Supporting Information

Vertical p-i-p perovskite photoconductors combining intrinsic and doped organic transport layers

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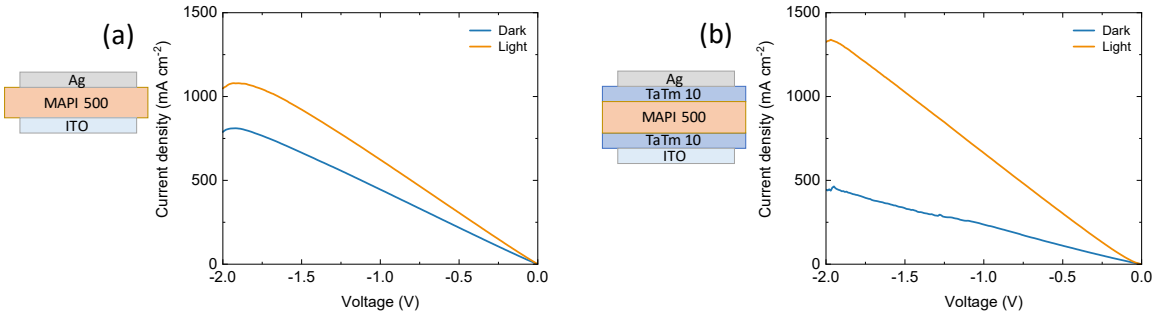

Figure S1. *J–V* characteristics in linear scale, in the dark (blue curve) and under 100 mW/cm^2 illumination (orange curve), for different device configurations.

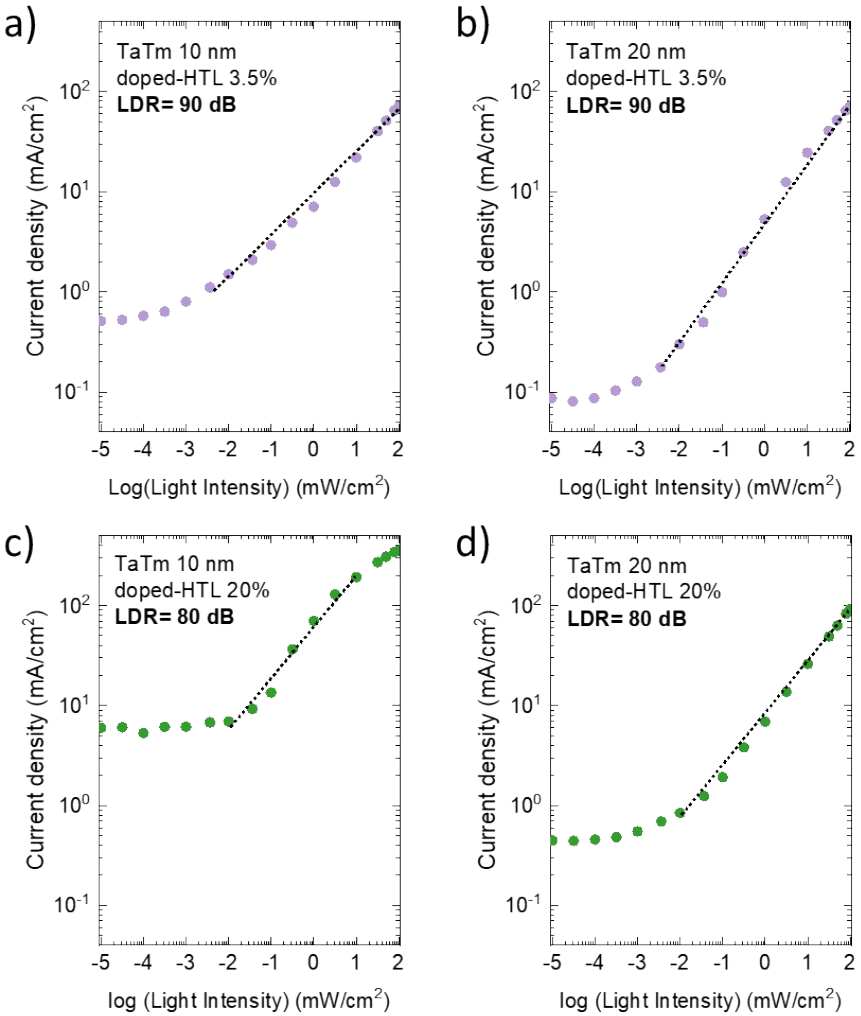

Figure S2. Photo-response versus light intensity at –2 V for selected symmetric photodetectors with the stack ITO/doped-TaTm/TaTm/MAPI/TaTm/doped-TaTm/Ag. (a) TaTm 10 nm, dopant concentration of 3.5%. (b) TaTm 20 nm, dopant concentration of 3.5%. (c) TaTm 10

nm, dopant concentration of 20%. (d) TaTm 20 nm, dopant concentration of 20%. The LDR is obtained by fitting the linear part of the light response.

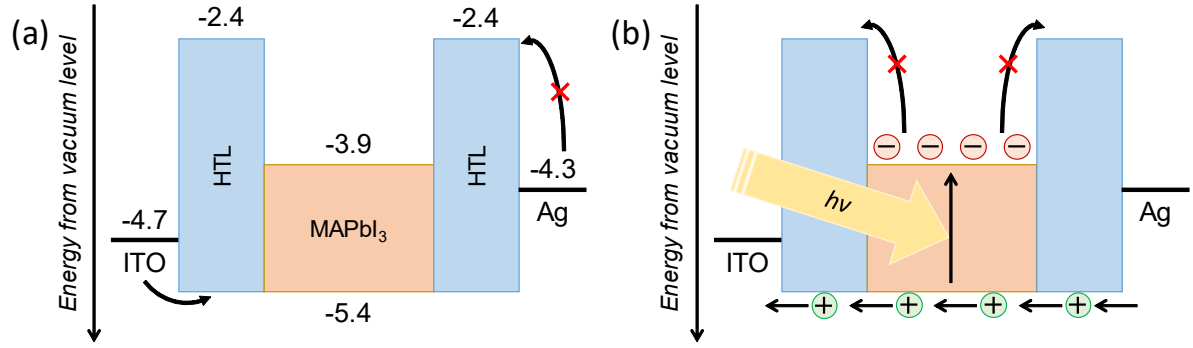

Figure S3. Schematics of the working mechanism of our vertical photoconductors (a) in the dark and (b) upon illumination.

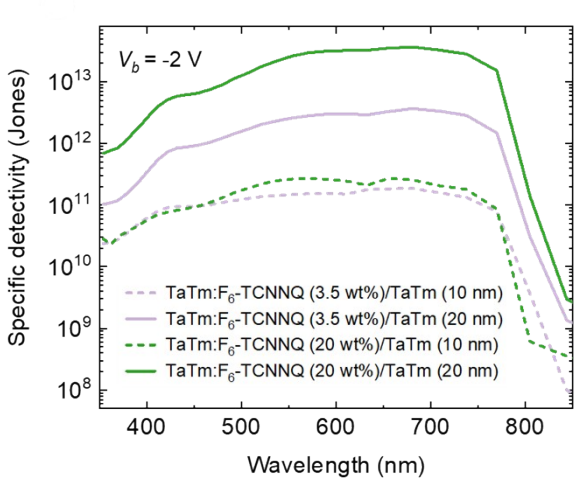

Figure S4. Specific detectivity at –2 V of the vertical photoconductors composed of two thickness of the intrinsic HTL (dash line for 10 nm and straight line for 20 nm) and two concentrations of doped-HTL (3.5 wt% and 20 wt%).