

Supporting information

Dopant-free multilayer back contact silicon solar cells employing V_2O_x /metal/ V_2O_x as an emitter

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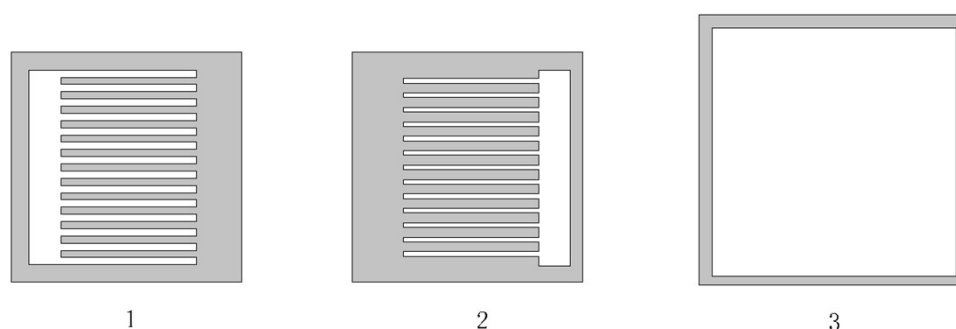


Figure S1 The three metal patterning masks for alignment

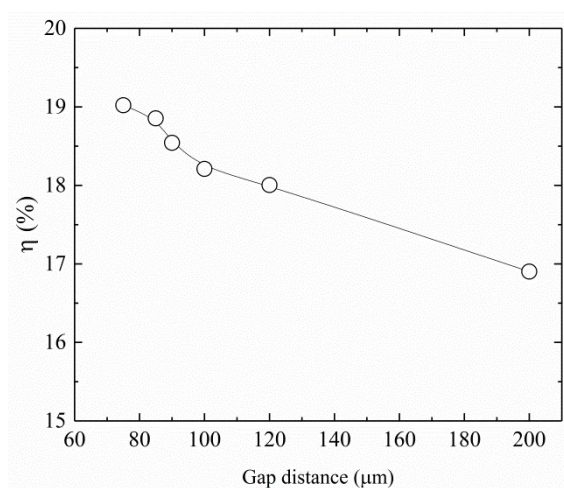


Figure S2 Efficiency as a function of the gap distance

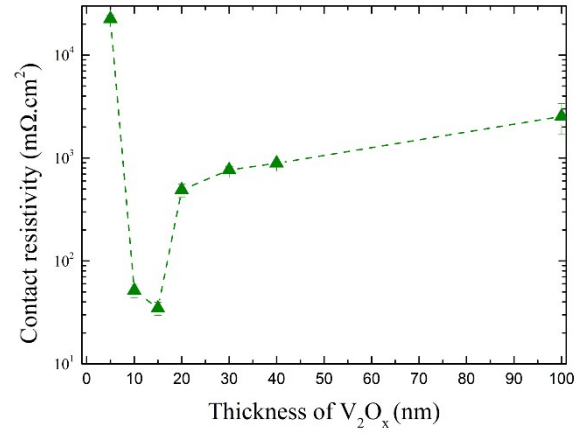


Figure S3: The dependence of contact resistance ρ_c values for V_2O_x/n -Si contacts on V_2O_x thickness, as respectively measured and fitted using the transfer length method (TLM).

