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Ultra Capacitor - Recent Technology and Market Forecast (-2020)

https://marketpublishers.com/r/U3AD7153DC6EN.html
Date: October 2012
Pages: 336
Price: US$ 4,450.00 (Single User License)
ID: U3AD7153DC6EN

Abstracts

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%.

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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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Contents

1. INTRODUCTION

1.1. Electrochemical Capacitor Industry
1.2. Electrochemical Capacitor Technology

2. ELECTROCHEMICAL CAPACITOR

2.1. Definition of Electrochemical Capacitor
2.2. Principle of Electrochemical Capacitor
2.3. History of Electrochemical Capacitor
2.4. Characteristics of Electrochemical Capacitor
  2.4.1. Electrochemical Capacitor VS. Capacitor
  2.4.2. Electrochemical Capacitor VS. Lithium-ion Batteries
  2.4.3. Electrochemical Capacitor Pros and Cons

3. TECHNOLOGY 1. (TECHNICAL BASIS)

3.1. Classification of Electrochemical Capacitor Technology
3.2. Electrochemical Capacitor Materials
  3.2.1. Activated carbon
  3.2.2. Electrolyte
  3.2.3. Electrode
3.3. Electrochemical Capacitor Cell Structure
  3.3.1. Box type
  3.3.2 Chip type
  3.3.3 Coin type
  3.3.4 Thin type
  3.3.5. Radial type (Wound)
  3.3.6. Stacking type
  3.3.7. Bipolar type

4. TECHNOLOGY 2. RECENT TREND

4.1. Advanced Technology
  4.1.1. Next-generation Electrical Double Layer Capacitor (Nano-carbon electrode material)
  4.1.2. Next-generation P-EDLC (Conductive polymer electrode material)

4.1.3. Next-generation P-EDLC (Metal oxide electrode material)
4.1.4. Li-ion capacitor (Asymmetric hybrid capacitor)
4.1.5. Ionic Liquid Capacitor
4.2. Present Technology
4.2.1. Electric Double Layer Capacitor (EDLC)
4.2.2. Redox Capacitor (RC)
4.2.3. PbC (Ultrabattery)
4.2.4. Hybrid Capacitor (HC)
4.3. Present Advanced Technology
4.3.1. Field Resurrection
4.3.2. NANO HYBRID CAPACITORS AT (PROF. NAOI)
4.3.3. Advanced Aqueous System
4.3.4. High-purity, high-voltage activated carbon
4.3.5. Coconut shell-based activated carbon
4.3.6. CDC (Carbon Derived Carbon)
4.3.7. CDCs (Carbonhydrate Derived Carbons)
4.3.8. New activated carbon
4.4. Technical Trend
4.4.1. Classification of Mechanism
4.4.2. Type of Structure
4.4.3. Component Material
4.4.4. Change in Industrial Structure
4.4.5. Improvement in Characteristics of Electrical Double Layer Capacitor

5. INDUSTRY STATUS

5.1. Korean Market Status
5.1.1. Korchip
5.1.2. Nesscap
5.1.3. LS Mtron
5.1.4. Vina Tech
5.1.5. Samwha Electric
5.1.6. Pureechem
5.2. Japanese Market Status
5.2.1. Panasonic
5.2.2. Nippon Chemi-Con
5.2.3. Advanced Capacitor Technologies
5.2.4. JM Energy
5.2.5. Taiyo Yuden Energy Device

5.2.6. Shin-Kobe Electric Machinery
5.2.7. Asahi Kasei FDK Energy Device
5.2.8. Nissinbo
5.2.9. Meidensha
5.2.10. Seiko Instruments
5.3. Overseas market
5.3.1. Maxwell Technology
5.3.2. Cap-XX

6. APPLICATION

6.1. Consumer Electronics
6.1.1. Mobile phone, smart phone
6.1.2. Mobile phone, LED Flash
6.1.3. Memory / Battery Backup
6.1.4. SSD Backup
6.1.5 Copy machine
6.2. Transportation
6.2.1. Cold Cranking
6.2.2. Trolleybus
6.2.3. Hybrid car
6.2.4. Electric car
6.2.5. Fuel cell car
6.2.6. Diesel Hybrid Bud
6.2.7. Idling Stop Capacitor
6.2.8. E-Booster
6.2.9. Train
6.2.10. Aircraft
6.2.11. Car Audio
6.3. Industry
6.3.1. LED Streetlight
6.3.2. Automatic Gauge Examination System (AMR)
6.3.3. Crane
6.3.4. Forklift
6.3.5. Toy
6.3.6. Buoy
6.3.7. Roller Coaster
6.4. Energy
6.4.1. Renewable Energy

6.4.2. Photo Voltaic
6.4.3. Wind Power
6.4.4. Energy Harvesting
6.4.5. UPS

7. MARKET FORECAST

7.1. Electrochemical Capacitor Cost
7.1.1. Price per Capacitance
7.1.2. Price per Unit Energy (Wh)
7.1.3. Li-ion Capacitor Cost Reduction
7.2. Electrochemical Capacitor Market Forecast
7.2.1. Increase in Demand for Small-sized Electrical Double-layer Capacitor
7.2.2. Improvement in Automotive Fuel Efficiency
7.2.3. Energy Harvesting
7.3. Lithium-ion Capacitor Market Forecast
7.3.1. Internal Resistance Reduction
7.3.2. Distinction from EDLC
7.3.3. LIC Production Capacity
7.4. Electrochemical Capacitor & Lithium-ion Capacitor
7.4.1. Position of Li-ion Capacitor
7.4.2. Hybrid Capacitor
7.5. Electrochemical Capacitor Market Forecast
7.5.1. Market Segmentation
7.5.2. Characteristic of Electrochemical Capacitor
7.5.3. Electrochemical Capacitor Market Forecast by Capacity
7.5.4. Electrochemical Capacitor Market Forecast by Purpose

FIGURE

TABLE

APPENDIX

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