



# CDE AT A GLANCE

## Ultracapacitors

Cornell Dubilier offers the most advanced ultracapacitor technology available for demanding applications in renewable energy, electric vehicles and real time clock and battery backup. With styles ranging from SMT to large cylindrical cells, CDE has the broadest array of ultracapacitors available in the industry today.

### Board Mount Ultracapacitors - Type EDL



Type EDL ultracapacitors offer extremely high capacitance values (Farads) in a variety of packaging options that will satisfy low profile, surface mount, through hole and high density assembly requirements. SMT, Stacked Coin and Radial leaded styles have capacitance values ranging from .022 up to 100 Farads and voltage ranges from 2.1 to 5.5 volt.

- **Unlimited charging and discharging capability**
- **Long Life**
- **Low ESR**
- **Extend battery life up to 1.6 times**
- **Operating temperatures from -25 to +85 C**

Learn more- <http://www.cde.com/catalog/Ultracap/>

### Large Cell Ultracapacitors – Type CDLC

Large ultracapacitors handle back-up and pulse power applications such as grid stabilization. They also excel in transportation applications like automotive subsystems, rail system power and utility vehicles. They provide extended power allowing critical information and functions to remain available during dips, sags, and outages in the main power source. These cells can relieve batteries of burst power functions, thereby reducing costs and maximizing space and energy efficiency. Units with axial cylindrical design enables low ESR and high peak currents with an electrostatic storage capability that can cycle a million charge and discharges without performance degradation.



- **Very Low ESR Characteristics**
- **High Power Performance**
- **Available Board Mountable, weldable or with Threaded Axial Leads**
- **Low Thermal Resistance**

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### Hybrid Ultracapacitors - Type CDHC



CDHC Hybrid Capacitors are half ultracapacitor and half lithium ion battery. These hybrid capacitors store more than twice the energy of typical ultracapacitors and have high cycle life capability compared to batteries. Hybrid capacitors have more power than lithium ion batteries, but less energy storage. By comparison, ultracapacitors have a cycle life capability of a million cycles or more, batteries have a cycle life of around 1000 cycles and hybrid capacitors, more than 20,000 cycles. While the ultracapacitors have a usual working voltage range of 1.3 to 2.7 V, hybrid capacitors operate from 1.0 to 2.3 V. The higher energy of hybrid capacitors makes them especially suitable for use in LED lighting and emergency pulse applications, e.g. operation of electric doors and windows.

- **Rapid Charge**
- **High Cycle Life**
- **Snap mount style**

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ULTRACAPACITOR CAPACITANCE	<1F	<2F	<100F	100F	350F	400F	600F	3000F
SMT	♦							
Stacked Coin		♦						
Radial			♦	♦				
2 Pin, Snap-in				♦	♦	♦	♦	
Multi-pin					♦			
Large Cell, Axial, M12 threaded stud								♦
Large Cell, Axial, M6 threaded stud								♦
HYBRID CAPACITORS CAPACITANCE	220F	300F	820F	1000F				
2 Pin, Snap-in	♦	♦	♦	♦				

**CDE**

**CORNELL  
DUBILIER**

Capacitor Solutions for Power Electronics

[www.cde.com](http://www.cde.com)

Contact us for your next design:

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# KEY MARKETS FOR CDE ULTRACAPACITORS



## RENEWABLE ENERGY

Fuel Cell	♦	♦	
Wind Turbine (Blade pitch control)	♦		♦
Solar Battery Back-up	♦	♦	
Solar Lighting	♦	♦	

## TRANSPORTATION

Hybrid & Electric Vehicles	♦	♦	
Motor Drives	♦	♦	
Motor Start	♦	♦	

## LIGHTING

LED and Solar Lighting	♦	♦	♦
Solar Battery Back-up	♦	♦	♦

## TELECOM

Cellular Handsets			♦
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## INDUSTRIAL

Cranes	♦	♦	
Loaders	♦	♦	
Forklifts	♦	♦	
Robots	♦	♦	
Welding Machines	♦	♦	

## OTHER

Real Time Clock - Battery Back-up			♦
Gaming Machines			♦
Backup Power Sources			♦
AMR			♦
Toys			♦
Rechargeable Hand Tools			♦

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