



Excelitas Technologies Introduces Enhanced Low-Capacitance InGaAs PIN Photodiodes



WALTHAM, Mass., July 13, 2021 – [Excelitas Technologies® Corp.](#), a global technology leader delivering innovative, customized photonic solutions, today announced its enhanced product family of low-capacitance InGaAs PIN Photodiodes ([C30619GH-LC](#), [C30641GH-LC](#), [C30642GH-LC](#), [C30665GH-LC](#)) for commercial and military LiDAR, laser range finding, laser warning and laser spot tracking applications. Providing high quantum efficiency from 800 nm to 1700 nm, Excelitas' low-capacitance InGaAs PIN Photodiodes feature a special ultra-low

capacitance of only half of the standard type capacitance, therefore exhibiting twice the 3 dB bandwidth, high responsivity, high shunt resistance and low dark current.

Prior to this new design modification, users had to minimize the active area in order to maintain the desired bandwidth. Excelitas overcame this challenge by allowing the same larger active area and associated optics to be used. The products' low capacitance enables extended bandwidth, while maintaining the legacy high shunt resistance, low dark currents and high sensitivity, better than 1% non-linearity, and uniformity within 2% across the detector active area.

Features and benefits of the new photodiodes include:

- **Ultra-low capacitance option, high bandwidth and rise time reduced by half:** No tradeoff in responsivity with benefit of detection capability of shorter pulses.
- **High responsivity, low dark current and noise:** Gives maximum signal enabling better SNR (signal to noise ratio), a key metric for LiDAR and range finders, as well as very high linearity over a large dynamic range.
- **Active area diameter from 0.5 mm to 5 mm:** The larger the active area, the more photons can be captured and the larger the field of view.
- **Spectral response of 800 nm – 1700 nm:** Well-suited to commonly available lasers in the 1300 nm – 1600 nm range.
- **Customization capabilities:** Available in various, robust TO packages, additional TEC options and multi-element options.

“As lasers continue to use higher pulse repetition rates and ever shorter pulses, OEM and ODM design engineers can benefit significantly from the increased speed of high-performance sensors,” said Eric Desfonds, Senior Product Line Manager, Sensors at Excelitas. “The new design modification of our low-capacitance InGaAs PIN Photodiodes does just that. By maintaining the planar diffused configuration and the resulting much reduced capacitance, with no tradeoff in dark current, noise or responsivity, this product family opens the door to a range of next-generation LiDAR, laser range finding, laser warning and laser spot tracking applications.”



Excelitas' low-capacitance InGaAs PIN Photodiodes are available in sizes from 0.5 mm to 3 mm, with the ability to be modified to provide quadrant options. For additional information, visit: <https://www.excelitas.com/product-category/ingaas-pin-photodiodes>.

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About Excelitas Technologies

Excelitas Technologies® Corp. is a leading industrial technology manufacturer focused on delivering innovative, market-driven photonic solutions to meet the lighting, optical, optronic, and detection needs of our OEM customers. Serving a vast array of applications across biomedical, scientific, safety, security, consumer products, semiconductor, industrial manufacturing, defense and aerospace sectors, Excelitas stands committed to enabling our customers' success in their end-markets. Our team consists of 7,000 professionals working across North America, Europe and Asia, to serve customers worldwide. Connect with Excelitas on [Facebook](#), [LinkedIn](#) and [Twitter](#). Visit <http://www.excelitas.com> for more information.

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