

### FEATURES

- High Temperature
- Long cycle life,maintenance-free
- High Operating Voltage
- No Explosion Safety
- RoHS Directive Compliant

### APPLICATIONS

- Consumer electronics, Power Holdup Modules, Energy Harvesting, UPS/Industrial,Robotic Power,High Pulse Current Applications.

### OPERATING TEMPERATURE RANGE

- -40°C to +85°C @2.7V

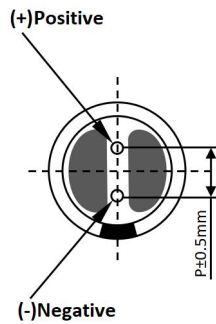
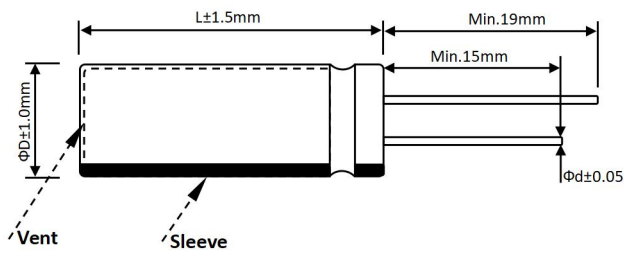
### GENERAL SPECIFICATIONS



Item	Performance
Operating temperature	-40°C to +85°C
Capacitance range	0.2F to 100F
Capacitance tolerance	-20%~+50% ; -20%~+20%; -10%~+30%
Rated voltage	2.7 V
Surge voltage	2.85 V
Temperature characteristics	Capacitance change: Within ±30% of initial measured value at +25°C Internal resistance: Within ±300% of initial measured value at +25°C
High temperature load time	After 85°C 1000 hours: Capacitance change: ±30% of initial rated value Internal resistance: Within 3 times of initial specified value
Projected cycle life (From rated voltage to 1/2 rated voltage at 25°C)	After 500,000 cycles: Capacitance change: Within ±30 % of initial rated value Internal resistance: Within 2 times of initial specified value
Humidity characteristic	Relative humidity: 90%~95% /Duration of testing:240 hrs /Temperature:40±2°C Capacitance change: Within ±30 % of initial rated value Internal resistance: Within 2 times of initial specified value
Vibration resistance	Amplitude:1.5mm /Frequency:10~55Hz /Duration of testing:6 hrs Capacitance change: Within ±30 % of initial rated value Internal resistance: Within 2 times of initial specified value
Shelf life	After 2 years at 25°C without load, the capacitor shall meet the specified endurance limits.

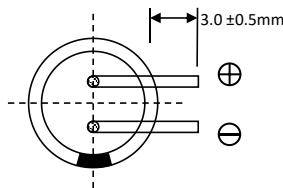
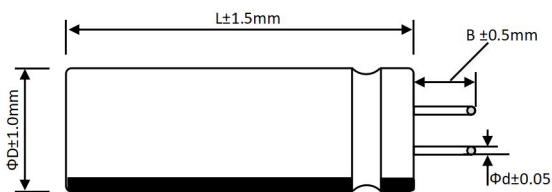
## DIMENSIONS

### RADIAL LEAD TYPE



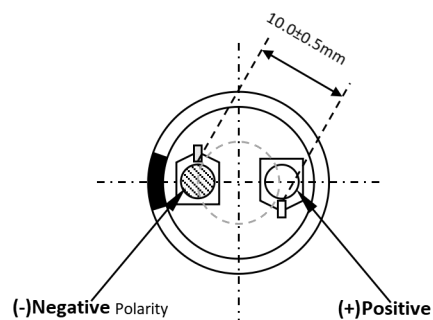
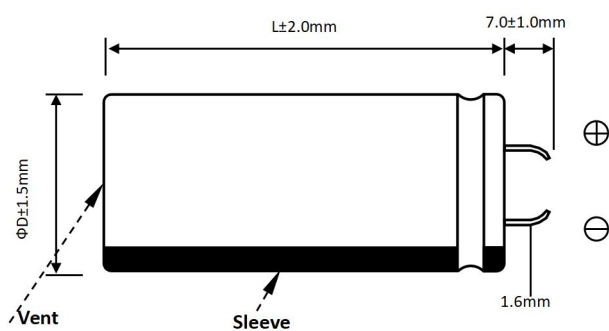
Size(mm)		
ΦD	P	Φd
4	1.5	0.5
5	2.0	0.5
6.3	2.5	0.6
8	3.5	0.6
10	5.0	0.6
13	5.0	0.6
16	7.5	0.8
18	7.5	0.8
22	10	1.6

