

# Global InGaAs PIN Photodiode Supply, Demand and Key Producers, 2026-2032

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## Abstracts

The global InGaAs PIN Photodiode market size is expected to reach \$ 240 million by 2032, rising at a market growth of 7.1% CAGR during the forecast period (2026-2032).

In 2025, global InGaAs PIN Photodiode production reached approximately 11.84 M Units, with an average global market price of around 12.5 USD per Unit.

An InGaAs PIN photodiode is a semiconductor light detector made from indium gallium arsenide (InGaAs) with a P-I-N structure (p-type layer, intrinsic layer, n-type layer) that converts incoming light into an electrical current. It is especially sensitive in the near-infrared to short-wave infrared (SWIR) range—commonly covering wavelengths around 0.9–1.7  $\mu\text{m}$ , including the important 1310 nm and 1550 nm telecom bands. When photons hit the intrinsic region, they generate charge carriers that are swept out by an electric field, producing a fast, linear photocurrent. InGaAs PIN photodiodes are widely used in fiber-optic communications, optical power monitoring, LiDAR/rangefinding (1550 nm), spectroscopy, industrial sensing, and test & measurement because they offer a good balance of sensitivity, speed, and stability.

The upstream raw materials for InGaAs PIN photodiodes mainly include InP single crystal substrates, high-purity epitaxial materials (In/Ga/As/P elements and precursors), and electrode metal materials. Typical suppliers include Sumitomo, AXT Inc., InPACT, Heraeus, H.C. Starck, etc. The downstream applications are mainly in analytical instruments, communications, and measurement equipment. Typical downstream customers include Coherent, Accelink, Thermo Fisher, ABB, Broadcom, etc.

The production capacity of InGaAs PIN Photodiodes varies greatly among different manufacturers due to differences in the level of automation of their production lines,

device packaging, chip manufacturing precision, and the degree of integration of the production process. The industry gross profit margin is usually in the range of 35%-45%.

InGaAs PIN photodiodes, leveraging the tunable bandgap of indium gallium arsenide (IGaAs) ternary compound semiconductors, overcome the limitation of silicon-based photodiodes where light absorption efficiency drops sharply above 1100nm. They can efficiently cover the core near-infrared band of 800-1700nm, while possessing core advantages such as high quantum efficiency, low dark current, fast response speed, and wide spectral response. They can achieve linear and efficient conversion of optical signals to electrical signals without high reverse bias. These characteristics precisely address core pain points in fields such as optical communication, laser ranging, and spectral analysis—solving the problems of insufficient sensitivity and lag in the near-infrared band of traditional detection devices, and compensating for the shortcomings of high-end detectors such as high cost and complex structure.

Regionally, North America, with its deep accumulation of semiconductor technology and driven by downstream high-end application demands, focuses on the R&D and mass production of high-end devices, dominating high-end scenarios such as high-speed optical modules and defense. The industry is highly mature and its technological iteration speed is leading. Europe, relying on precise market segmentation, has formed distinctive advantages in spectral analysis and industrial sensing. Companies in Europe focus on customized device R&D, resulting in products with significant added value. The Asia-Pacific region, with its complete industrial chain, vast downstream application market, and cost advantages, has become a core hub for global production capacity and a growth engine. It focuses on the mass production of mid-to-high-end devices and the widespread adoption of low-end products. Simultaneously, driven by the rapid development of emerging industries such as optical communication, new energy, and autonomous driving, the industry scale continues to expand. Technological upgrades and domestic substitution within the region are accelerating, gradually narrowing the technological gap with Europe and the United States. According to our research data, the Asia-Pacific market share will exceed 45% by 2025.

