

## Supporting Information

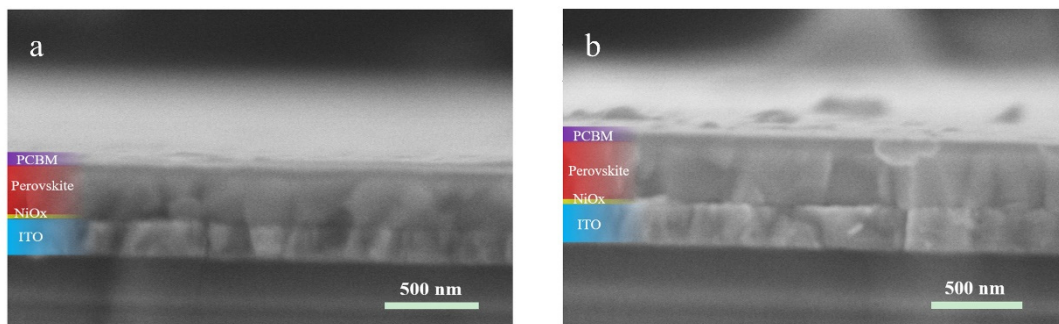


Figure S1. Cross-sectional SEM images of perovskite devices: (a) control and (b) 0.05 TCM additive.

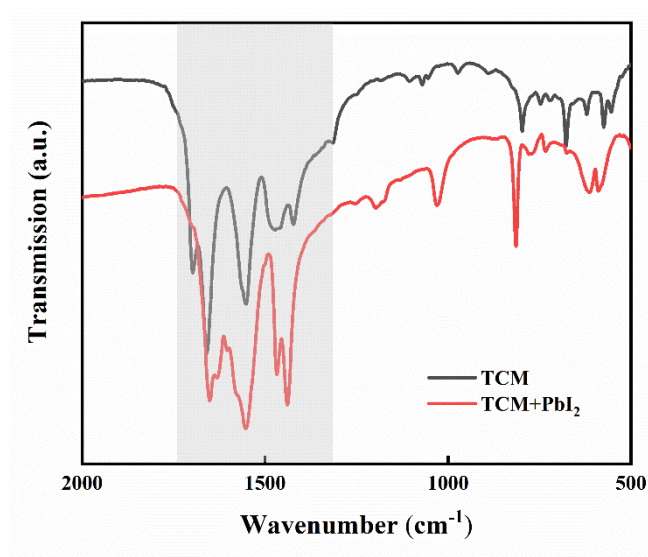


Figure S2. FT-IR spectrum of pure TCM and PbI<sub>2</sub> mixed with TCM.

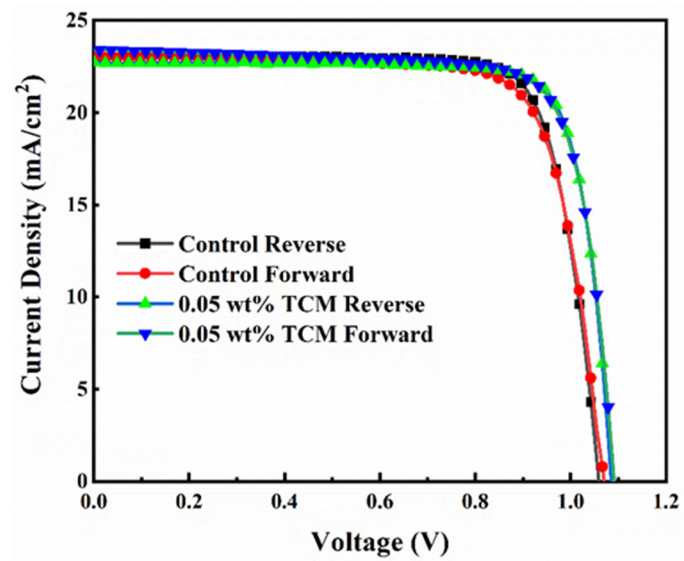


Figure S3.  $J$ - $V$  curve of forward and reverse voltage scanning of the best control device and 0.05 TCM device.

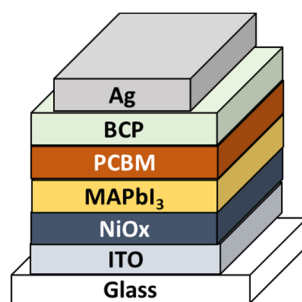


Figure S4. Device configuration of inverted perovskite solar cells