Supporting Information

Stable Ultra-Fast Broad Bandwidth Photodetectors based on α-$CsPbI_3$ Perovskite and $NaYF_4$:Yb,Er Quantum Dots

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Keywords: photodetector, α-$CsPbI_3$, quantum dot, $NaYF_4$:Yb,Er, stability

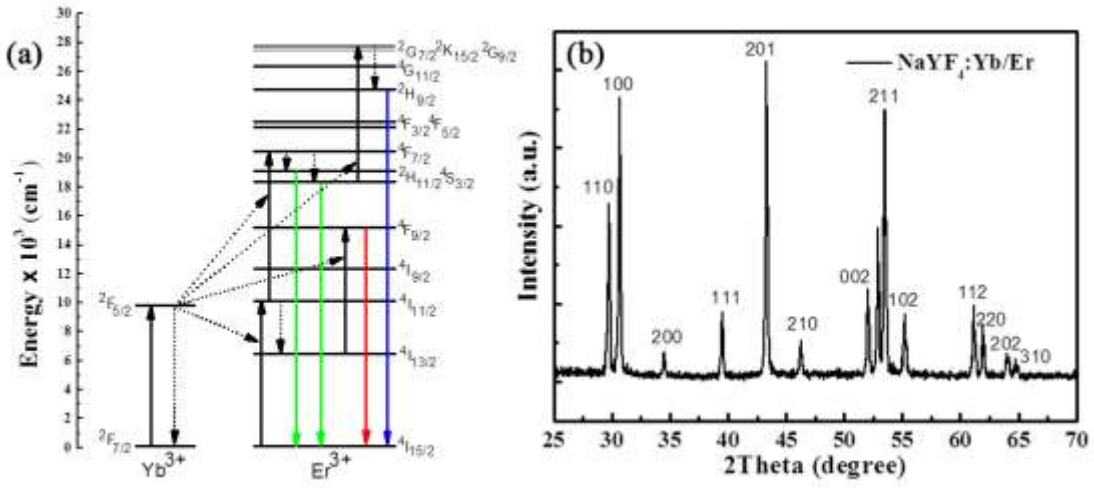

Figure S1 (a) Energy level diagram of Ln^{3+} (Yb^{3+}, Er^{3+}), **(b)** XRD patterns of 2.0 mol. % Er^{3+}, 20 mol. % Yb^{3+} co-doped $NaYF_4$.

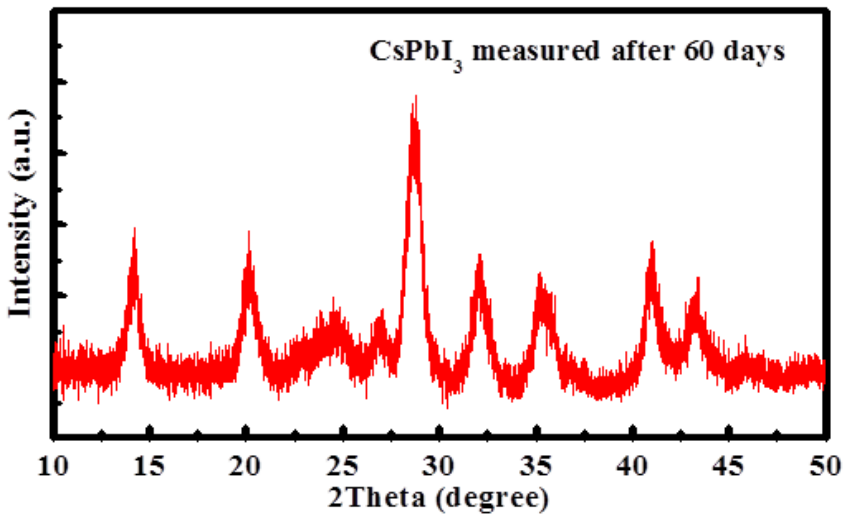

Figure S2 XRD patterns of α-$CsPbI_3$ QDs after 60 days.

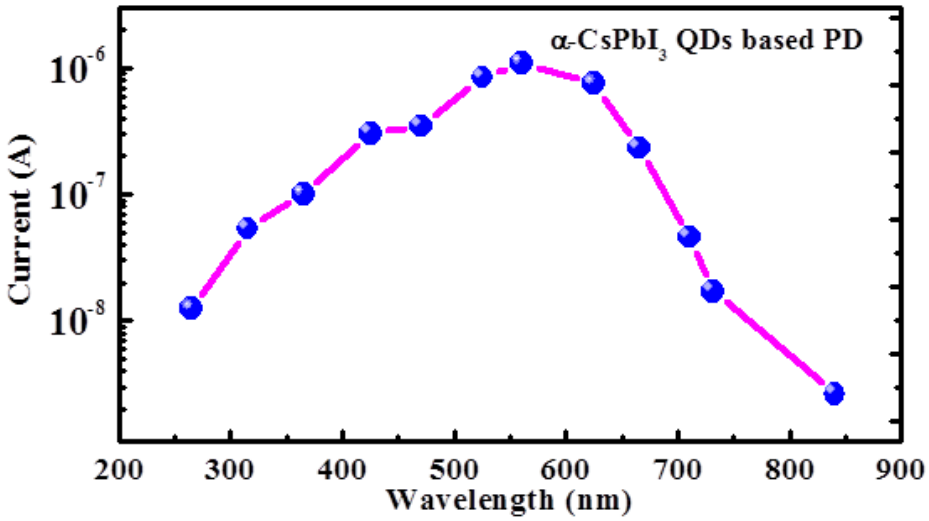

Figure S3 Photocurrent spectrum of the α-$CsPbI_3$ QDs based PD.

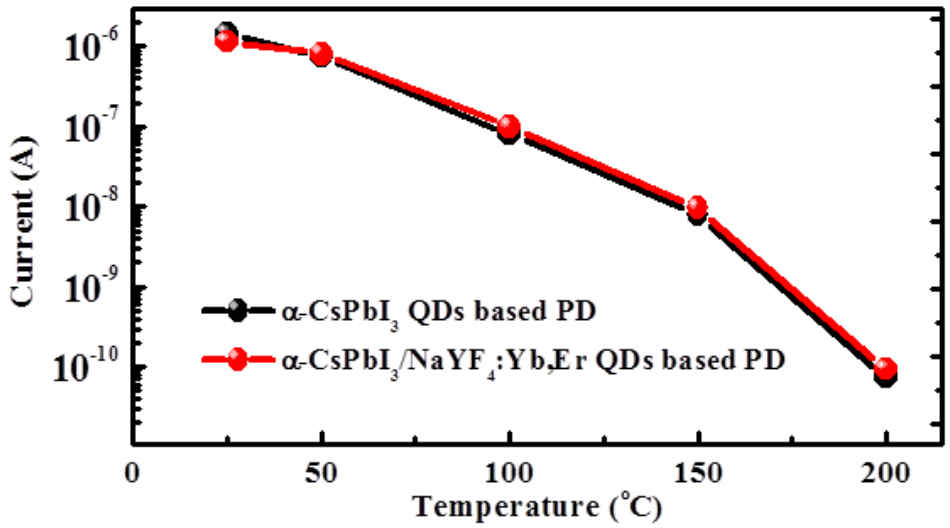

Figure S4 Photocurrent as a function of annealing temperature for α-$CsPbI_3$ QDs based PD and α-$CsPbI_3$/$NaYF_4$:Yb,Er QDs based PD.