

Organic–inorganic hybrid photodiode with inverted planar heterojunction: for achieving high performance

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The strategy of using organic–inorganic hybrid planar heterojunction is introduced to realize a high performance hybrid photodiode. To prevent undesired charge injection under the reverse bias condition well-defined planar heterojunction is strategically constructed via smart solution process techniques. The optimized hybrid photodiode renders low dark current and high detectivity across the entire visible wavelength range. Furthermore, excellent photocurrent stability is demonstrated under continuous light exposure. We believe that inverted structure with the solution-processed planar heterojunction can be an attractive alternative diode structure for fabricating high performance hybrid photodiode, which usually suffers from high dark current issues.