### RADIAL BENT LEAD TYPE



Style	B(mm)
A1	4.0
C1	2.0

### SOLDER PIN TYPE 2-PIN 100F PART Terminal S1 type





CHW(2.7V)85°C Series



High Temperature Series

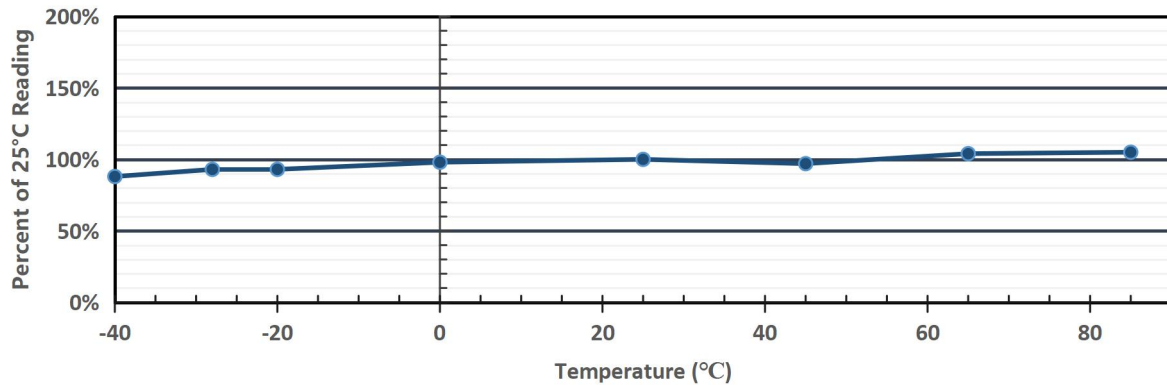
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STANDARD PRODUCTS

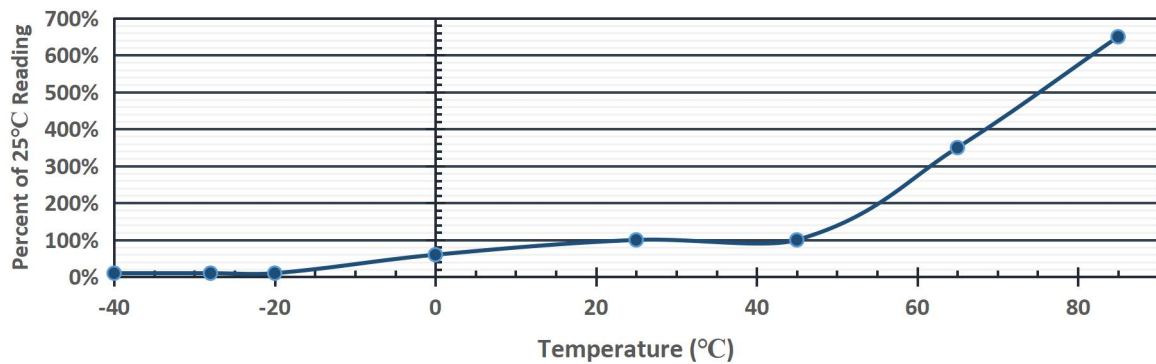
Part Number	Working Voltage (V DC)	Rated Cap. (F)	Dimensions (mm) D*L	Max.ESR		Maximum Leakage (72hrs/mA)	Maximum Peak Current(A)	Maximum Endurance Current(A)	Power Density (W/Kg)	Maximum Energy (W.h)	Energy Density (Wh/kg)
				ESRAC (1kHz/mΩ)	ESRDc (mΩ)						
<b>Radial Lead(Miniaturized)</b>											
CHW-2R7224R-TW	2.7	0.22	4x10	1000	1820	0.001	0.17	0.09	833.1	0.0002	0.38
CHW-2R7224R-TWX	2.7	0.22	5x10	700	1200	0.002	0.19	0.10	1135.6	0.0002	0.34
CHW-2R7304R-TW	2.7	0.3	4x10	700	1200	0.002	0.19	0.11	1249.7	0.0003	0.38
CHW-2R7354R-TW	2.7	0.35	5x10	600	1000	0.002	0.40	0.15	1055.1	0.0003	0.87
CHW-2R7504R-TWX	2.7	0.5	5x12	600	1000	0.003	0.45	0.15	1077.3	0.0005	1.02
CHW-2R7504R-TW	2.7	0.5	6.3x12	240	1600	0.006	0.52	0.14	1003	0.0005	1.86
CHW-2R7604R-TW	2.7	0.6	4x22	700	1200	0.003	0.45	0.16	1093.5	0.0006	1.42
CHW-2R7105R-TWV	2.7	1	4x25	550	900	0.003	0.54	0.18	1023.2	0.0010	1.78
CHW-2R7105R-TWX	2.7	1	6.3x12	300	1500	0.006	0.54	0.16	1108	0.0012	1.92
CHW-2R7125R-TW	2.7	1.2	5x22	200	400	0.006	1.16	0.33	2499.4	0.0012	2.17
CHW-2R7335R-TWX	2.7	3.3	6.3x22	90	180	0.010	2.44	0.53	3332.6	0.0033	3.18
CHW-2R7405R-TWV	2.7	4	6.3x25	90	130	0.010	2.44	0.53	3332.6	0.0040	3.18
<b>Radial Lead</b>											
CHW-2R7105R-TW	2.7	1.0	8*12	160	240	0.007	1.09	0.47	3314	0.0010	0.92
CHW-2R7155R-TW	2.7	1.5	8*12	160	240	0.010	1.57	0.43	4050	0.0015	2.25
CHW-2R7205R-TW	2.7	2.0	8*16	120	180	0.010	1.99	0.61	3591	0.0020	1.50
CHW-2R7335R-TW	2.7	3.3	8*20	100	150	0.012	2.98	0.74	3645	0.0033	2.09
CHW-2R7505R-TWX	2.7	5.0	8*25	90	135	0.016	4.03	0.87	3115	0.0051	2.43
CHW-2R7505R-TW	2.7	5.0	10*20	75	113	0.016	4.32	0.97	2957	0.0051	1.92
CHW-2R7705R-TW	2.7	7.0	10*25	60	90	0.022	5.80	1.20	3135	0.0071	2.29
CHW-2R7106R-TW	2.7	10	10*25	55	83	0.030	7.40	1.25	3263	0.0101	3.12
CHW-2R7106R-TWQ	2.7	10	10*30	45	68	0.032	8.06	1.51	3482	0.0101	2.72
CHW-2R7106R-TWX	2.7	10	12.5*20	45	68	0.032	8.06	1.42	3186	0.0101	2.49
CHW-2R7126R-TW	2.7	12	12.5*25	40	60	0.040	9.42	1.66	3393	0.0122	2.83
CHW-2R7156R-TW	2.7	15	12.5*30	35	53	0.055	11.33	1.93	3341	0.0152	3.05
CHW-2R7206R-TW	2.7	20	12.5*30	35	53	0.055	13.17	1.93	3920	0.0203	4.76
CHW-2R7256R-TW	2.7	25	16*25	25	38	0.078	17.42	2.41	2794	0.0253	3.03
CHW-2R7306R-TW	2.7	30	16*30	20	30	0.085	21.32	2.92	3149	0.0304	3.28
CHW-2R7506R-TW	2.7	50	18*40	16	24	0.120	30.68	3.96	2526	0.0506	3.51
CHW-2R7107R-TWV	2.7	100	18*60	13	20	0.250	45.76	5.30	2035	0.1013	4.59
CHW-2R7107R-TW	2.7	100	22*50	8	11.2	0.240	63.68	6.84	3633	0.1013	4.71

