

# Supporting Information

## Stability assessment of p-i-n perovskite photovoltaic mini-modules utilizing different top metal electrodes

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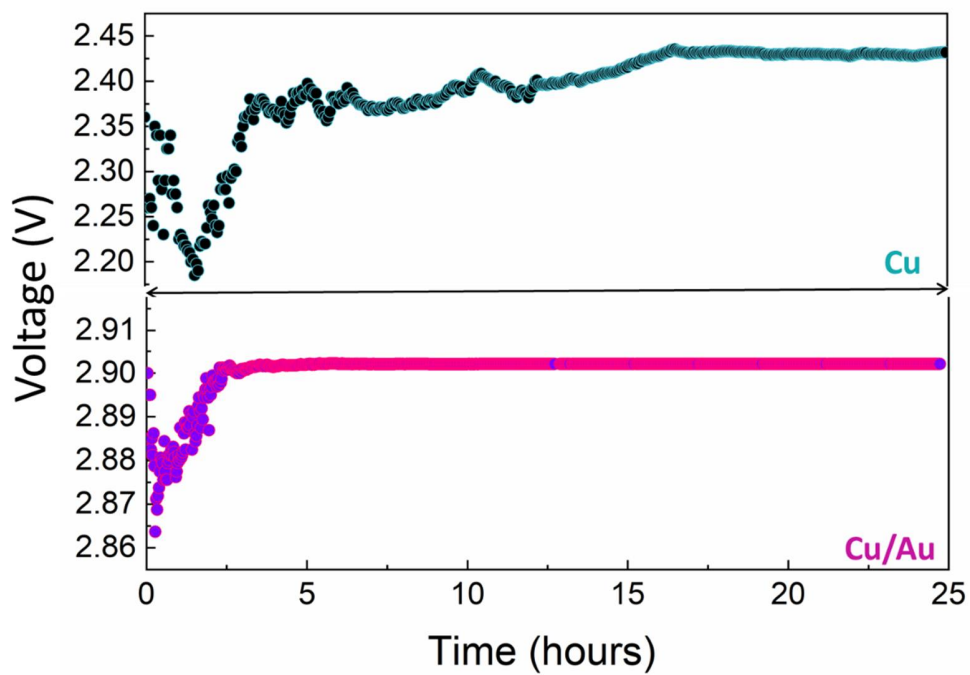
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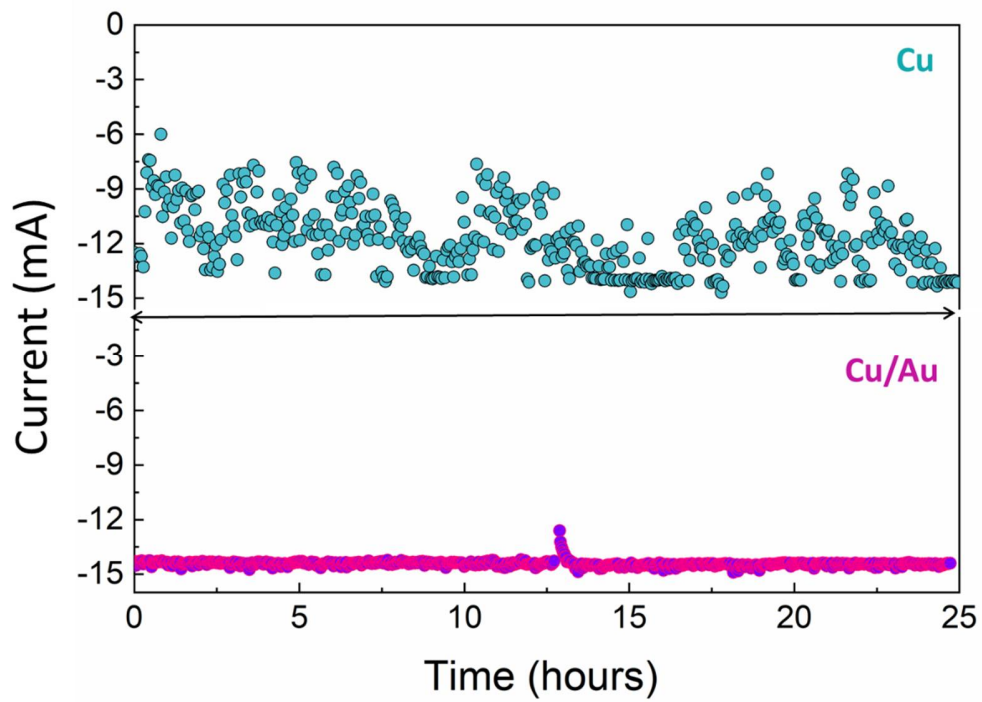
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**Corresponding Author**

