Supporting information for

Multilayered $PdTe_2$/Thin Si Heterostructures as Self-powered Flexible Photodetectors with Heart Rate Monitoring Ability

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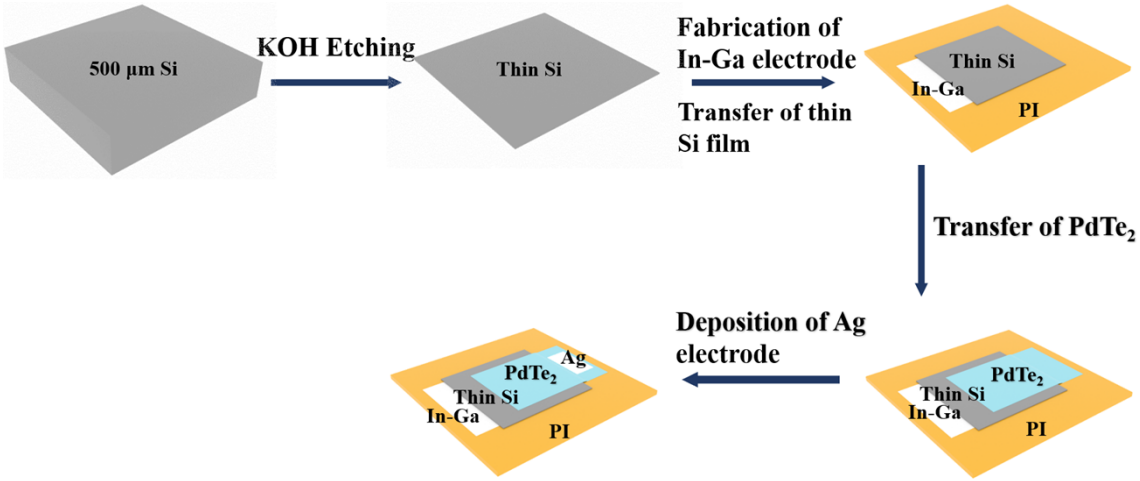

Figure S1. Schematic diagram of the procedures for fabricating $PdTe_2$ multilayer/thin Si heterostructure-based flexible photodetector.

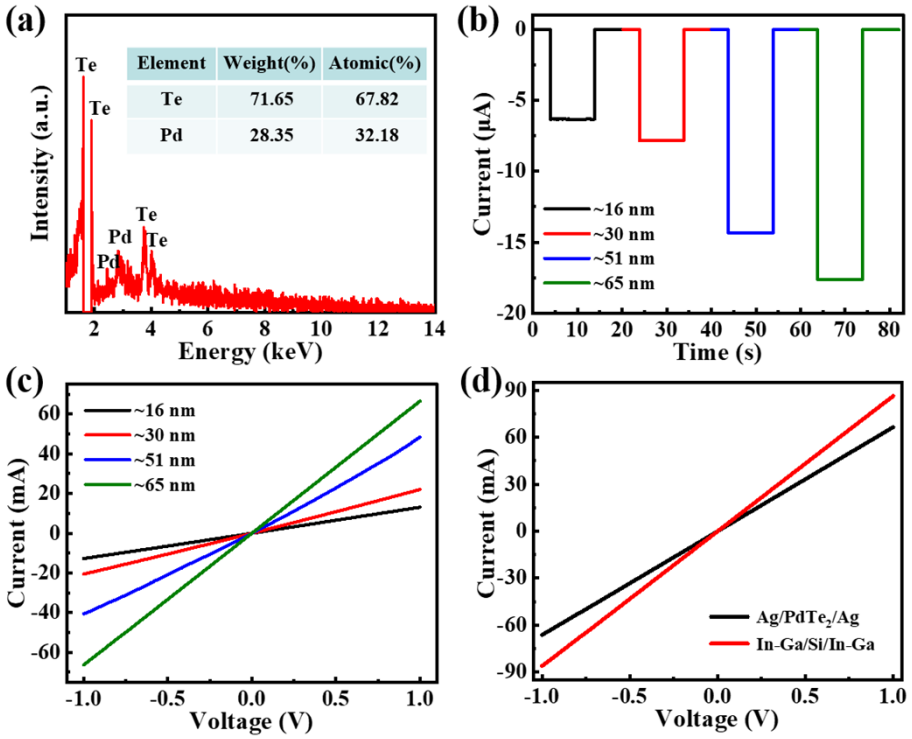

Figure S2. (a) EDS spectrum of the $PdTe_2$ sample. The inset shows the weight and atomic ratios of Pd and Te elements. (b) Transient photoresponse of the heterostructure devices with different $PdTe_2$ thicknesses. (c) *I-V* curves of Ag/$PdTe_2$/Ag structures with different $PdTe_2$ thicknesses. (d) *I-V* curves of Ag/$PdTe_2$/Ag and In-Ga/Si/In-Ga structures, showing good ohmic contacts between $PdTe_2$ and Ag, as well as In-Ga and n-Si.

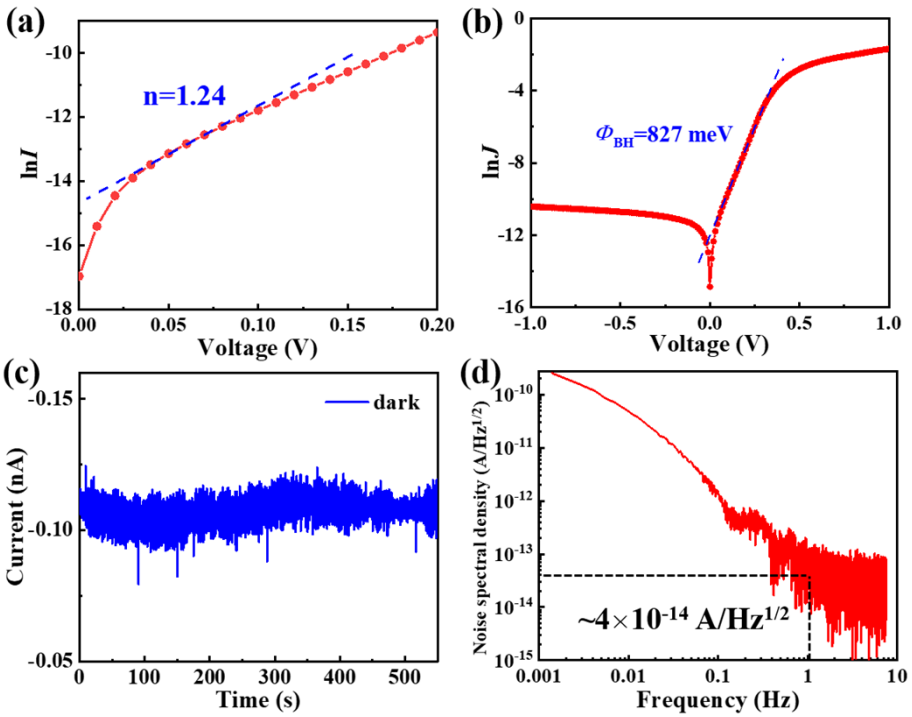

Figure S3. (a) ln*I*-*V* curve of the heterostructure for estimating the diode ideality factor (*n*). (b) The plot of ln*J*-*V* curve for calculating the barrier height of the heterostructure. (c) The noise of the dark current of the light detector at zero bias. (d) The noise spectral density based on the Fourier transform of the dark current.