Solution-Processed Light Induced Multilevel Non-volatile Wearable Memory Device Based on $CsPb_2Br_5$ Perovskite

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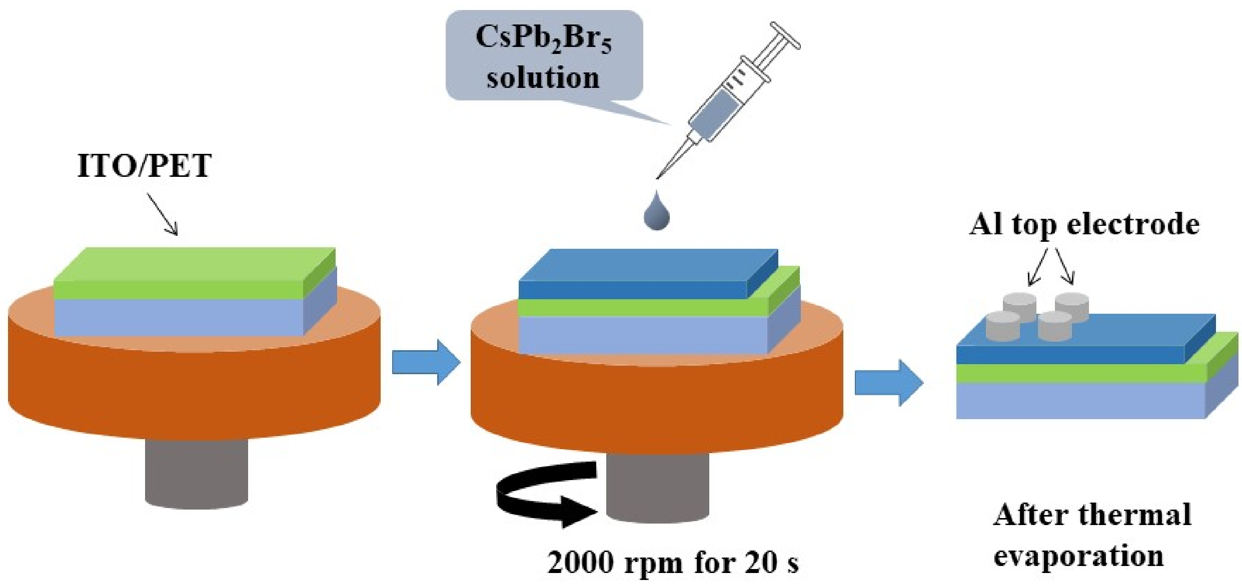

Figure S1: Schematic illustration of the device fabrication.

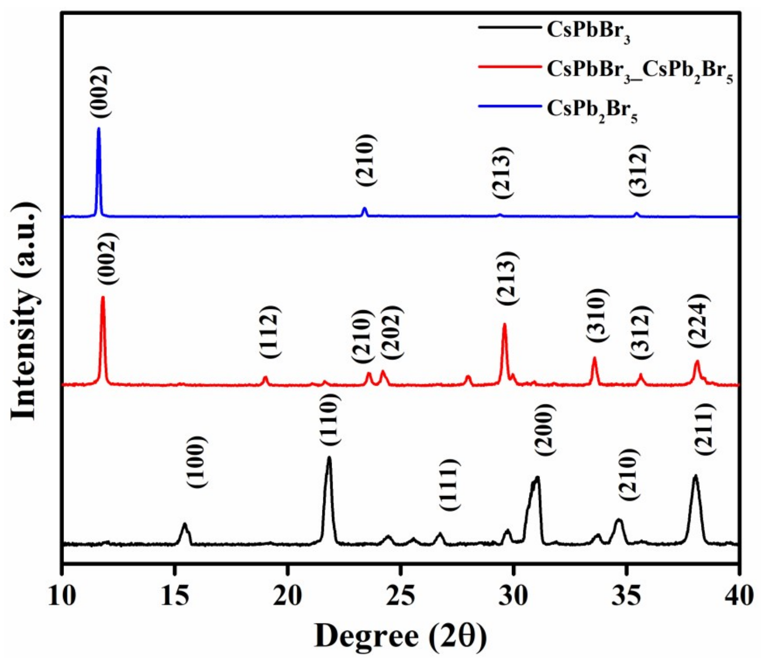

Figure S2: XRD profile of $CsPb_2Br_5$ is compared with pure $CsPbBr_3$ and $CsPb2Br_5$-$CsPbBr_3$.