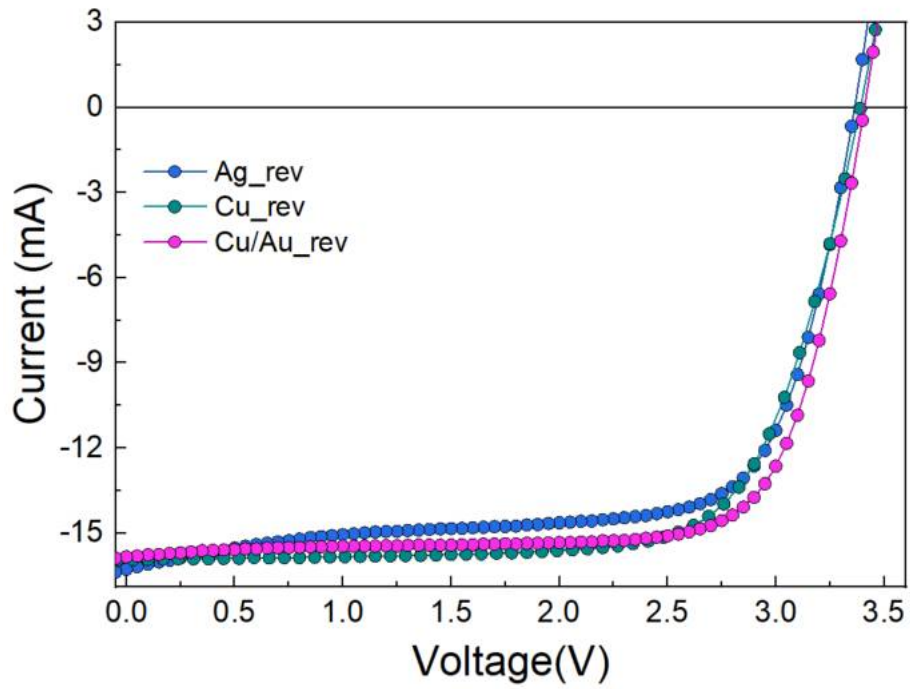
[\\*Janardan.Dagar@helmholtz-berlin.de](mailto:Janardan.Dagar@helmholtz-berlin.de)



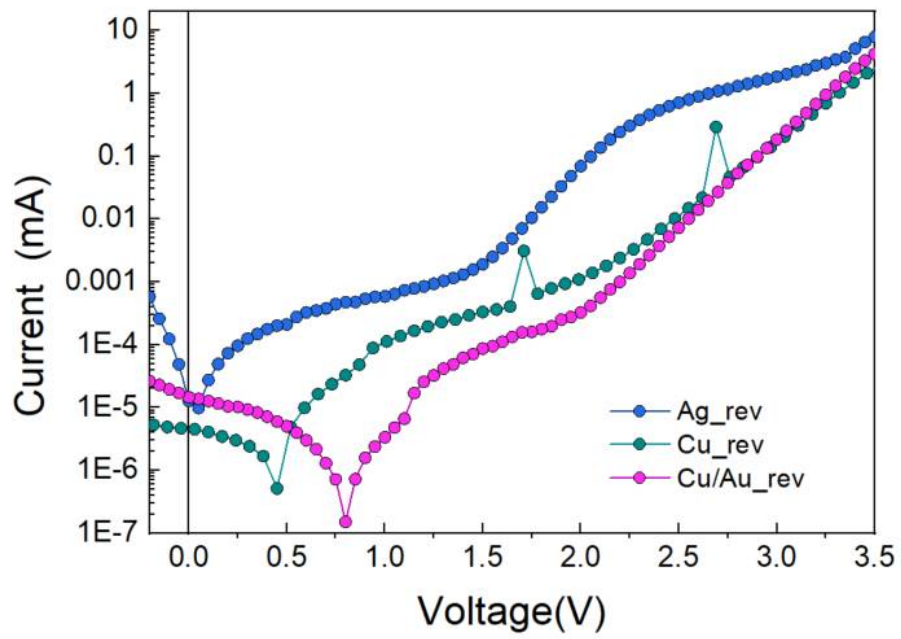
**Figure S1.** Steady state voltage ( $V_{MPP}$ ) measured under 1 sun illumination for both Cu and Cu/Au based mini modules.



