

Ultra Capacitor - Recent Technology and Market Forecast (2020)

Description: An ultra capacitor is called different names such as super capacitor, electro-chemical capacitor, and EDLC (Electric Double Layer Capacitor). However, ultra capacitors are divided into EDLCs using charge absorption of electrical double layers, pseudo capacitors using the redox reaction, and hybrid capacitors using both mechanisms.

The concept of storing electrical energy in the electrical double layer formed at the electrode/electrolyte interface has been known since the late 1800s. The first electrical storage device using the electric double layer was reported by H.I Becker Becker of General Electric (U.S. Patent 2,800,616). After that, Robert A. Rightmire, chemistry at the Standard Oil Company of Ohio (SOHIO) invented a device in the format that can commonly be used, and filed a patent on the invention (US3,288,641) in 1962, which was granted on November, 1966. It is Donald L. Boos of SOHIO that has formed the basis for the electro-chemical capacitor technology by filing a follow-on patent (U.S. 3,536,963). In 1977, NEC commercialized its super capacitor for back-up power devices for volatile clock chips and complementary metal-oxide-semiconductor (CMOS) computer memories through years of design modification. This led to commercialization of electro-chemical capacitors, and for 35 years, there have been various technological innovations and applications.

The ultra capacitor market has grown through application to consumer electronics. The most typical case is mobile phone applications such as memories and time clocks. Based on these applications, the global ultra capacitor market recorded 480 billion won in 2011. However, it is expected that the market growth will be led by transportation applications in the future, reaching 840 billion won in 2015 and 1 trillion 250 billion won in 2012 at the annual growth rate of 11.3%.

Ultra capacitors can be divided into ultra-small, small, medium, large, and extra large size according to capacitance. The ultra-small and small product (less than 1F) markets are expected to grow slightly, but the medium and large product (more than 1F) markets will grow. It is also expected that the ultra-large product market (more than 1000F) will grow rapidly especially in the field of transportation.

This report provide comprehensive data about ultra capacitors. To forecast the recent trend in material compositions, newest materials, latest technologies by capacitor type, business trends of major ultra capacitor manufacturers in the world, and ultra capacitor markets, almost all ultra capacitor products are examined and the market survey and forecasts for each product are provided.

Strong points of this report

- The most comprehensive report on ultra capacitors
- Provides the latest technological trends
- Introduces various applications
- Provides specific market information based on the analysis of end products

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