+357 96 030922
info@marketpublishers.com

# Semiconductor Materials for 5G Market Forecasts to 2034 – Global Analysis By Material Type (Silicon (Si), Gallium Nitride (GaN), Silicon Carbide (SiC), Indium Phosphide (InP) and Other Material Types), Technology, Application and By Geography

https://marketpublishers.com/r/S058FA725AC3EN.html
Date: March 2026
Pages: 200
Price: US$ 4,150.00 (Single User License)
ID: S058FA725AC3EN

## Abstracts

According to Stratistics MRC, the Global Semiconductor Materials for 5G Market is accounted for $6.3 billion in 2026 and is expected to reach $14.6 billion by 2034 growing at a CAGR of 11.0% during the forecast period. Semiconductor materials are fundamental to the development and performance of modern 5G technologies. Materials such as gallium nitride, silicon carbide, and other compound semiconductors enable devices to operate efficiently at very high frequencies while maintaining strong power performance and heat resistance. These materials are commonly integrated into RF modules, base station equipment, and communication infrastructure to support the fast data speeds and minimal latency required by 5G networks. Ongoing progress in semiconductor manufacturing and materials science is improving device durability, signal transmission, and power efficiency. With the rapid global rollout of 5G networks, the need for advanced semiconductor materials is steadily increasing in the telecommunications sector.

According to industry reports (2025), the 5G EMI materials market was valued at USD 2.48 billion in 2024 and is projected to reach USD 7.5 billion by 2035. These include conductive coatings, plastics, and foams that protect sensitive 5G components from electromagnetic interference.

**Market Dynamics:**

**Driver:**

+357 96 030922
info@marketpublishers.com

Increasing demand for high-speed connectivity

Rising demand for ultra-fast and dependable connectivity is strongly supporting growth in the Semiconductor Materials for 5G Market. Increasing use of cloud platforms, online entertainment, digital services, and smart technologies is pushing telecom providers to expand 5G infrastructure rapidly. Semiconductor materials like gallium nitride and silicon carbide help electronic components function effectively at the high frequencies used in 5G networks. These materials improve signal efficiency, minimize energy losses, and strengthen RF device performance. As digital transformation accelerates globally and more connected devices enter the market, the requirement for advanced semiconductor materials capable of supporting next-generation communication systems continues to grow significantly.

**Restraint:**

High manufacturing costs of advanced semiconductor materials

Elevated production expenses associated with advanced semiconductor materials act as a key challenge for the Semiconductor Materials for 5G Market. Manufacturing materials like gallium nitride and silicon carbide involves sophisticated processing techniques, costly equipment, and extensive research investments. These factors make their production more expensive than conventional silicon-based alternatives. Moreover, strict quality standards and specialized wafer fabrication further increase operational spending for manufacturers. Many smaller semiconductor companies find it difficult to afford such infrastructure and technological requirements.

**Opportunity:**

Expansion of global 5G network deployment

The widespread rollout of 5G networks around the world creates significant growth prospects for the Semiconductor Materials for 5G Market. Telecommunications providers and governments are making large investments to develop modern wireless infrastructure that can support faster and more reliable connectivity. This development requires semiconductor materials capable of operating efficiently at high frequencies while maintaining power efficiency and signal stability. Advanced materials like gallium nitride and silicon carbide are becoming essential components in communication systems and network equipment. As more countries continue expanding their 5G

+357 96 030922
info@marketpublishers.com

infrastructure across cities and remote regions, the demand for innovative semiconductor materials will increase considerably.

**Threat:**

Geopolitical tensions affecting semiconductor supply chains

Political conflicts and international trade barriers create major risks for the Semiconductor Materials for 5G Market. The semiconductor industry depends heavily on a global supply chain where raw materials, processing technologies, and manufacturing facilities are located in different countries. Trade disputes, export limitations, and geopolitical tensions can interrupt the supply of critical resources required for semiconductor production. Such disruptions may lead to delays in manufacturing, increased operational costs, and shortages of materials needed for 5G network development. As competition among major global economies grows, these geopolitical uncertainties may continue to threaten the reliability and expansion of the semiconductor materials market.

