



LUCINTEL INSIGHT
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FIVE TRENDS SHAPING THE FUTURE OF THE CAPACITOR MARKET

Technologies in the capacitor market have undergone significant changes in recent years, encompassing a range from traditional aluminum capacitors to hybrid supercapacitors. The rising wave of new technologies, such as multilayer ceramic capacitors and supercapacitors, are creating significant potential in the consumer electronic, computer, telecom, and automotive industries. The major growth drivers for this market are increasing demand for consumer

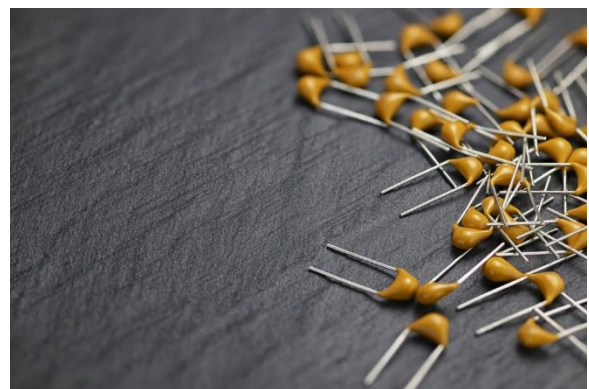
electronic products, growing demand for premium smartphones, and increasing production of electric vehicles.

The capacitor market is divided into several segments, such as ceramic, aluminum, tantalum, paper and plastic, and supercapacitors. Key players in the capacitor market include Murata Manufacturing, Maxwell Technologies, Samsung Electro-Mechanics, TDK, and AVX. These have been working on different strategies to drive sales using highly influential marketing approaches; however, as we examine the challenges and opportunities ahead in this market, companies can benefit from a strategy of developing multilayer ceramic capacitors and supercapacitors as well as considering the key target market trends we have identified. Lucintel predicts the global capacitor market will be valued at \$28.9 billion by 2025, with an expected CAGR of approx. 5.5% between 2020 and 2025.

Lucintel identifies five trends set to influence the global capacitor market. Most of the industry players and experts agree that these five trends will accelerate developments in the capacitor industry in the near future. In terms of the widespread knowledge about the capacitor market already on the horizon, there is still a lack of unified perspective on the direction the industry is moving to proactively address developments. To help bring more clarity to this gap, our study aims to provide insights concerning the direction that changes are taking and how these changes will impact the capacitor market.

1. Increasing Demand for Multilayer Ceramic Capacitors

Multilayer ceramic capacitors are placed near IC devices mounted in a smartphone or wearable device for the purpose of decoupling. Given the trend toward thinner devices, improved functionality, and larger battery size, the mounting area available for parts is shrinking. As such, there is a need for



increasing the mounting density, such as by mounting low-profile parts at the back of the IC package rather than the conventional method of mounting parts on the substrate. In addition, in line with the rollout of 5G services, operating speeds of embedded ICs have been increasing. To ensure stable operation of these ICs, low-ESL decoupling capacitors need to be placed around them. To meet the need for decoupling IC power supply lines in devices that are required to be thin, low-profile multilayer ceramic capacitors have been introduced. These multilayer ceramic capacitors are well suited for decoupling IC power supply lines inside devices such as smartphones and wearables.

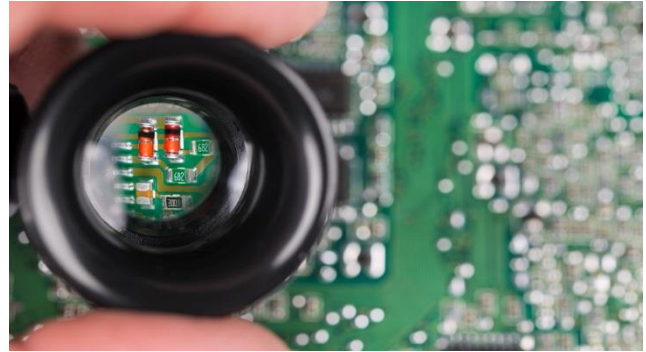
2. Growing Demand for Supercapacitors

Supercapacitors (SCs) are energy storage devices that bridge the gap between batteries and conventional capacitors. They can store more energy than capacitors and supply it at higher power outputs than batteries. These features, combined with high cyclability and long-term stability, make SCs attractive devices for energy storage. They are also known as double-layer capacitors or ultracapacitors. One interesting application of supercapacitors is the storage of energy in KERS, or dynamic braking systems (Kinetic Energy Recovery Systems), in the automotive industry. Supercapacitors are becoming increasingly important for today's electronic devices and energy systems.



