

# Type CDHC Snap-In Hybrid Carboncap Power Ultracapacitors

## Large Cylindrical Type



The snap mount hybrid ultracapacitors are designed for board mountable power backup applications. The best applications for these type of ultracapacitors have low power, low energy, and low charge/discharge cycle rates. The main feature of these ultracapacitors is the ability to be rapidly charged preferably followed by a slow discharge. Applications include solar lighting, LED lighting, and portable devices.

### Highlights

- Rapid charge
- Circuit board mountable
- Standard snap-In design

### Specifications

Operating Temperature Range	-40 °C to +60 °C
Storage Temperature Range	-40 °C to +65 °C
Rated Voltage Range	2.3 Vdc, 2.50 Vdc rated surge (do not discharge below 1 Vdc)
Capacitance Range	220 F to 1000 F
Capacitance Tolerance	-5% / +10%
Life at Room Temperature	10 years at rated voltage and 25 °C Capacitance change ≤20% ESR change ≤100%
Life Test	1000 h @ rated voltage and +50 °C Capacitance change ≤30% decrease ESR change ≤100% increase
Cycle Test	>10,000 cycles (rated to half rated voltage at +25 °C) Capacitance change ≤20% decrease ESR change ≤100% increase
Shelf Life	1000 h without voltage at +60 °C Capacitance change ≤20% decrease ESR change ≤100% increase
<b>RoHS Compliant</b>	

### Ratings

Part Number	CDHC221K2R3SR	CDHC301K2R3SR	CDHC821K2R3SR	CDHC102K2R3SR
Terminal Configuration	Snap In	Snap In	Snap In	Snap In
<b>Capacitance (F)</b> (Discharge w constant current at 25°C)	220	300	820	1000
<b>ESR, DC (mΩ), Max</b>	40	25	12	14
<b>ESR, AC @ 1kHz (mΩ), Max</b>	25	15	6	7
<b>Current - Max Peak (A)</b> (1 s discharge rate to 50% of rated Voltage)	26	41	87	77
<b>Leakage current (mA), Max</b> after 72 h at +25 °C	0.20	0.55	0.50	0.70
<b>Usable Power Density, Pd (kW/kg)</b> (Per IEC 62391-2)	0.63	0.94	0.76	0.50
<b>Impedance match power, (kW/kg)</b>	2.1	3.3	3.1	2.1
<b>Gravimetric energy density, Emax (Wh/kg)</b>	5.2	6.6	7	5.2
<b>Energy available (Wh)</b> (At rated voltage)	0.13	0.18	0.49	0.60
<b>Weight (kg)</b>	0.025	0.027	0.07	0.115
<b>Maximum Continuous Current (Arms)</b> (ΔT=20°C)	5	5.5	7.5	8
<b>Short circuit current (A)</b>	92	153	383	329

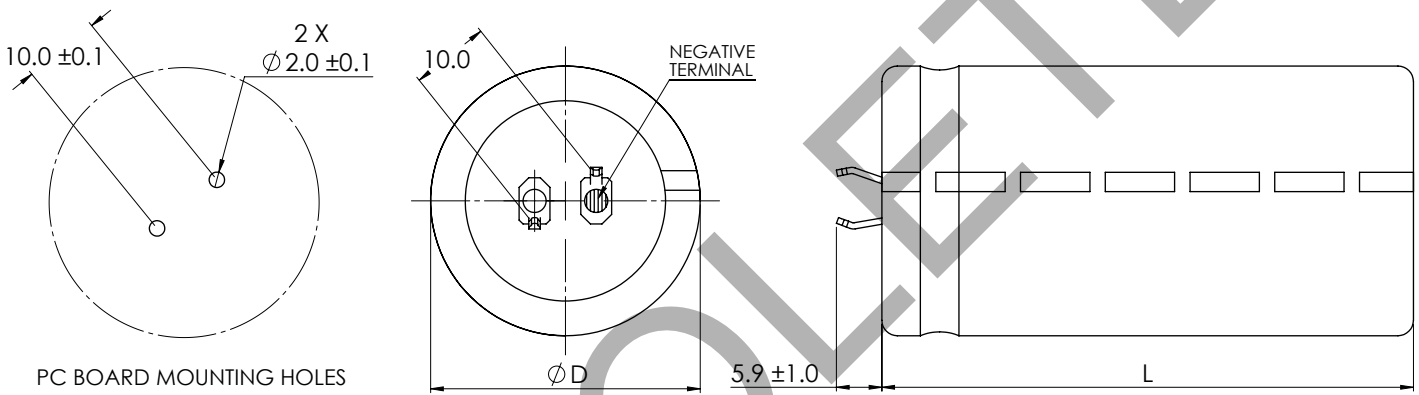
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### Part Numbering System

<b>CDHC</b>   <b>Type</b>	<b>221</b>   <b>Capacitance</b> (F)	<b>K</b>   <b>Tolerance</b> (%)	<b>2R3</b>   <b>Voltage</b> (V)	<b>SR</b>   <b>Configuration</b>
CDHC - Carbon Double Layer Hybrid Cell	<b>221 = 220</b>	<b>K = -5 / +10%</b>	<b>2R3 = 2.3</b>	<b>SR = snap-in, 2 pins</b>

### Outline Drawing and Dimensions



Snap Mount Hybrid Type Part Number	Dimensions (mm)	
	D (+1/-0mm)	L ( $\pm 2$ mm)
<b>CDHC221K2R3SR</b>	22	45
<b>CDHC301K2R3SR</b>	22	45
<b>CDHC821K2R3SR</b>	27	80
<b>CDHC102K2R3SR</b>	35	88

Do not reverse polarity.

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OBSOLETE