

High sensitivity and low dark current PIN photodiode with homojunction in n-InGaAs/InP isotype heterostructure

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Abstract

The preparation and properties of Zn-diffusion homojunction InP/In_{0.53}Ga_{0.47}As photodiodes capable to operate in the 0.8-1.7 μm wavelength range are described. These PIN photodiodes exhibit a sensitivity of 0.3 A/W at 0.8 μm wavelength and 0.82 A/W at 1.3 μm , a generation-recombination limited dark current of 10^{-7} A/mm² and 140 ps risetime.