

## AT A GLANCE

High quantum efficiency surface illuminated InGaAs photodiodes for sensing applications.



### Features

- low noise, high responsivity photodiodes
- single diode, segmented diodes or array configuration
- backside or front side illumination
- lens integration for back side illuminated photodiode (optional)
- flip-chip or wire bonding
- zero bias operation possible

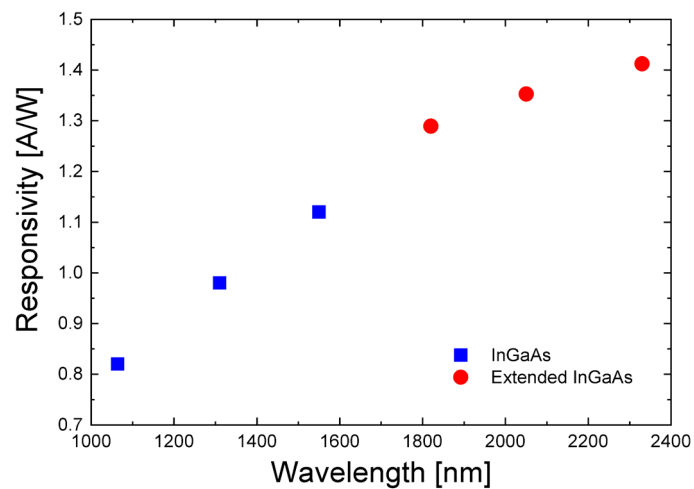
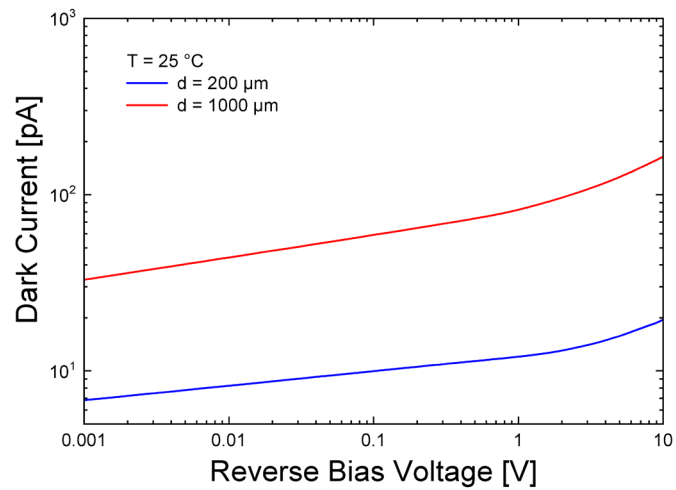
### Applications

- SWIR sensing and imaging

### Technical Background

Surface-illuminated photodiodes with low noise and high quantum efficiency are key components for short wavelength infrared (SWIR) sensing applications. The standard InGaAs photodiodes operate at a wavelength of 820 nm up to 1650 nm. For the extended InGaAs devices, the upper absorption wavelength can be shifted up to 2500 nm.

The photodiode chips are based on mature InP technology and are fabricated at the wafer process line of HHI, having Telcordia and space-qualified processes. Due to the ability of customising the photodiode chips, costumers obtain the optimal performance for their application.



Dr.-Ing. Patrick Runge  
 Head of InP and RF department

Phone +49 30 31002-498  
 patrick.runge@hhi.fraunhofer.de

Fraunhofer Heinrich Hertz Institute  
 Einsteinufer 37, 10587 Berlin  
 Germany

[www.hhi.fraunhofer.de/pc](http://www.hhi.fraunhofer.de/pc)

### Customization

- optical aperture up to a few mm-diameter
- quantum efficiency up to 99%
- planar or mesa type photodiodes
- single photodiode, segmented photodiode or array configuration
- segmented photodiodes and arrays with common or isolated cathode
- backside or front side illumination
- lens integration for backside illuminated photodiode
- flip-chip or wire bonding
- customized pitches and pad configurations
- APD and SPAD photodiode types also available