**Covid-19 Impact:**

The outbreak of COVID-19 created both challenges and opportunities for the Semiconductor Materials for 5G Market. In the early stages, strict lockdown measures and global transportation restrictions disrupted semiconductor supply chains and temporarily halted production activities in several manufacturing facilities. These issues delayed the availability of raw materials and slowed the development of 5G network equipment. At the same time, the pandemic accelerated the adoption of digital technologies, remote working systems, and online services, which increased the need for reliable high-speed connectivity.

The silicon (Si) segment is expected to be the largest during the forecast period

The silicon (Si) segment is expected to account for the largest market share during the forecast period because of its long-standing role in semiconductor manufacturing and well-developed fabrication ecosystem. It is widely utilized in the production of integrated circuits, microchips, and communication processors used in various 5G-enabled devices and network infrastructure. Silicon provides advantages such as affordability, high scalability, and compatibility with existing chip manufacturing processes, allowing efficient large-scale production. Its stable electrical performance and versatility in electronic design make it suitable for numerous applications including mobile devices,

+357 96 030922
info@marketpublishers.com

base stations, and networking equipment.

The consumer IoT & smart homes segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the consumer IoT & smart homes segment is predicted to witness the highest growth rate because of the increasing popularity of connected household technologies. Smart home devices including intelligent lighting systems, security cameras, voice assistants, and connected appliances require reliable and fast communication networks to function efficiently. 5G connectivity enhances device performance by offering low latency and high data transmission speeds. Semiconductor materials play a vital role in developing integrated circuits and connectivity modules used in these devices. Growing consumer interest in home automation and intelligent living solutions is accelerating demand for semiconductor materials within this rapidly expanding segment.

**Region with largest share:**

During the forecast period, the Asia Pacific region is expected to hold the largest market share because of its well-established semiconductor industry and expanding 5G infrastructure development. Nations including China, Japan, South Korea, and Taiwan are major hubs for semiconductor fabrication, technological research, and electronic component production. The presence of prominent semiconductor companies and advanced manufacturing facilities strengthens the region’s role in supplying materials for communication technologies. Moreover, increasing investments by governments and telecom providers to accelerate 5G network rollout are boosting regional demand.

**Region with highest CAGR:**

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR as a result of increasing technological advancements and strong investments in next-generation communication networks. The region benefits from a robust semiconductor industry, supported by major technology firms, research organizations, and government programs aimed at strengthening local semiconductor manufacturing capabilities. Rising demand for faster connectivity, digital transformation, and cloud-based services is encouraging rapid 5G deployment throughout the United States and Canada. Furthermore, ongoing innovation in semiconductor materials and the presence of advanced manufacturing infrastructure are helping drive significant growth in the regional market.

+357 96 030922
info@marketpublishers.com

**Key players in the market**

Some of the key players in Semiconductor Materials for 5G Market include GaN Systems, NXP Semiconductors, Wolfspeed, Mitsubishi Chemical, Kyocera, Plessey Semiconductors, IQE, MonoCrystal, Sumco, Sumitomo Electric, Hitachi, Dow, Rogers Corporation, Shin-Etsu Chemical, GlobalWafers, Coherent Corp, Sumitomo Bakelite and Siltronic AG.

**Key Developments:**

In October 2025, Dow and MEGlobal have finalized an agreement for Dow to supply an additional equivalent to 100 KTA of ethylene from its Gulf Coast operations. The ethylene will serve as a key feedstock for MEGlobal's ethylene glycol (EG) manufacturing facility co-located at Dow's and MEGlobal's Oyster Creek site.

In March 2025, Sumitomo Electric Industries, Ltd. (Sumitomo Electric), and 3M announce an assembler agreement enabling Sumitomo Electric to offer variety of optical fiber connectivity products featuring 3M™ Expanded Beam Optical (EBO) Interconnect technology, a high-performance solution to meet scalability needs of next-generation data centers and advanced network architectures.