The current industry competitive landscape shows a trend of high concentration and clear stratification. Currently, major global players include Hamamatsu, Dexerials Corporation, First Sensor (TE Connectivity), Excelitas, OSI Optoelectronics, GCS, Laser Components, Fermionics Opto-Technology, Teledyne Judson, Lumentum, Go!Foton, Ushio, Qphotonics, N.E.P., Albis Optoelectronics, AC Photonics, ALPHALAS GmbH, LD-PD Pte. Ltd., and CLPT. These leading companies, leveraging years of technological

accumulation, control core resources such as high-end InP substrates and high-purity epitaxial materials, forming technological barriers in the field of customized high-end devices and dominating the global high-end market. They also deeply integrate with top global downstream manufacturers through brand advantages and stable product performance. Other small and medium-sized enterprises, relying on well-developed local supply chains and downstream market demand, are rapidly achieving mass production in the low-to-mid-end standardized device field, gradually seizing market share through cost-effectiveness. According to our research data, the top 5 global manufacturers will account for approximately 50% of the market share in 2025.

Multiple industry drivers are converging to propel the InGaAs PIN Photodiode industry to continuous expansion. Accelerated global digital transformation, coupled with the ever-increasing demand for optical communication and data center optical interconnects, and the rapid penetration of emerging applications such as autonomous driving LiDAR, industrial sensing, and spectral analysis, are becoming core drivers of industry growth. Simultaneously, continuous iteration of semiconductor materials and processes, along with the advancement of domestic substitution of core raw materials, are further lowering industry barriers, improving product performance, and driving the industry towards higher precision, higher integration, and lower costs. With the launch of 6G pre-research, breakthroughs in cutting-edge fields such as quantum sensing and space optical communication, the demand for high-end customized devices will continue to surge, and the boundaries of industry applications will continue to expand.

This report studies the global InGaAs PIN Photodiode production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for InGaAs PIN Photodiode and provides market size (US\$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of InGaAs PIN Photodiode that contribute to its increasing demand across many markets.

### **Highlights and key features of the study**

Global InGaAs PIN Photodiode total production and demand, 2021-2032, (K Units)

Global InGaAs PIN Photodiode total production value, 2021-2032, (USD Million)

Global InGaAs PIN Photodiode production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Units), (based on production site)

Global InGaAs PIN Photodiode consumption by region & country, CAGR, 2021-2032 & (K Units)

U.S. VS China: InGaAs PIN Photodiode domestic production, consumption, key domestic manufacturers and share

Global InGaAs PIN Photodiode production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Units)

Global InGaAs PIN Photodiode production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

Global InGaAs PIN Photodiode production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

This report profiles key players in the global InGaAs PIN Photodiode market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Hamamatsu, Dexerials Corporation, First Sensor (TE Connectivity), Excelitas, OSI Optoelectronics, GCS, Laser Components, Fermionics Opto-Technology, Teledyne Judson, Lumentum, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World InGaAs PIN Photodiode market

### **Detailed Segmentation:**

Each section contains quantitative market data including market by value (US\$ Millions), volume (production, consumption) & (K Units) and average price (US\$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global InGaAs PIN Photodiode Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global InGaAs PIN Photodiode Market, Segmentation by Type:

1mm6 $\mu$ m)

Global Nitrocellulose Membranes Market, Segmentation by Structure:

Unsupported NC Membrane

Supported NC Membrane

Global Nitrocellulose Membranes Market, Segmentation by Performance:

General Purpose NC Membrane

Precision NC Membrane

Specialized NC Membrane

Global Nitrocellulose Membranes Market, Segmentation by Application:

Biopharmaceutical

Food & Beverage

Research Institutes and Academic Center

Other

Companies Profiled:

Merck

Sartorius

Cytiva

Thermo Fisher

Pall Corporation

GVS

Abcam

Santa Cruz Biotechnology

Geno Technology

MDI

Macherey-Nagel

Bio-Rad

Avansta

Shanghai Jieyi Biotechnology

Shanghai Jinbiao Biotechnology

**Key Questions Answered:**

1. How big is the global Nitrocellulose Membranes market?
2. What is the demand of the global Nitrocellulose Membranes market?

3. What is the year over year growth of the global Nitrocellulose Membranes market?
4. What is the production and production value of the global Nitrocellulose Membranes market?
5. Who are the key producers in the global Nitrocellulose Membranes market?
6. What are the growth factors driving the market demand?

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