Associated content

* Electronic Supporting Information (ESI†)

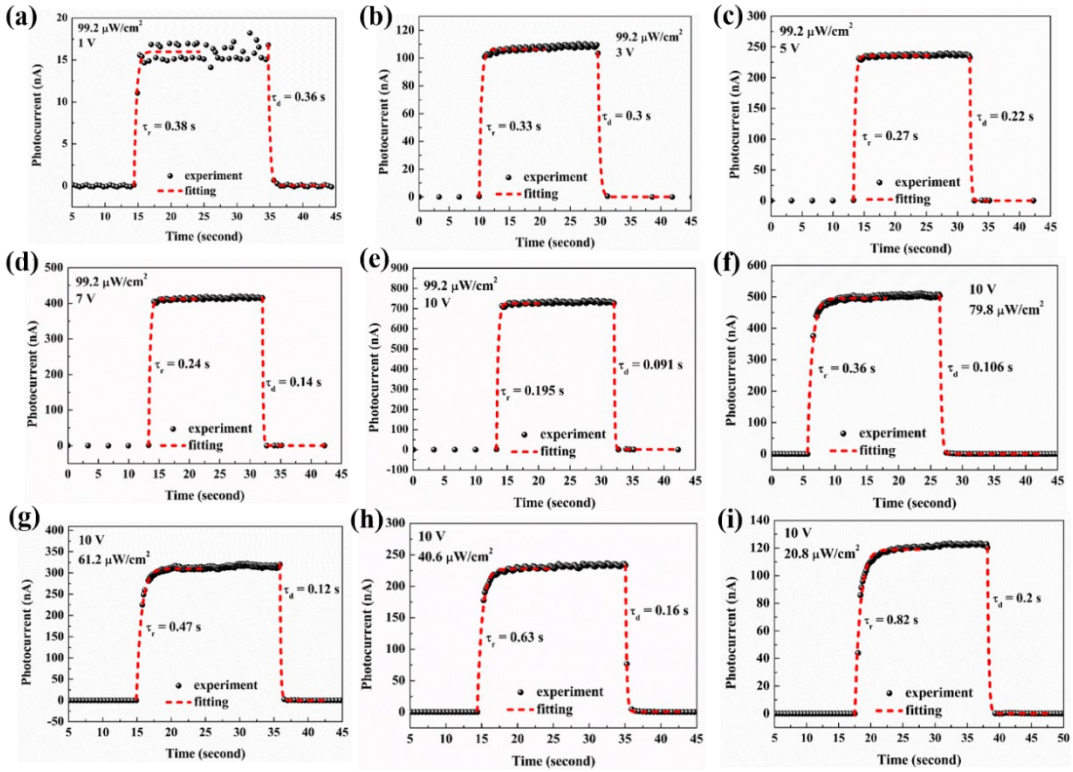

Fig. S1. The first-order exponential fitting of one cycle (40 s) under the conditions of different applied voltages and UV light intensities to calculate the rise and decay time for MOS-structured photodiode, working as a UV solar-blind photodetector. The corresponding voltages and UV light intensities are (a) 1 V and 99.2 μW cm^{-2}, (b) 3 V and 99.2 μW cm^{-2}, (c) 5 V and 99.2 μW cm^{-2}, (d) 7 V and 99.2 μW cm^{-2}, (e) 10 V and 99.2 μW cm^{-2}, (f) 10 V and 79.8 μW cm^{-2}, (g) 10 V and 61.2 μW cm^{-2}, (h) 10 V and 40.6 μW cm^{-2} and (i) 10 V and 20.8 μW cm^{-2}, respectively.

