

# **Gallium Arsenide Components, Next Generation Semiconductors: Market Shares, Market Strategies, and Market Forecasts, 2020 to 2026**

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## **Abstracts**

LEXINGTON, Massachusetts (February 26, 2020) – WinterGreen Research announces that it has a new study on Gallium Arsenide (GaAs) Next Generation Semiconductors, Market Shares, Market Forecasts, Market Analysis, 2020-2026. The 2020 study has 212 pages, 116 tables and figures. GaAs represents next generation semiconductors, a market that is \$500 billion dollars in 2020.

Next generation GaAs semiconductors promise to bring a huge market, not totally replacing the existing semiconductor market, but ultimately making a huge dent in it. The ability to replace silicon semiconductors, a market that is \$500 billion dollars in 2020 makes one sit up and take notice. The existing silicon semiconductor market is pretty good size for a market that barely existed in 1975. Next generation GaAs support the signal speed that is needed to implement 5G.

GaAs works in a way that silicon cannot. The potential for the next generation GaAs wafers is staggering, with the overall semiconductor market likely to surpass \$20 trillion by 2026 as the new industrial revolution takes hold and 5G supports IoT that connects all things together.

Once economies of scale are realized these semiconductor GaAs markets are expected to really take off. The sheer size of the global semiconductor market at \$500 billion dollars in 2020 shows that the potential for a next generation semiconductor technology is truly exciting. The gallium arsenide wafers are next generation technology because they operate faster than the silicon semiconductors, they support a new, faster network called 5G.

Gallium arsenide GaAs represents the next generation of semiconductor chips because the chips can do things that the silicon chips cannot do. GaAs does have a considerably higher bandgap than silicon. It is a direct band gap semiconductor with a zinc blende crystal structure.

Sensing for autonomous and electric vehicles is one use of the technology. 3D Sensing for consumer electronics and use for lasers is common. Units are used in radar and lasers. The benefits of using GaAs in devices derive in part from the characteristic that GaAs generates less noise than most other types of semiconductor components. As a result, it is useful in weak-signal amplification applications.

Due to these benefits related to generating less noise, GaAs is a suitable replacement for silicon in the manufacture of linear and digital ICs. A gallium arsenide wafer is also known as Gallium arsenide substrate. Economies of scale for gallium arsenide promise to make the technology viable.

Silicon commercial advantage is that it is a thousand times cheaper to make. As we move into the 5G era, that advantage will dissipate because of the volume of GaAs components that are made to meet demand permitting vendors to leverage economies of scale. Gallium arsenide material technical advantages over silicon are that electrons race through its crystalline structure faster than they can move through silicon. Cellphones, typically rely on speedy gallium arsenide chips to process the high-frequency radio signals that arrive faster than silicon can handle.

Unlike silicon cells, Gallium Arsenide cells are relatively insensitive to heat. Alloys made from GaAs using Al, P, Sb, or In have characteristics complementary to those of GaAs, allowing great flexibility. GaAs is very resistant to radiation damage. This, along with its high efficiency, makes GaAs very desirable for space applications. GaAs biggest drawback is the high cost of a single-crystal GaAs substrate which has been a barrier to volume manufacturing.

GaAs markets at \$3.8 billion in 2020 promise to grow to \$22 billion by 2026. With the opportunity to participate in the 5G next generation semiconductor markets. Gallium arsenide components will achieve broad economies of scale, making them far more affordable and more available.

WinterGreen Research is an independent research organization funded by the sale of market research studies all over the world and by identifying next generation technology. It is next generation technology that drives market growth. The company

has 35 distributors worldwide, including Global Information Info Shop, Market Research.com, Research and Markets, Report Linker, and Electronics.CA,.

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WinterGreen Research supports various market segment programs; provides trusted technical services to the marketing departments. It carries out accurate market share and forecast analysis services for a range of commercial and government customers globally. These are all vital market research support solutions requiring trust and integrity.

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