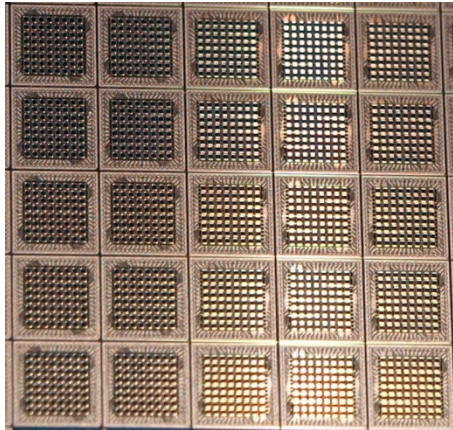


# Matrix APD detector arrays for LIDAR

*To meet the growing need for avalanche photodiode arrays for LIDAR systems, Silicon Sensor International, a leading manufacturer of silicon based detectors announces new matrix APD arrays suitable for LIDAR applications.*



SIS' latest 64 APD-pixel dies

With its latest silicon avalanche photodiode (APD) development Silicon Sensor International AG opens up a new dimension for LIDAR applications. Complementing the existing series of linear APD arrays we present a new series of 2D-matrix arrays.

The matrix array product line includes 5 x 5 (25 APD-pixel) and 8 x 8 (64 APD-pixel) geometries while the linear arrays are available with up to 16 elements. The APD arrays are based on the Silicon Sensor series -9 process technology. Optimized technologies for red (series -8) and blue (series -11) light sources are available upon special request.

The available packages for the arrays include standard ceramic carriers and miniaturized BGA packages both with glass or band pass filters.

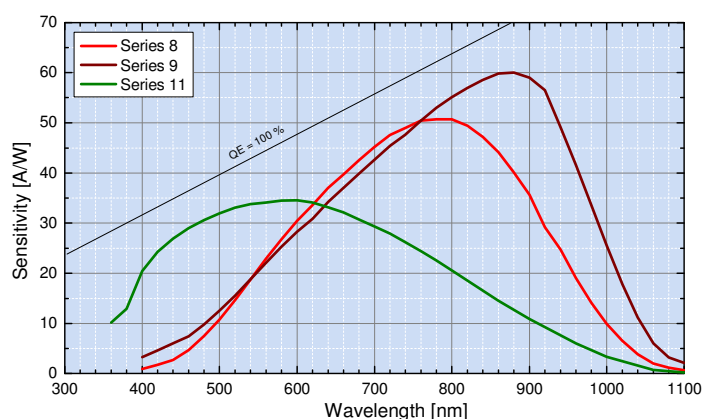
Conventional LIDAR (Light Detection and Ranging) range finding systems for civil and defense applications have been in use for many years. Distance measurements have been performed by using a single laser beam generated by a semiconductor or solid state laser and measuring the time-of-flight of the reflected beam.

Similar technology is being used to create a 3D image of fixed or moving objects. The so-called laser radar (LADAR). This is interesting especially for surveillance and orientation tasks to complement conventional image technologies in UAVs (Unmanned Aerial Vehicles) and other autonomous vehicle systems. In other defense applications, a Laser Radar seeker can detect objects and identify specific features (such as the shape of a flying object) with a resolution of 10-15 cm from a distance of 350 m and can react with countermeasure activities.

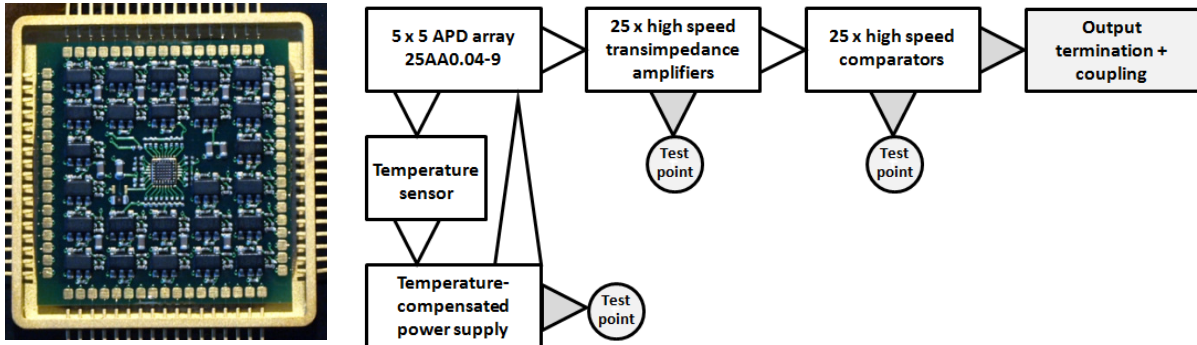
The conventional approach would be to use a laser opto-mechanical scanner requiring sophisticated optics. For real-time imaging of moving targets a new approach is being explored: Single pulse LADAR imaging. Within a single laser pulse each channel of the array receives the reflected signal from the object in a timed sequence.

The series -9 APD process is optimized for 905 nm laser radiation and offers the benefits of high quantum efficiency, fast rise time, low noise and a low slope gain curve.

Silicon Sensor International offers these arrays both as component level devices and as hybrid modules simplifying the evaluation and integration into your system.



A 5 x 5 (25 pixel) element module is currently available as well as an 8 x 8 (64 pixel) element module which is currently under development. The hybrid includes high speed, high gain transimpedance amplifiers, high speed comparators and a temperature compensated power supply with an optional active TEC.



Silicon Sensor International AG provides cutting edge technology for sophisticated sensor applications. For full details and customization options contact us or visit us at Electronica booth A2.307.

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