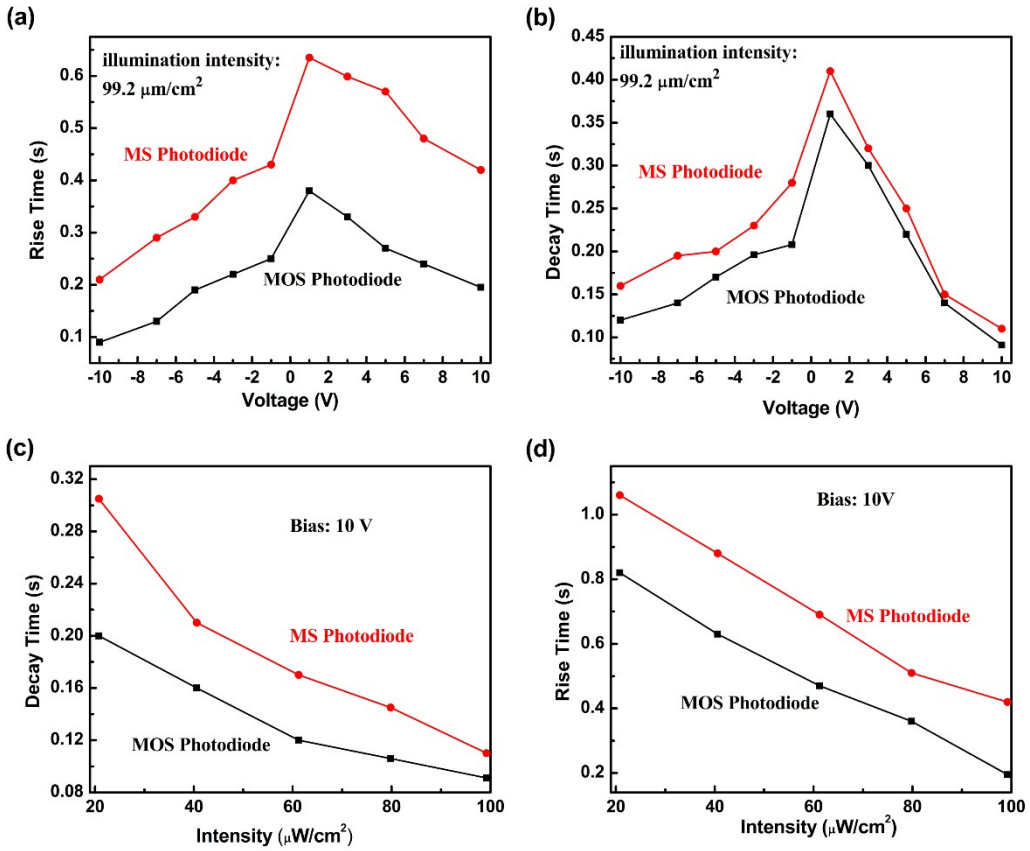

Fig. S2. The (a) rise and (b) decay time of the MOS and MS photodetectors under 99.2 μW cm^{-2} at voltages of -10 V, -7 V, -5 V, -3 V, -1 V, 1 V, 3 V, 5 V, 7 V and 10 V. The (c) decay and (d) rise time of the MOS and MS photodetectors at 10 V under illuminations of 20.8 μW cm^{-2}, 40.6 μW cm^{-2}, 61.2 μW cm^{-2}, 79.8 μW cm^{-2} and 99.2 μW cm^{-2}.

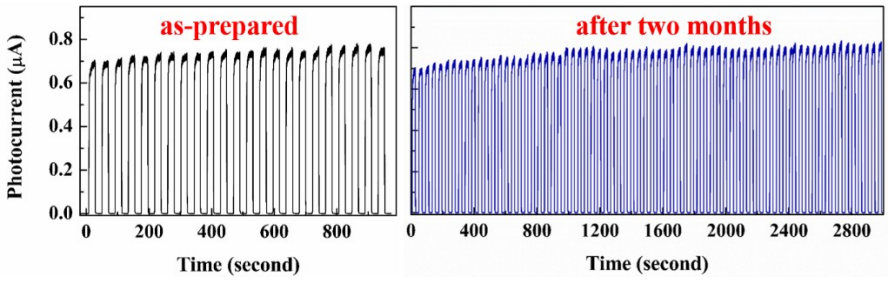

Fig. S3. The time-dependent switching photocurrents of the MOS-structured photodiode photodetector, that is measured at the as-prepared device and after two months storage in air at room temperature in our laboratory under the 99.2 μW cm^{-2} 254 nm light illumination at applied voltage of 10 V.