Photodiode

A Si photodiode is a reversed biased n-p junction. One junction is thin (shallow-diffused) to allow light to penetrate. In the device electron-hole pairs are liberated in the depletion zone by incident photons. These charges are quickly swept to the p and n silicon regions and the appearing as a photo-current which can be amplified or stored by subsequent electronics. The devices $S/N \sim Capacitance$ squared of the junction. These devices typically cover small areas and may need to be cooled for detection of single photons or just to reduce S/N.



See https://www.aptechnologies.co.uk/support/SiPDs/operation



https://www.physics-and-radio-electronics.com/electronic-devices-and-circuits/semiconductor-diodes/photodiodesymboltypes.html