Photosensitive Semiconductor Device - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 120 pages | Mordor Intelligence

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Report description:

The Photosensitive Semiconductor Device Market is expected to register a CAGR of 9.2% during the forecast period.

Key Highlights
- The extensive use of photodiode sensors in medical products for medical imaging, spectroscopy, and pulse oximetry, among other medical and scientific instrumentations, is expected to drive the growth of the photodiode in the market.
- Moreover, photosensitive semiconductor devices in image sensors have immensely increased their application area. For instance, CMOS technology offers plenty of benefits that electronics manufacturers leverage to improve device design, differentiate their products in the marketplace, and meet specific consumer needs. Therefore, the growth of image sensors will boost the growth of photosensitive semiconductor devices in the market.
- Asian countries like China, India, South Korea, Taiwan, and Japan have a significant presence of manufacturers of these devices and had experience lockdowns and disrupted production schedules during Covid-19. The sales went down during that period as the lockdown in most global economies had resulted in deliveries limited to essentials and companies revising their revenue targets. Amid the spread of viruses, governments worldwide mandated the lockdown and halt of consumer electronics manufacturing processes, negatively impacting the photosensitive semiconductor device market during that period. However, the use of healthcare devices and online working and study opted by various industries, organizations, schools, and colleges led to a steady growth in the market.

Photosensitive Semiconductor Device Market Trends

Consumer Electronic Segment is Expected to Hold Largest Market Share

- Photosensitive semiconductor devices are primarily used as image sensors in many imaging devices and digital cameras to enhance the quality of cauterization and storage of images. These imaging applications have high adoption in industrial, media, medical, and consumer applications.
- Due to the increasing demand for smartphones, security cameras, high-definition cameras, and camcorders, the photosensitive semiconductor device market is expected to grow more during the forecast period. Manufacturers worldwide strive to enhance main parameters, such as resolution, performance, and pixel size.
- Additionally, the increase in the use of photosensitive semiconductor devices in CMOS sensors is providing a foothold at the low-cost end of the consumer market by offering more functions on-chip that simplify camera design. For instance, Sony's newly launched IMX686 Exmor RS 64MP CMOS sensors are being used in many mid-range phones of Samsung, Huawei, OnePlus, Xiaomi, etc.
- However, due to the vast economic downturn experienced by companies across industries, employees are also witnessing salary cuts. This may directly impact the purchase decision for consumer electronics designed with photosensitive semiconductor devices and affect the growth of the market on a short-term basis.

Asia Pacific is Expected to be the Fastest growing Region

- Across the region, there is an increase in spending by the middle class on consumer electronics products such as smartphones, tablets, televisions, etc., which is driving the consumer electronics market growth and guiding the growth of photosensitive semiconductor devices in the region.
- Many companies are using new technologies and development in the region that can drive the market. For instance, in May 2022, Mitsubishi Electric Corporation announced that the company had developed an on-orbit additive-manufacturing technology that uses photosensitive resin and solar ultraviolet light for the 3D printing of satellite antennas in the vacuum of outer space.
- Additionally, in January 2022. Toray Industries, Inc. announced that the company had developed a negative photosensitive polyimide material. This new offering maintains polyimides' characteristic thermal resistance, mechanical properties, and adhesiveness while increasing resolutions and enabling high-definition pattern formation on 100-micrometer and other thick films. And that will drive the market significantly.
- The high investments in developing the infrastructure of armed forces in the region have boosted the market's growth. For instance, according to an official document and military sources, India has spent USD 18.76 billion in the year 2022-23 on its defense and armed forces, which is expected to increase more in the future to update the armed forces and reinforce their combat capacities over regional rivals. These investments will increase the demand for surveillance equipment, which will, in turn, boost the growth of photosensitive semiconductor devices in the area.

Photosensitive Semiconductor Device Industry Overview

The Global Photosensitive Semiconductor Device Market is highly fragmented, having multiple manufacturers providing the product. Companies continuously invest in products and technology to encourage better products at lower prices for their consumers. The companies are also acquiring companies that specifically deal with these products to boost their market share.

- September 2022 - FUJIFILM Corporation announced the launch of the mirrorless digital camera 'FUJIFILM X-H2'. The company stated it as the latest addition to the X Series of compact, lightweight cameras lineup. Moreover, they also said that the camera features the new back-illuminated 40.2MP X-Trans CMOS 5 HR sensor and the high-speed X-Processor 5 capable of capturing

high-resolution stills and high-definition 8K/30P video.
- December 2021 - Canon Inc. announced to start of mass production of the 3.2MP SPAD sensor for security cameras in 2022. As per the company, the SPAD sensor is a uniquely designed image sensor with each pixel possessing an electronic element. With CMOS sensors, the readout of the accumulated electronic charge contains electronic noise, which diminishes image quality due to how accumulated light is measured. Meanwhile, with SPAD sensors, noise does not interfere with the readout of light as electrical signals, which enables clear image capture of subjects free from signal noise and provides advantages such as greater sensitivity during image capture and high-precision distance measurement.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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