In February 2025, NXP Semiconductors has acquired AI chip startup Kinara in a $307 million all-cash agreement. NXP said the acquisition would enable it to "enhance and strengthen" its ability to provide scalable AI platforms by combining Kinara's NPUs and AI software with NXP's solutions portfolio. Kinara develops programmable neural processing units (NPUs) for Edge AI applications, including multi-modal generative AI models.

Material Types Covered:

Silicon (Si)

Gallium Nitride (GaN)

Silicon Carbide (SiC)

Indium Phosphide (InP)

+357 96 030922
info@marketpublishers.com

- Other Material Types

Technologies Covered:

- Sub-6 GHz (Frequency Band)
- mmWave (Millimeter Wave Band)
- RF Modules
- Antenna Systems

Applications Covered:

- Smartphones & Consumer Devices
- Base Stations & Infrastructure
- Automotive
- Consumer IoT & Smart Homes
- Industrial IoT & Enterprise Equipment

Regions Covered:

- North America
  - United States
  - Canada
  - Mexico
- Europe

+357 96 030922
info@marketpublishers.com

- United Kingdom
- Germany
- France
- Italy
- Spain
- Netherlands
- Belgium
- Sweden
- Switzerland
- Poland
- Rest of Europe

Asia Pacific

- China
- Japan
- India
- South Korea
- Australia
- Indonesia
- Thailand
- Malaysia

+357 96 030922
info@marketpublishers.com

- Singapore
- Vietnam
- Rest of Asia Pacific

South America

- Brazil
- Argentina
- Colombia
- Chile
- Peru
- Rest of South America

Rest of the World (RoW)

- Middle East
  - Saudi Arabia
  - United Arab Emirates
  - Qatar
  - Israel
  - Rest of Middle East
- Africa
  - South Africa

+357 96 030922
info@marketpublishers.com

Egypt

Morocco

Rest of Africa

**What our report offers:**
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

**Free Customization Offerings:**

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical

+357 96 030922
info@marketpublishers.com

presence, and strategic alliances

+357 96 030922
info@marketpublishers.com

# Contents

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

## 9 STRATEGIC MARKET INTELLIGENCE

9.1 Industry Value Network and Supply Chain Assessment
9.2 White-Space and Opportunity Mapping
9.3 Product Evolution and Market Life Cycle Analysis
9.4 Channel, Distributor, and Go-to-Market Assessment

## 10 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES

10.1 Mergers and Acquisitions
10.2 Partnerships, Alliances, and Joint Ventures
10.3 New Product Launches and Certifications
10.4 Capacity Expansion and Investments
10.5 Other Strategic Initiatives

## 11 COMPANY PROFILES

11.1 GaN Systems
11.2 NXP Semiconductors
11.3 Wolfspeed
11.4 Mitsubishi Chemical
11.5 Kyocera
11.6 Plessey Semiconductors
11.7 IQE
11.8 MonoCrystal
11.9 Sumco
11.10 Sumitomo Electric
11.11 Hitachi
11.12 Dow
11.13 Rogers Corporation
11.14 Shin-Etsu Chemical
11.15 GlobalWafers
11.16 Coherent Corp
11.17 Sumitomo Bakelite
11.18 Siltronic AG

+357 96 030922
info@marketpublishers.com

# List Of Tables

## LIST OF TABLES

+357 96 030922
info@marketpublishers.com

Enterprise Equipment (2023-2034) ($MN)
Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

+357 96 030922
info@marketpublishers.com

## I would like to order

Product name: Semiconductor Materials for 5G Market Forecasts to 2034 – Global Analysis By Material Type (Silicon (Si), Gallium Nitride (GaN), Silicon Carbide (SiC), Indium Phosphide (InP) and Other Material Types), Technology, Application and By Geography

Product link: https://marketpublishers.com/r/S058FA725AC3EN.html

Price: US$ 4,150.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

## Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/S058FA725AC3EN.html