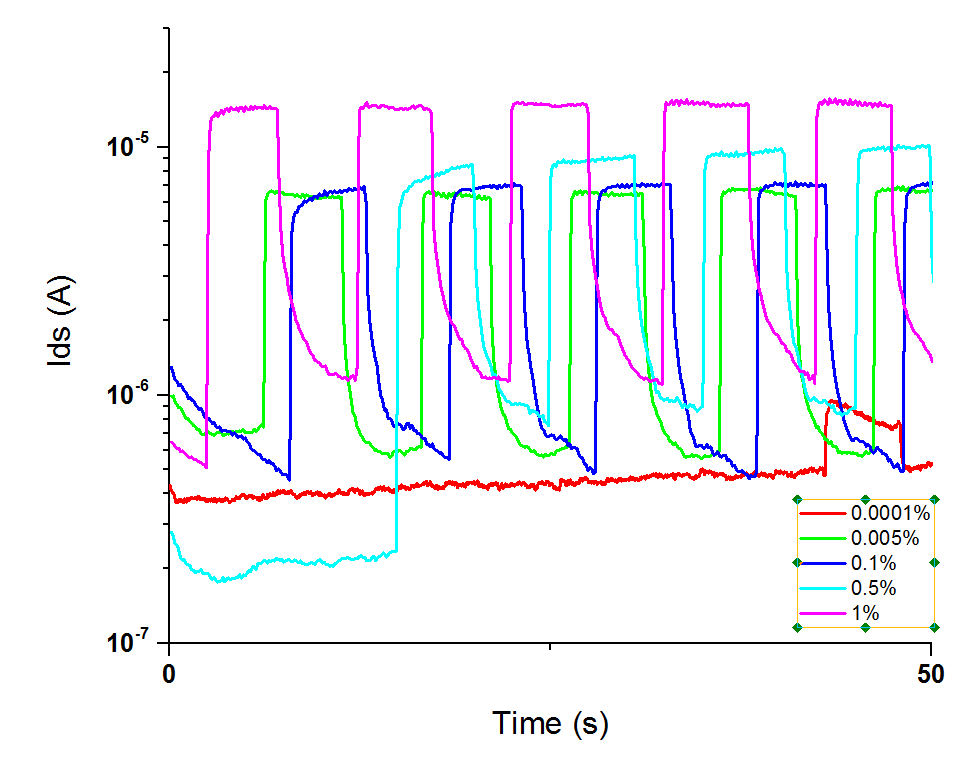
**Figure S1:**



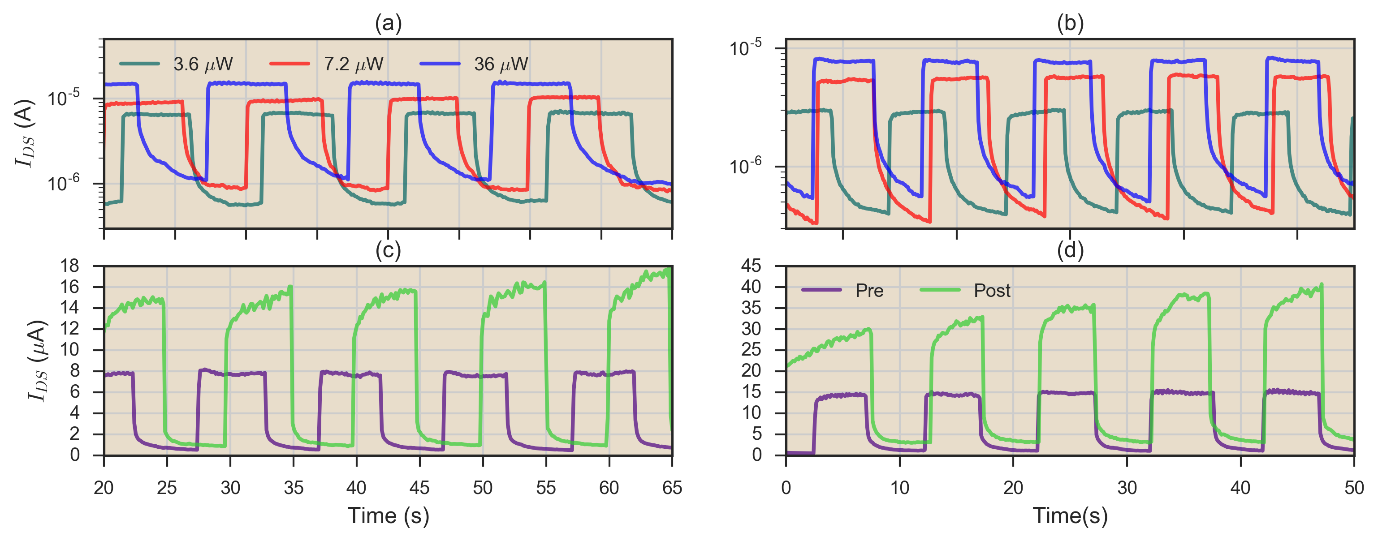
**Figure S2:**



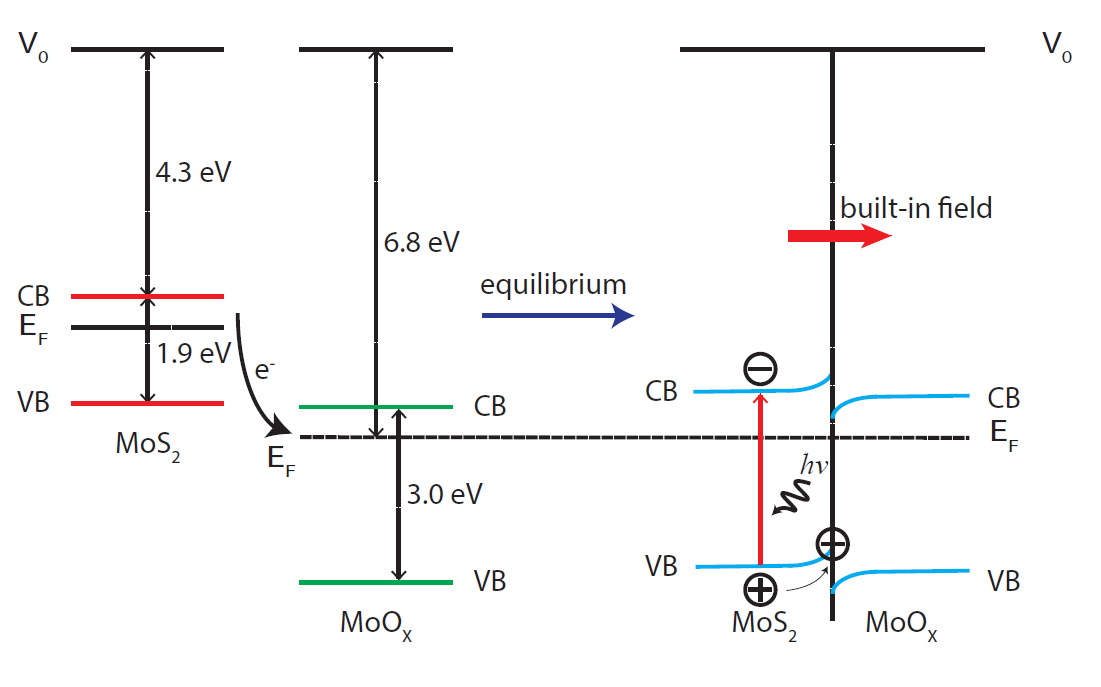
**Figure S3:**



**Figure S4:**



**Figure S5:**



**Figure S6:**