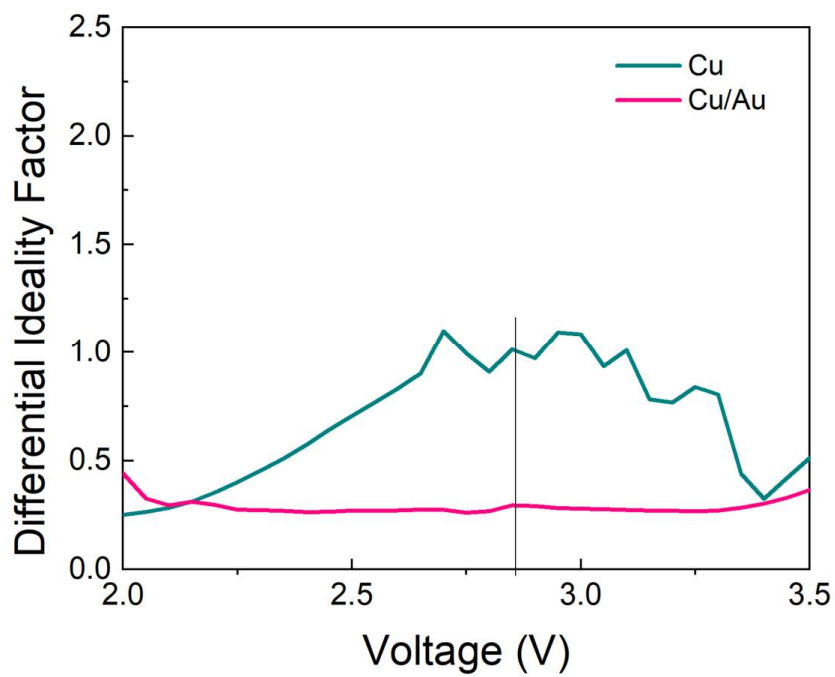
**Figure S2.** Steady state current ( $I_{MPP}$ ) measured under 1 sun illumination for both Cu and Cu/Au based mini modules.



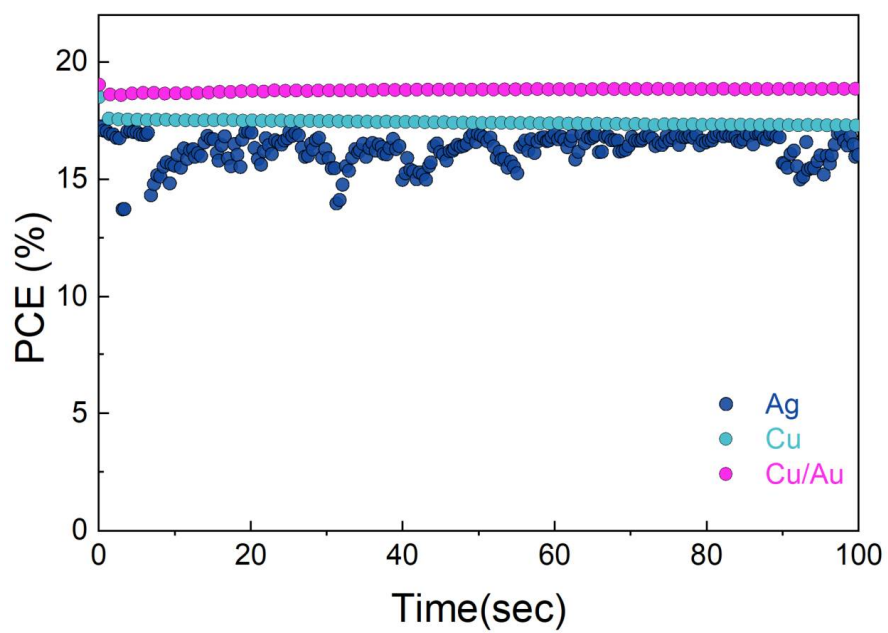
**Figure S3.** Current-voltage ( $I$ - $V$ ) measurements of best-performing perovskite solar mini-modules (ITO|2PACz|CsFAPb(Br, I)<sub>3</sub>|C<sub>60</sub>|SnO<sub>2</sub> |Ag or Cu or Cu/Au measured under simulated AM 1.5G illumination.