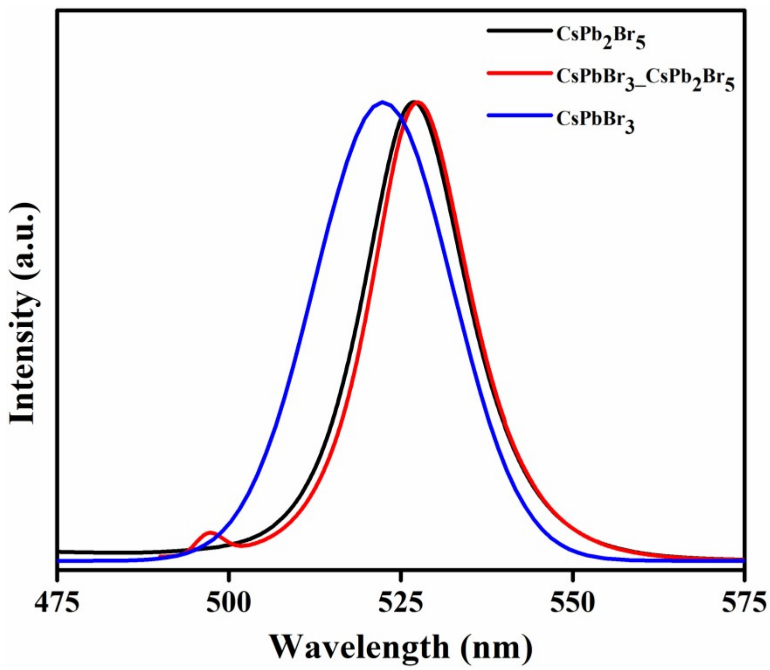

Figure S3: Photoluminescence analysis of $CsPb_2Br_5$ is compared with pure $CsPbBr_3$ and CsPb2Br_5-$CsPbBr_3$.

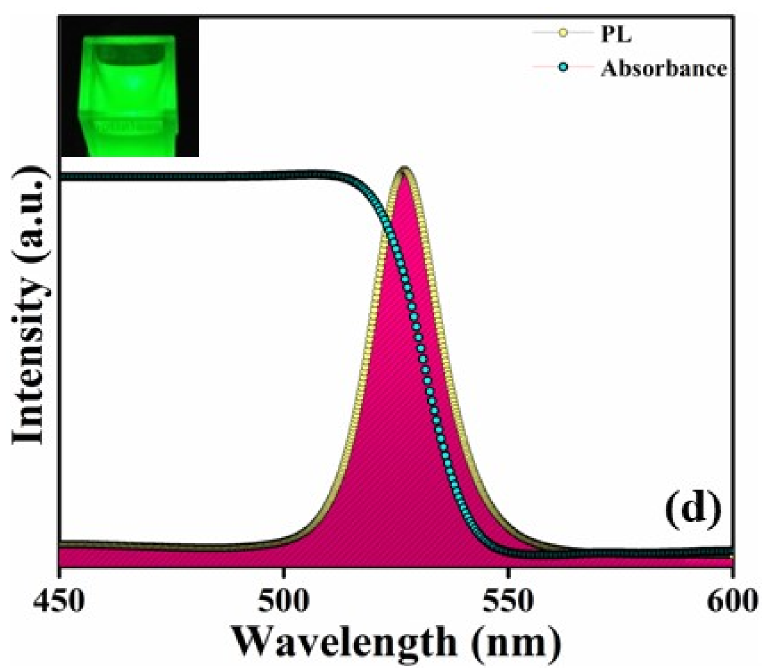

Figure S4: UV-vis absorbance and PL spectra of the $CsPb_2Br_5$.

