



Excelitas Technologies Announces Enhanced C30902SH Series Silicon Avalanche Photodiodes

Upgraded APDs Deliver High Quantum Efficiency and Low Dark Count Rates for Quantum Communication Applications



WALTHAM, Mass., February 1, 2022 – [Excelitas Technologies® Corp.](#), a leading industrial technology manufacturer focused on delivering innovative, market-driven photonic solutions, today announced its enhanced [C30902SH family of Silicon \(Si\) Avalanche Photodiodes \(APD\)](#). Intended for use with optical powers less than 1 pW, the C30902SH family of Si APDs provides the highest performance levels and lowest noise for the detection of low light levels. Featuring high quantum efficiency (QE) and low dark count rates, the upgraded

C30902SH Si APDs enable the development of single-photon detection systems for various applications, including quantum communication.

In combination with ultra-low and stable dark count rates, the C30902SH Si APDs' high photon detection probability provide accurate measurement results to help prevent false-positive detection events. The upgraded product also makes compact system integration possible, allowing users to design application-optimized quenching electronics that perfectly match the SPAD performance.

Features of the enhanced C30902SH family include:

- Ultra-low dark count rates, enabling precise single photon counting
- High QE: 84% typical at 800nm
- Hermetically sealed packaging
- Wide operating temperature from -40°C to +85°C
- Enables detection in any application where the amount of light available is extremely low (less than 1 pW)

"Excelitas' high performance rear entry 'reach-through' silicon APDs are well known for offering the best compromise in terms of cost and performance, so we are constantly expanding our offerings to address shifting market demands," said Denis Boudreau, Product Leader - Photon Detection at Excelitas. "The enhanced C30902SH detectors provide the highest performance levels and lowest noise for design engineers looking to detect low light levels, all the way down to counting photons, making them an ideal option in the emerging quantum communication market."

The C30902SH can be used in either linear mode ($V_r < V_{br}$) at typical gains of 250 or greater, or in "Geiger" mode ($V_r > V_{br}$) with extremely low and stable dark count rates and after pulsing ratios. In this mode, no amplifiers are necessary and single-photon detection probabilities of up to approximately 50% are possible. For even greater performance, these high performance SPADs are available with single or dual-stage thermoelectric coolers.



For additional information, view the C30902SH Si SPADs product webpage at:
<https://www.excelitas.com/product/c30902sh-si-apd-05mm-18-photon-counting>.

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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 illumination, optical, optronic, sensing, detection and imaging needs of our OEM and end-user customers. Serving a vast array of applications across biomedical, scientific, semiconductor, industrial manufacturing, safety, security, consumer products, defense and aerospace sectors, Excelitas stands committed to enabling our customers' success in their many various end-markets. Our team consists of more than 7,500 professionals working across North America, Europe and Asia, to serve customers worldwide.

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Contacts:

Scott Orr
Senior Director of Global Marketing - Commercial
scott.orr@excelitas.com
+1 (781) 996-5925

Cheryl Reynhout or Jill Anderson
On Behalf of Excelitas Technologies Corp.
SVM Public Relations
excelitas@svmmarcom.com
+1 (401) 490-9700