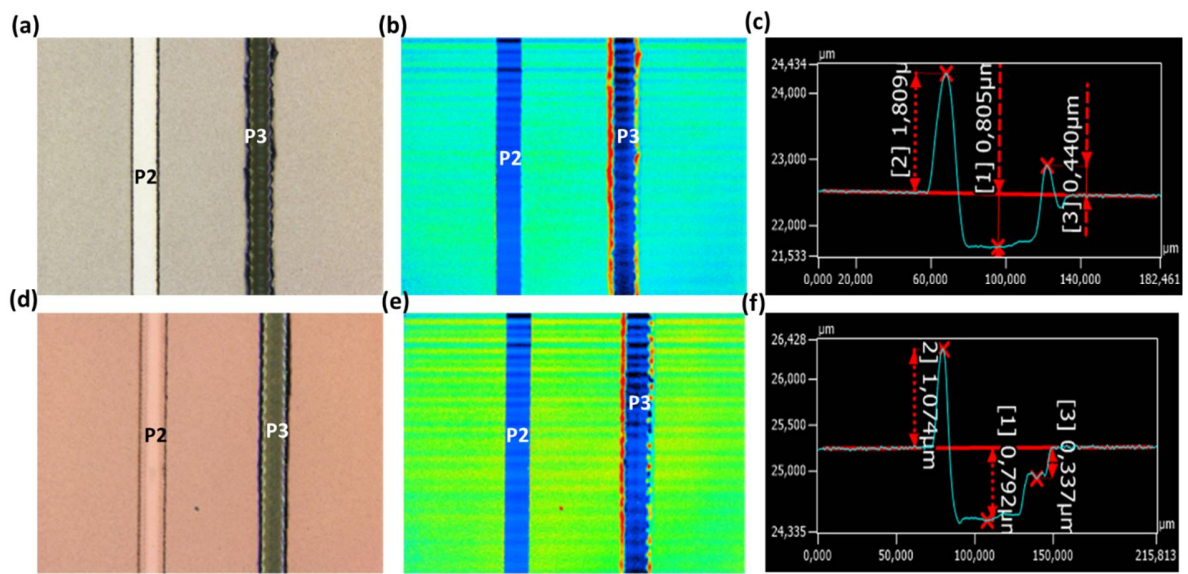
**Figure S4.** Current–voltage ( $I$ - $V$ )-characteristics perovskite solar minimodules measured under dark.



**Figure S5.** Ideality factors calculated from  $I$ - $V$  curves measured under dark conditions for both Cu and Cu/Au based PSMs.

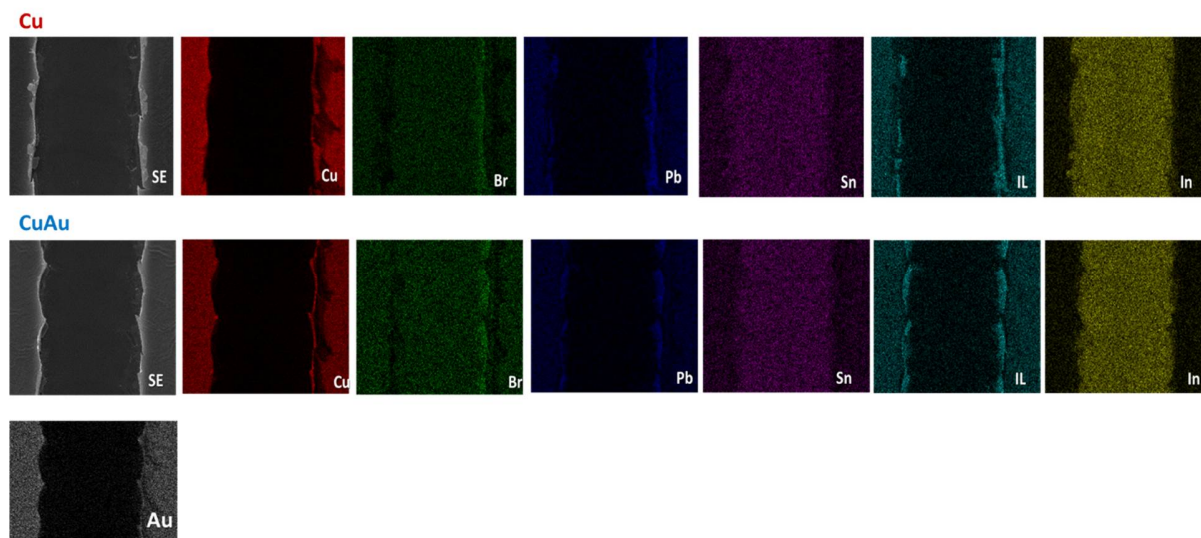


**Figure S6.** The maximum power point tracking (*MPPT*) measured for 100 s at the fixed voltage near the maximum power point (*MPP*) derived from *I-V* measurements.



**Figure S7.** Optical microscopy images of P2 and P3 patterning of perovskite mini-module. (a-c) PSMs with Cu electrode, (d-f) with Cu/Au electrodes.





**Figure S8.** EDX images of P3 scribing of both Cu and Cu/Au based PSMs.