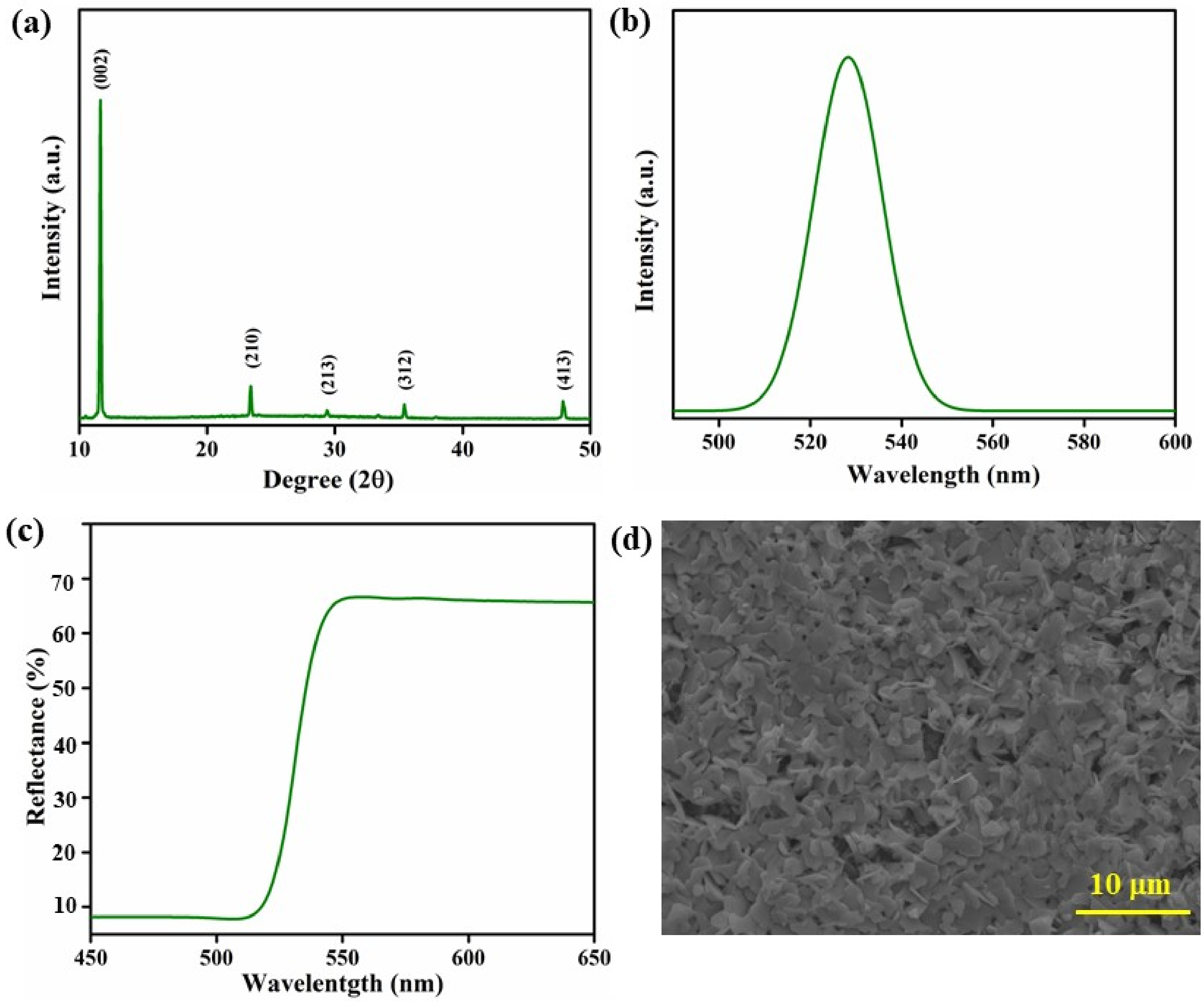

Figure S5: XRD, PL, UV-Vis and FESEM of the perovskite film.

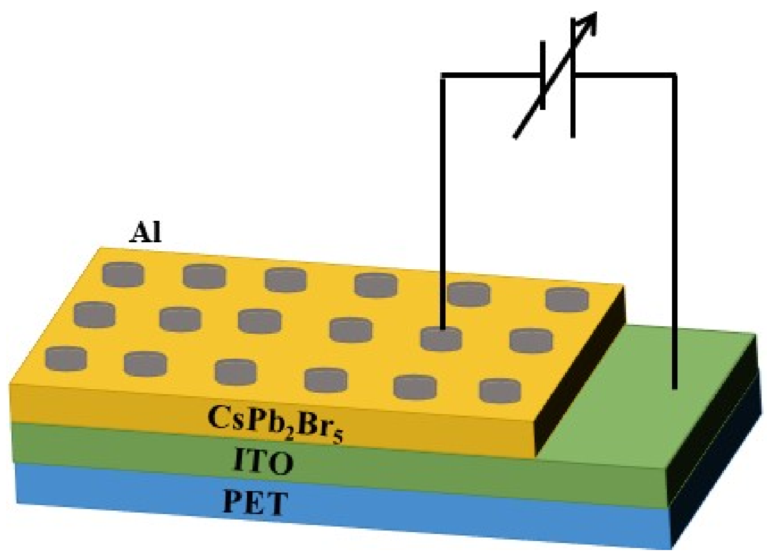

Figure S6: Schematic diagram of the designed memory device.

