

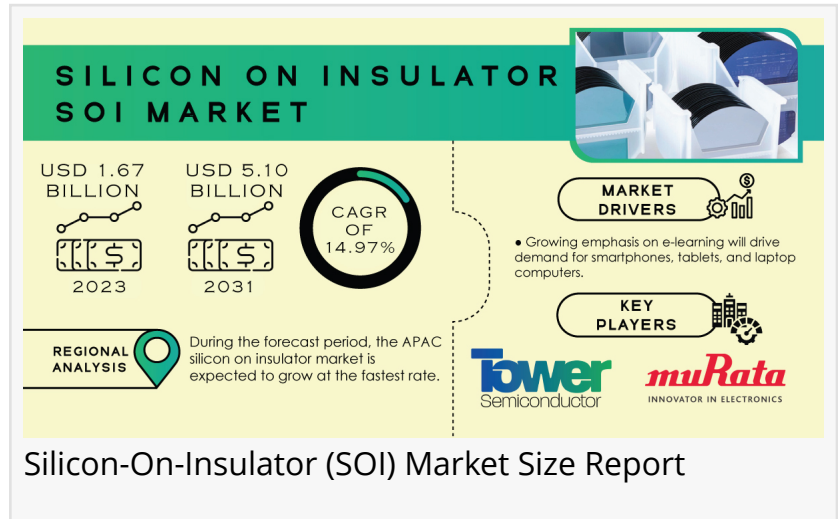
Silicon-on-Insulator Market Size To Hit USD 4.96 billion by 2031 at a CAGR of 15.2% - Exclusive Report by SNS Insider

Silicon-On-Insulator (SOI) Market Size, Share, Growth Drivers and Regional Analysis, Global Forecast 2024 - 2031

AUSTIN, TEXAS, UNITED STATES, June 21, 2024 /EINPresswire.com/ -- Silicon-on-Insulator SOI Market Size & Growth Outlook

The Silicon-on-Insulator SOI Market is experiencing significant growth due to its compatibility with existing manufacturing processes and numerous advantages over traditional silicon technology. SOI offers benefits like high performance reduced power consumption and improved signal integrity. A key driver for SOI adoption is the rise of 5G mobile communication. 5G requires faster and more reliable connections which SOI-based Radio Frequency (RF) components in smartphones and tablets can deliver. These components help maintain clear signals across a wider range. Another significant growth opportunity lies in the Internet of Things (IoT) and Machine Learning (ML) applications. SOI's ultra-low power consumption and compact design make it ideal for developing energy-efficient IoT devices.

FD-SOI technology is gaining traction in ML due to its ability to accelerate design processes and improve efficiency. Consumer electronics are another major market for SOI. The increasing demand for features like longer battery life and faster processing speeds in smartphones, tablets and wearables fuels the need for SOI technology. SOI's reliability and performance at low voltage make it suitable for electric vehicles and other consumer electronics. Major chipmakers like AMD, IBM and Intel are actively exploring SOI for its potential to deliver high-performance circuits. The ease of integrating SOI into existing fabrication processes allows manufacturers to adopt this technology without significant changes to their production lines. While SOI offers numerous benefits there are challenges to consider. Self-heating effects in SOI devices can hinder performance and supply chain disruptions can affect the availability of raw materials and finished goods.



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Recent Developments

- In June 2024, pSemi launched the PE42447 a powerful and precise radio frequency (RF) switch. This new chip operates from 10 MHz to 8 GHz and is ideal for advanced wireless applications.
- In May 2024, Soitec a leading manufacturer of SOI wafers is backing Taiwanese foundries in their shift from R&D to production of 90-nm devices using SOI technology. They're working with SOISIC to develop the infrastructure and design kits needed to meet the demands of fabless customers who want to use SOI for their next-generation chips.

Segment Analysis

By Wafer Type: The market for ultra-thin FD-SOI wafers is expected to see the fastest growth due to their versatility affordability and ability to optimize power efficiency for various applications.

By Technology: Smart cut technology reigns supreme in the silicon-on-insulator market, and this dominance is expected to continue. Its widespread adoption by major SOI wafer manufacturers across various industrial platforms is a key driver of this leadership.

By Wafer Size: The 300 mm wafer segment is anticipated to dominate the silicon on insulator market, boasting the biggest market share compared to the smaller 200 mm and below segments.

By Application: The automotive industry is the fastest growing application segment for the silicon-on-insulator market. This surge is driven by leading SOI players like Soitec who are actively developing FD-SOI and power-SOI wafer-based chips for key automotive technologies like autonomous vehicles, infotainment systems and advanced driver-assistance systems (ADAS).

By Key Players:

- TOWER SEMICONDUCTOR
- GLOBAL WAFERS
- MagnaChip Semiconductor Corporation
- MURATA MANUFACTURING
- NXP Semiconductor
- SHIN-ETSU CHEMICAL
- Shanghai Simgui Technology
- Soitec
- STMicroelectronics
- SUMCO CORPORATION

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The Asia Pacific (APAC) region is leading the charge in the SOI market due to its increasing consumer electronics industry.

The big increase in popularity of smartphones, tablets, laptops and wearables is driving demand for SOI wafers, which are key components in these devices. Major investments and expansions by semiconductor manufacturers in APAC are creating a strong foundation for future growth. The presence of leading chipmakers in the region further fuels the need for SOI technology. With continued emphasis on innovation and strategic partnerships the APAC SOI market is poised for remarkable growth in the coming years.

Key Takeaway

- SOI is gaining momentum due to its compatibility with existing processes and benefits like lower power consumption and better performance.
- The market for ultra-thin FD-SOI wafers and smart cut technology is expected to see the most significant growth.
- The SOI market is flourishing in the Asia Pacific region, driven by its surging consumer electronics industry and growing investments in semiconductor manufacturing.

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