Supporting Materials

Fabrication of Large-area short-wave infrared array photodetectors under high operating temperature by high quality PtS_2 continuous films

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Keywords: PtS_2, broaden spectra, array photodetectors, high-temperature, large area

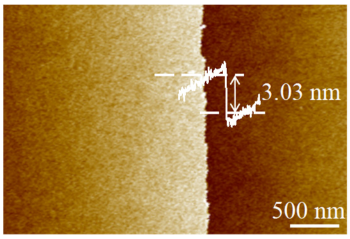

Figure S1. Pt AFM image plated on SiO_2/Si substrate.

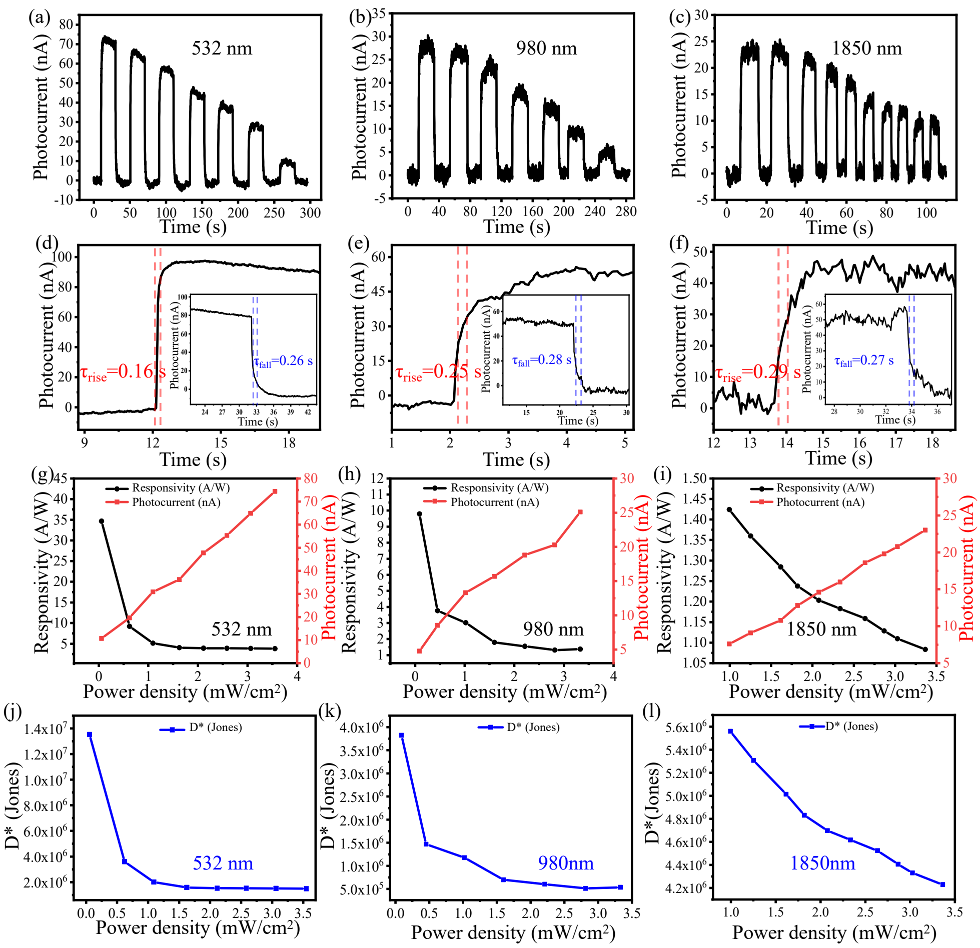

Figure S2. Photo-response performance of PtS_2 films based FETs at 532, 980, 1850 nm. (**a**-**c**) Photo-response of the device under different wavelengths of laser illumination under 532, 980 and 1850 nm as the power density decreased. (**d**-**f**) Photo-response of the photodetector to on/off laser illumination is 532, 980, and 1850 nm, respectively. (**g**-**i**) Photocurrent and responsivity as a function of laser illumination power density at 532, 980, and 1850 nm, respectively. (**j**-**k**) The power of incident light at 532, 980, 1850 nm and the detectivity (D*) have a functional relationship, respectively.

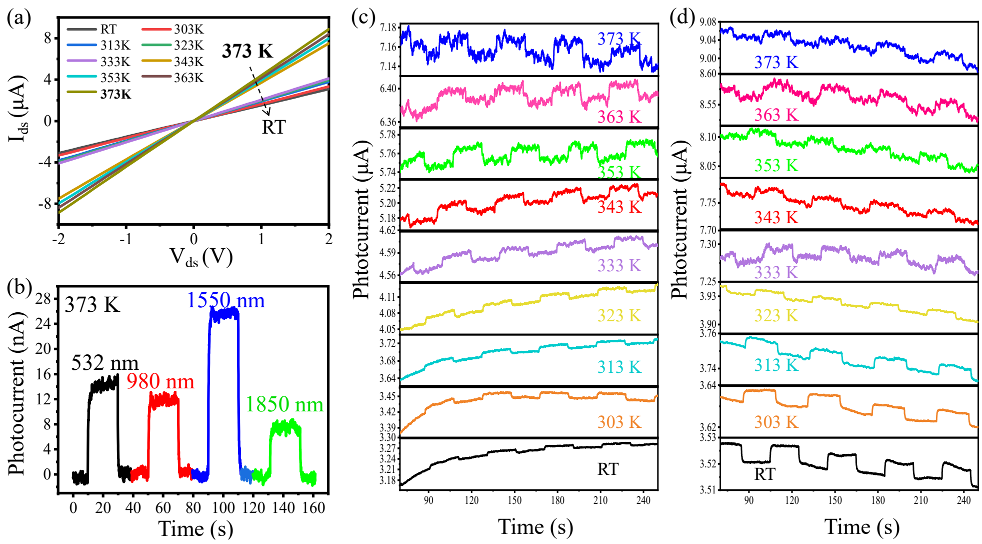

Figure S3. Photoelectric properties of PtS_2 nanosheets at high temperature. (**a**) Room temperature output characteristic curve of PtS_2 device 373 K. (**b**) The photocurrent changes at different laser wavelengths when the PtS_2 FET is heated to 373 K, and V_{ds} = 2 V. At V_{ds} = 2.0 V, the optical response changes with temperature when the PtS_2 device is heated to 373 K (**c**) and then reduced from 373 K to room temperature (**d**).