

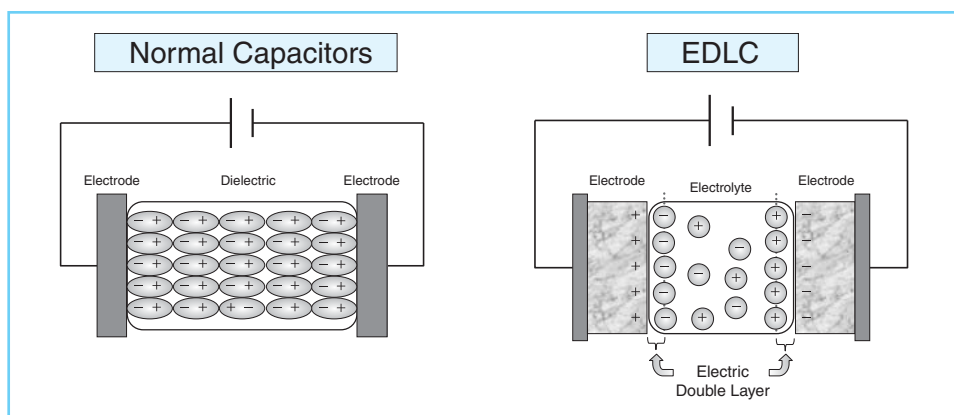
1. Introduction

Compared to the commonly used rechargeable batteries, Electric Double Layer Capacitor (EDLC), which is capable to charge-discharge with high current, is an energy storage device with its excellent charge-discharge cycle life. In the recent years, with energy issues (reduction of oil consumption, consumer electric power, CO₂ emission, and effective use of new energy) being emphasized towards loading EDLC with new applications is considered. Also, installation of EDLC in hybrid or fuel vehicle is considered.

Nippon Chemi-Con has strongly pursued towards a product commercialization of an energy conservation, low environmental load, within this, EDLC is a representative product which is environmentally friendly. We hold and provide several hundred F to large capacitance of 3,200F, holding wide specification, meeting user needs.

2. Basic Mechanism of EDLC

General capacitors have a dielectric sandwiched between two electrodes. When a voltage is applied, dipoles are oriented, and thus electric charge is stored. Electric double layer capacitors have electric charges oriented at the boundary of electrolyte and electrodes in what is called the "electric double layer."



(Figure1) Mechanism

3. Characteristics

As mentioned above, EDLC differs from rechargeable batteries, not causing chemical reaction, with surface of activated carbon with energy accumulation by ionic physical attachment only, therefore it holds the characteristics stated below;

- With low degradation, multimillion cycles of charge-discharge is possible.
- With a high power density, rapid (high current) charge-discharge is possible.
- With a high charge-discharge efficiency, an output efficiency of over 95% with a power density 1kW/kg is obtained.
- Environmentally friendly without using heavy metal for its structure material.
- High in safety during abnormal time, and no malfunction occurs due to short circulation.

4. Structure

Nippon Chemi-Con is developing a cylindrical type and a prismatic type DLCAP™ (Photo 1).

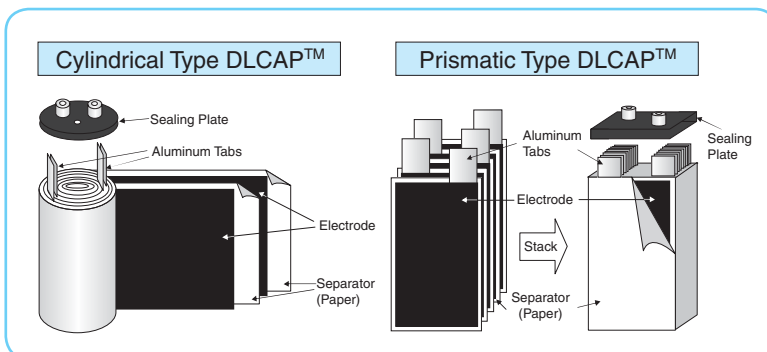
Standard structure is made by both pasting an electrode onto the aluminum foil, prismatic type in stacked layer-type, and cylindrical type in wind type (Figure 2).

Using a large activated carbon with large specific surface for the electrode, with our original high-densified electrode manufacturing technology the energetic characterized electrode, is excellent with both high capacitance and low resistance.

Prismatic type DLCAP™ holds an original collecting electricity technology and by using our production made high density low resistance electrode, lowering the products resistance, making high current charge-discharge possible, which will be a product capable for a more high power use compared to the cylindrical type.



(Photo1) DLCAP™



(Figure2) DLCAP™ Structure