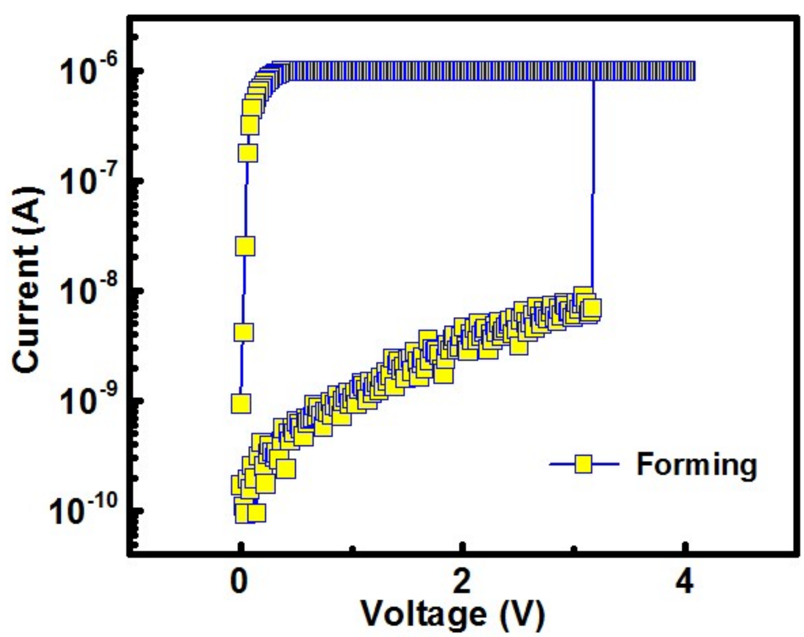

Figure S7: Forming process of the $Al/CsPb_2Br_5/ITO$ device.