3. Development of Ultra-Small Case Size Capacitors for Portable Electronic Devices

The demand for telecommunication products is increasing due to urbanization and growing populations. As the demand for such products increases, so too does the demand for capacitors. The smaller case size capacitors such as 0402, 0201, and 01005 have been developed for portable electronic devices such as telecommunication devices and digital cameras. The availability of these small case size capacitors has resulted in the increasing production of portable devices such as handheld video games, video and still cameras, notebook computers, portable MP3 players, and many other products.



4. Development of High-Voltage Capacitors

High-voltage capacitors are passive electronic components that store charge and energy for use in high-voltage applications. They consist of two conducting plates separated by an insulating material called the dielectric. Film capacitors are high-voltage capacitors made of plastic. High-voltage capacitors provide simple and reliable reactive power to improve system performance, quality, and efficiency. A variety of industries can benefit from using high-voltage capacitors for increased capacity, stability, and power quality, including applications for power generation, transmission, and distribution, as well as for power consumers in the oil and gas industry and infrastructure.



5. High-Temperature Hybrid Aluminum Capacitors

Panasonic's new EEH-ZU series conductive polymer hybrid aluminum capacitors are promoted as being capable of operating at high temperatures with conductive polymer capacitor performance and aluminum electrolytic capacitor safety in a surface-mount package. These new capacitors are rated for 135° C operating temperature and feature a 4,000-hour endurance rating. These hybrid capacitors are promoted as being able to withstand a voltage range of 25 to 63 VDC. They have 100-560 microfarads and are available in vibration-proof variants upon request. The AEC-Q200 qualification ensures quality and reliability. These parts are well suited for situations where the application demands high-temperature and high-current capabilities.



Strategic Considerations for Key Players in the Capacitor Market

The capacitor industry is dynamic and ever-changing. Successful industry players are necessarily masters of innovation, change and adaptation. To retain this status, they need to be attentive to current trends. We believe there will be promising opportunities for capacitors in the ceramic, aluminum, tantalum, paper and plastic, and supercapacitor markets. As per Lucintel's latest market research report (Source: <https://www.lucintel.com/capacitor-market.aspx>), the [capacitor market](#) is expected to grow with a CAGR of approx. 5.5% between 2020 and 2025, and reach \$28.9 billion by 2025. This market is primarily driven by increasing demand for consumer electronic products, growing demand for premium smartphones, and increasing production of electric vehicles.



Trends and Forecast for the Global Capacitor Market (US \$B) (2014 - 2025)



Whether you are new to the capacitor market or an experienced player, it is important to understand the trends that impact the development process, as these trends as listed above lead players to create long-term strategy formulation that will allow them to remain competitive and successful in the long run. For example, to capture growth, some of the strategic considerations for players in the capacitor market are as follows:

- Capacitor market players can increase their capabilities to develop multilayer ceramic capacitors for smartphones and wearables.
- Players can focus on supercapacitors for energy storage, a trend that is expected to lead future trends.
- Investment to increase competencies in ultra-small case size capacitors for portable electronic devices
- Research and development activities for development of low-cost capacitors.

Note: In order to gain better understanding, and learn more about the scope, benefits, and companies researched, as well as other details in the capacitor market report from Lucintel, click on <https://www.lucintel.com/capacitor-market.aspx>. This comprehensive report provides you with in-depth analysis on market trends and forecast, segment analysis, regional analysis, competitive benchmarking and company profiling of key players. In addition, we also offer **strategic growth consulting** to meet your customized needs. We have worked with many PE firms and corporate customers in the process of their market entry and M & A initiatives.



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