

## Mid-infrared Type-II InAs/GaSb Superlattice Photodiodes Fabricated on InP Substrates

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Type-II InAs/GaSb superlattices (SLs) are attractive material systems for mid-infrared photodiodes (PDs) with higher detectivities than the conventional HgCdTe. GaSb substrates are generally used for the epitaxial growth of these type-II SLs. However, in the case of back-illuminated PDs, the GaSb substrate should be nearly removed because of its strong absorption of mid-infrared light. In this study, infrared PDs with a cut-off wavelength of 7  $\mu\text{m}$  were fabricated for the first time by using the 100 period of InAs/GaSb SLs grown on an InP substrate, which has much less absorption of mid-infrared light. The dark current density at the reverse bias of  $-0.1$  V and at a temperature of 112 K was 33.0 mA/cm<sup>2</sup>. External quantum efficiency over 10% at the wavelength of 5  $\mu\text{m}$  was obtained.

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