Supporting information:

A High-Sensitive SnSe/Si Heterojunction Position-Sensitive Detector for Ultra-Low Power Detection

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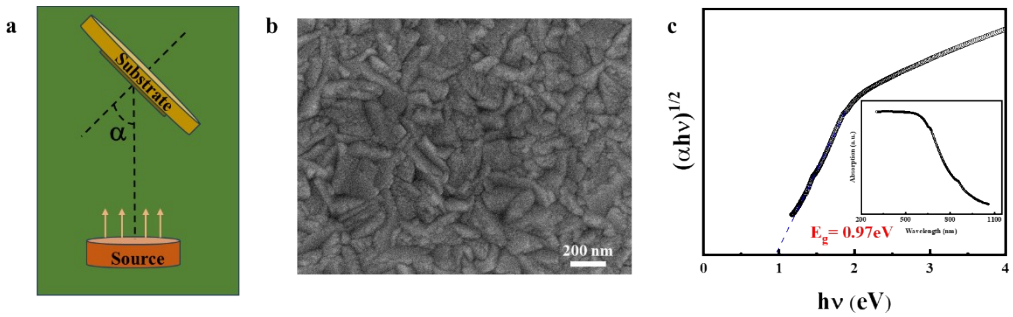

Fig. S1. (a) Schematic illustration of the GLA magnetron sputtering technique. (b) plane view of the SnSe film by conventional sputtering deposition (α = 0.0°). (c) Tauc plot of $(\alpha h\nu)^{1/2} - h\nu$ extracted from UV-vis spectrum in the bottom inset. The bottom inset shows the corresponding UV-vis spectrum.

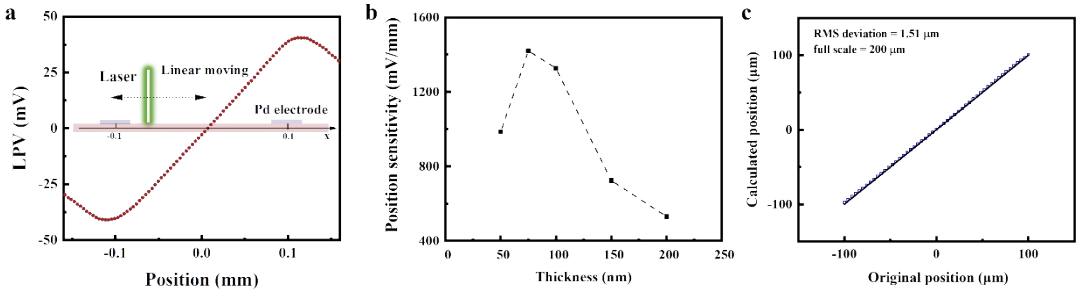

Fig. S2. (a) A typical laser position-dependent LPV curve with the corresponding diagram of the illumination position coordinate. (b) Influence of SnSe-NRs film thickness on the device performance. (c) Plot of original and calculated positions showing the deviation from linear behavior.

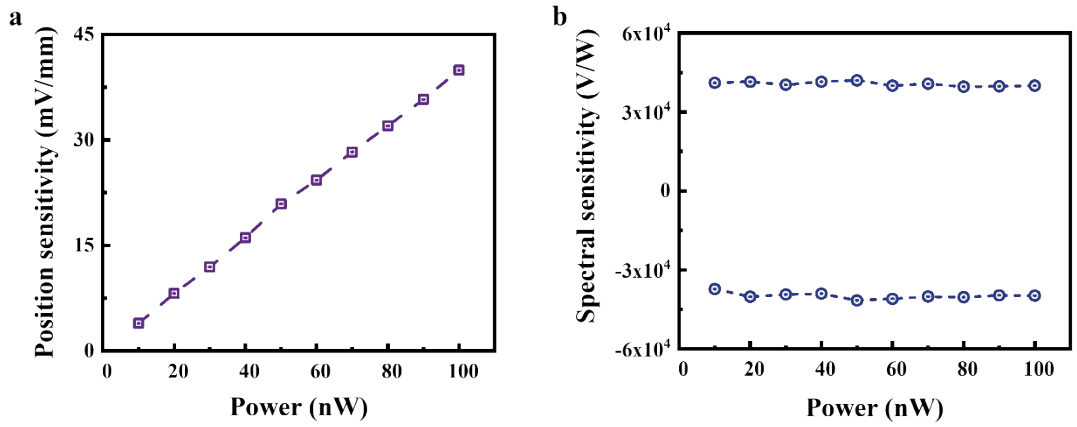

Fig. S3. (a) Position sensitivity and (b) spectral sensitivity of the x = ± 0.1 mm under weak light illumination (10 nW-100 nW) of a 520 nm laser.

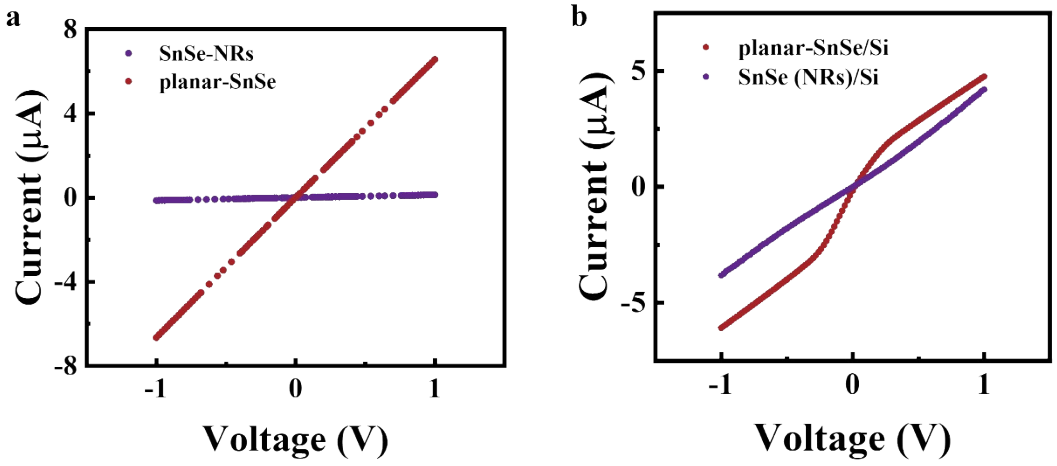

Fig. S4. (a) Lateral I-V curves of planar-SnSe film (α = 0.0°) and SnSe-NRs film (α = 85.0°) deposited on quartz glass substrates. (b) Dark lateral I-V curves of SnSe (NRs)/Si and planar-SnSe/Si heterostructure devices.