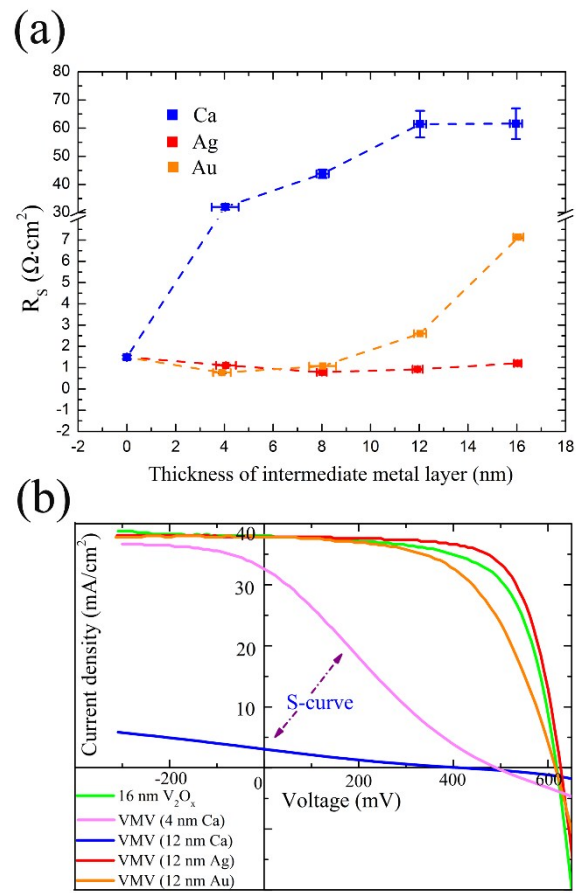


Figure S4: (a) The dependence of series resistance R_s values for VMV/n-Si solar cell. (b) The J-V characteristic curves of different emitters.

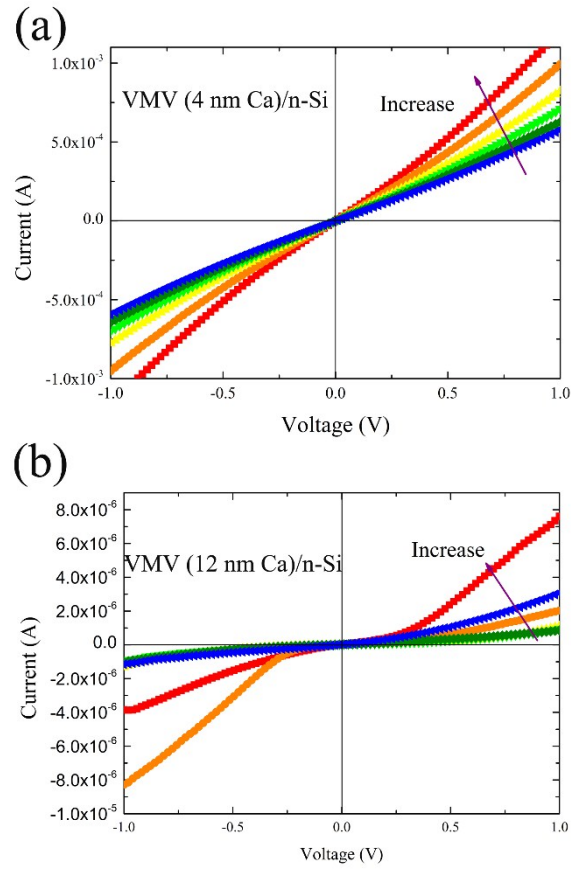


Figure S5: (a) and (b) show a series of I–V measurements of sample with VMV (Ca)/n-Si contacts using the transfer length method (TLM).

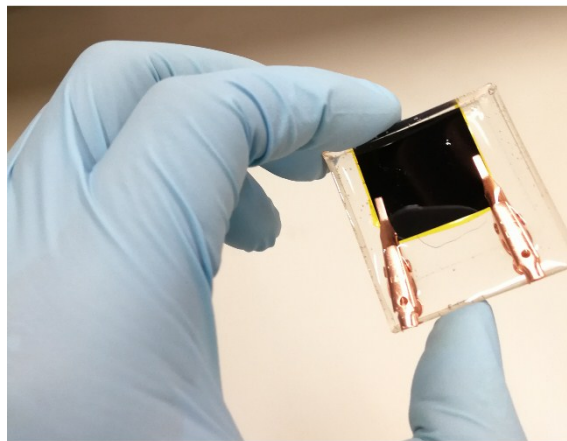


Figure S6: The image of a finished MLBC solar cells with VMV (4 nm Au) as emitter.