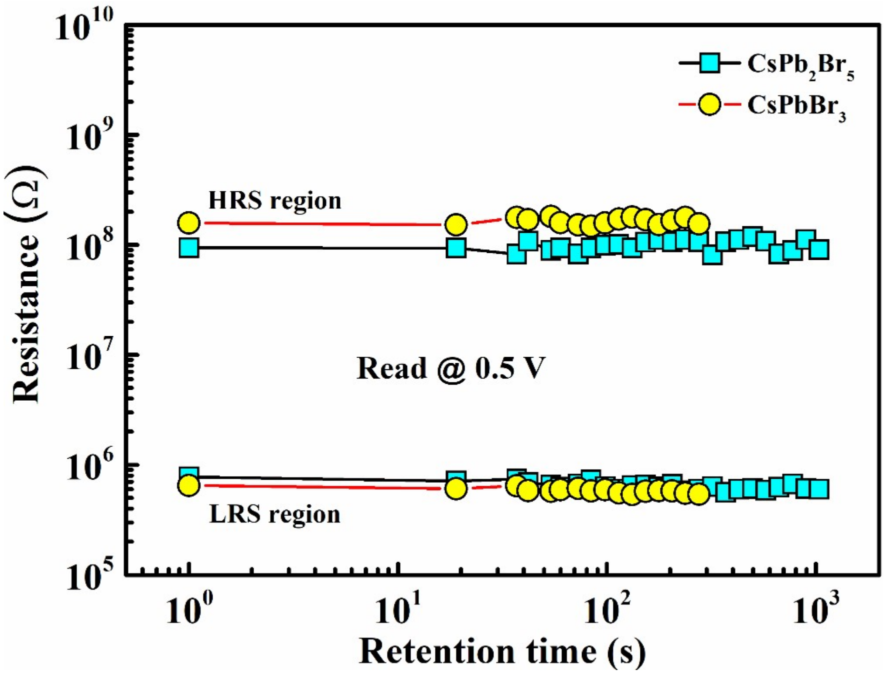

Figure S8: Performance comparison with $CsPbBr_3$

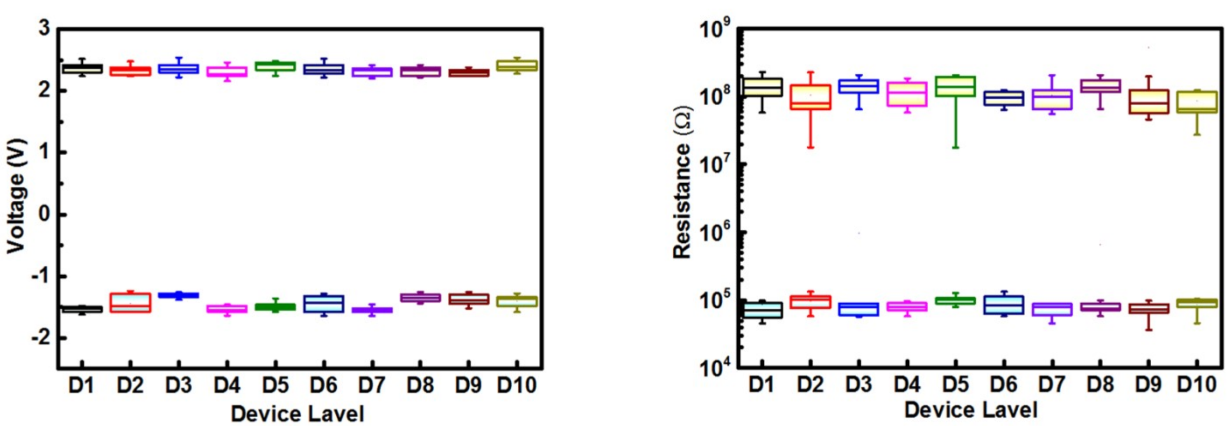

Figure S9: Statistical distribution of (a) the switching voltage (b) LRS and HRS for various Al/$CsPb_2Br_5$/ITO memory cells.

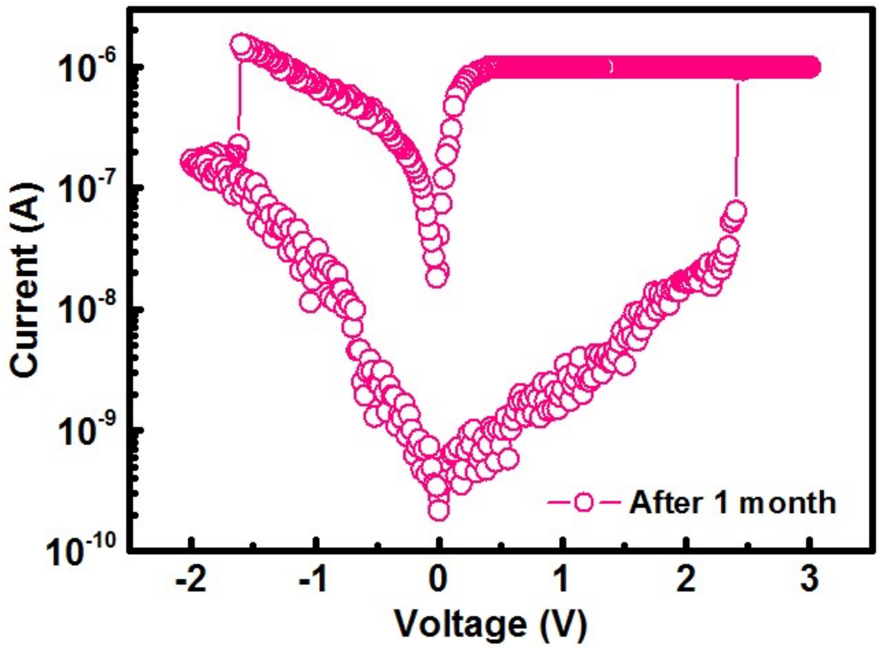

Figure S10: I-V curve of the Al/$CsPb_2Br_5$/ITO/PET device after 1 month.

Table S1: Comparison of perovskite-based resistive memory devices with the proposed device

Sl. No.	Material	Device Structure	SET/RESET Voltage	On/off ratio	Endurance (Cycle)	Bending cycle	Ref.
1	$CsPbBr_3$	Al/$CsPbBr_3$/PEDOT:PSS/ITO/PET	-0.6/1.7	10^2	50	100	1
2	$CsBi_3I_{10}$	Al/$CsPbBr_3$/ ITO substrate	-1.7/0.9	10^3	150	-	2
3	$CsPb_{1-x}Bi_xI_3$	Ag/$CsPb_{1-x}Bi_xI_3$/ITO	-3.6/4	10^2	500	-	3
4	$MA_3Bi_2I_9$	Au/$MA_3Bi_2I_9$/ITO	-0.6/1.5	10^2	300	-	4
5	$MAPbI_{3-x}Cl_x$	Au/$MAPbI_{3-x}Cl_x$/FTO	0.9/-0.65	10	100	-	5
6	$MAPbI_3$	Au/$MAPbI_3$/ITO/PET	0.7/−0.5	10	400	-	6
7	Cs_4PbBr_6	Au/Cs_4PbBr_6/PEDOT:PSS/ITO			100		7
8	$CsPb_2Br_5$	Al/$CsPb_2Br_5$/ITO/PET	2.5/-2	10	100	500	This work

References

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