

Global Direct Bonded Copper Substrate Market Reached Valuation of US\$ 310.7 Mn in 2022; says Absolute Markets Insights

Global Direct Bonded Copper Substrate Market to Gain CAGR of 9.4% From 2023-2031

HOUSTON, TEXAS, UNITED STATES, July 26, 2023 /EINPresswire.com/ -- Direct Bonded Copper (DBC) substrate is a specialized type of printed circuit board (PCB) technology that offers exceptional thermal conductivity and electrical insulation properties. It is widely used in electronic devices and power modules, particularly in high-power applications where efficient heat dissipation is crucial for reliable and



safe operation. A few of the major growth factors covered in the global direct bonded copper substrate market are listed below:

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Increased Adoption in Electric Vehicles (EVs): The electric vehicle market was witnessing significant growth, and DBC substrates have found increasing use in EV power electronics, battery management systems, and charging infrastructure. As the automotive industry shifted towards electrification to meet sustainability goals, the demand for direct bonded copper substrate market in EV applications rose due to their ability to handle high-power and provide efficient thermal management.

Advancements in DBC Manufacturing Techniques: Manufacturers were continuously improving
the DBC manufacturing process to enhance production efficiency, reduce costs, and improve
overall product quality. Efforts were being made to develop more automated and precise
bonding techniques, as well as exploring alternative ceramic materials with superior thermal
properties.

- Integration of Wide Bandgap Semiconductors: Wide bandgap semiconductors like silicon carbide (SiC) and gallium nitride (GaN) were gaining popularity in high-power electronics due to their ability to operate at higher temperatures and voltages. DBC substrates were being tailored to accommodate these advanced semiconductor materials, which require better thermal performance for optimal operation.
- Rise in Renewable Energy Applications: With the increasing adoption of renewable energy sources like solar and wind power, the demand for DBC substrates in power electronic applications such as solar inverters and wind power converters was growing. DBC's ability to efficiently dissipate heat in high-power applications made it well-suited for renewable energy systems.
- Expansion of 5G Infrastructure: The rollout of 5G technology drove demand for high-frequency and high-power electronic components. DBC substrates, with their excellent electrical and thermal properties, were being utilized in 5G infrastructure equipment like base stations, amplifiers, and power modules.
- Focus on Materials Research and Innovation: Research was ongoing to explore novel ceramic materials and composites that could further improve the thermal and electrical properties of DBC substrates. Materials with even higher thermal conductivity and lower thermal resistance were being sought to meet the demands of emerging high-power and high-frequency applications.
- Integration of AI and IoT in Power Electronics: As the Internet of Things (IoT) and Artificial Intelligence (AI) gained traction, power electronics systems were becoming more complex and intelligent. DBC substrates are being used in advanced power electronics components, contributing to the development of smart grid technology and efficient energy management.

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Asia Pacific (APAC) region experienced several key trends in the direct bonded copper substrate market. APAC, being a major hub for electronics manufacturing and innovation, played a pivotal role in driving the growth and adoption of direct bonded copper substrate market. One notable trend was the rapid growth in the electronics and power electronics industries across countries like China, Japan, South Korea, and Taiwan. This surge in electronics production led to an increased demand for advanced power modules and electronic components, making DBC substrates highly sought-after for their superior thermal management capabilities. Additionally, the region's expanding electric vehicle market, driven by supportive government policies and incentives, contributed to the rising use of DBC substrates in EV power electronics and battery management systems, where efficient heat dissipation and high-power handling were critical. Furthermore, the focus on sustainable energy solutions in APAC has led to a growing demand for renewable energy systems, such as solar and wind power, with DBC substrates finding extensive application in power electronic components for inverters and converters. The integration of wide bandgap semiconductors like silicon carbide (SiC) and gallium nitride (GaN) in high-power electronic devices also saw an upswing in the region, further boosting the demand for direct bonded copper substrate market due to their ability to accommodate advanced semiconductor

materials. As the electronics industry continued to evolve and embrace emerging technologies such as the Internet of Things (IoT) and smart devices, DBC substrates were increasingly utilized in high-frequency communication devices and intelligent electronics, cementing their position as a critical component in the APAC region's electronics landscape. Overall, the key trends observed in the Asia Pacific for direct bonded copper substrate market reflected the region's dynamic growth, technological advancements, and commitment to sustainability, positioning DBC substrates as a crucial enabler for the region's electronic and power electronics industries.

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Global Direct Bonded Copper Substrate Market Players

- o C-MAC Holding nv
- o Conard Corp
- o Dynamic Hybrids, Inc.
- o Heraeus Holding
- o INNOVACERA
- o PADAR TECNOENERGIE
- o Remtec, Inc.
- o Rogers Corporation
- o Stellar Industries Corp
- o Tong Hsing Electronic Industries, Ltd
- o Toyo Adtec
- o Valley Design Corp.
- o Z-Max Co Ltd.
- o Other Market Participants

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Global Direct Bonded Copper Substrate Market

By Coating Material Type

- o Aluminium Oxide
- o Aluminium Nitride
- o Beryllium Oxide
- o Silicon Nitride
- o Others

By Plating Type

- o Unplated
- o Plated

- o Gold
- o Nickel
- o Combination

By Application

- o Power Hybrids and Power Control Circuits
- o Power Semiconductor Modules
- o Battery Chargers
- o Inductive Charging Systems
- o Smartpower Building Blocks
- o Solid State Relays
- o Solar Cells and Arrays
- o Laser Devices
- o Switch Mode Power Supplies (SMPS)
- o Electronic Heating Devices
- o Others

By Industry

- o Semiconductor and Consumer Electronics
- o Power Electronics and Instrumentation
- o Energy and Utilities
- o Automotive and Transportation
- o Medical and Healthcare
- o Manufacturing
- o Telecommunication
- o Aerospace and Defence
- o Others

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By Region

- o North America (U.S., Canada, Mexico, Rest of North America)
- o Europe (France, The UK, Spain, Germany, Italy, Nordic Countries (Denmark, Finland, Iceland, Sweden, Norway), Benelux Union (Belgium, The Netherlands, Luxembourg), Rest of Europe)
- o Asia Pacific (China, Japan, India, New Zealand, Australia, South Korea, Southeast Asia (Indonesia, Thailand, Malaysia, Singapore, Rest of Southeast Asia), Rest of Asia Pacific)
- o Middle East & Africa (Saudi Arabia, UAE, Egypt, Kuwait, South Africa, Rest of Middle East & Africa)
- o Latin America (Brazil, Argentina, Rest of Latin America)

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