### QUALITY AND RELIABILITY

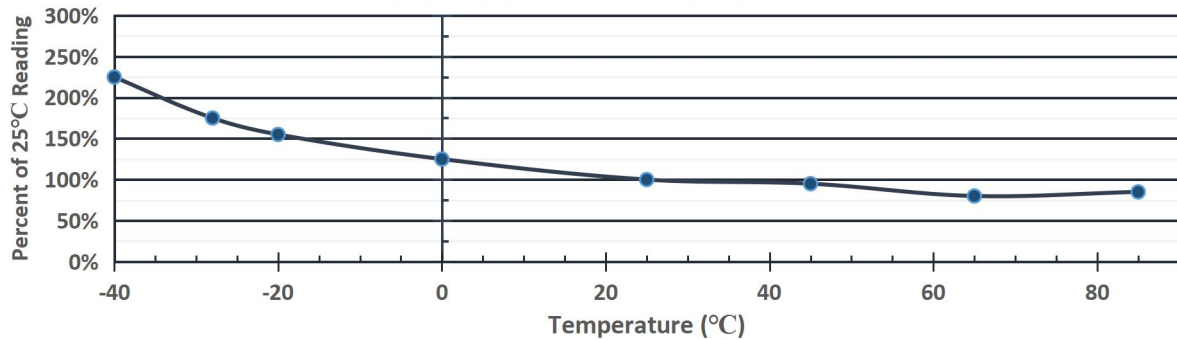
CAPACITANCE VS. TEMPERATURE



LEAKAGE CURRENT VS. TEMPERATURE



EQUIVALENT SERIES RESISTANCE VS. TEMPERATURE



## LIFE TIME AND TEMPERATURE PERFORMANCE

The life of a Super Capacitor is impacted by a combination of operating voltage and the operating temperature according to the following equation :

$$LS = L_R \times 2^X \times 2^Y$$

Which is  $X = (T_m - T_a) / 10$   $Y = (V_r - V_a) / 0.2$

$L_s$  = Expected life of the super capacitor in the application

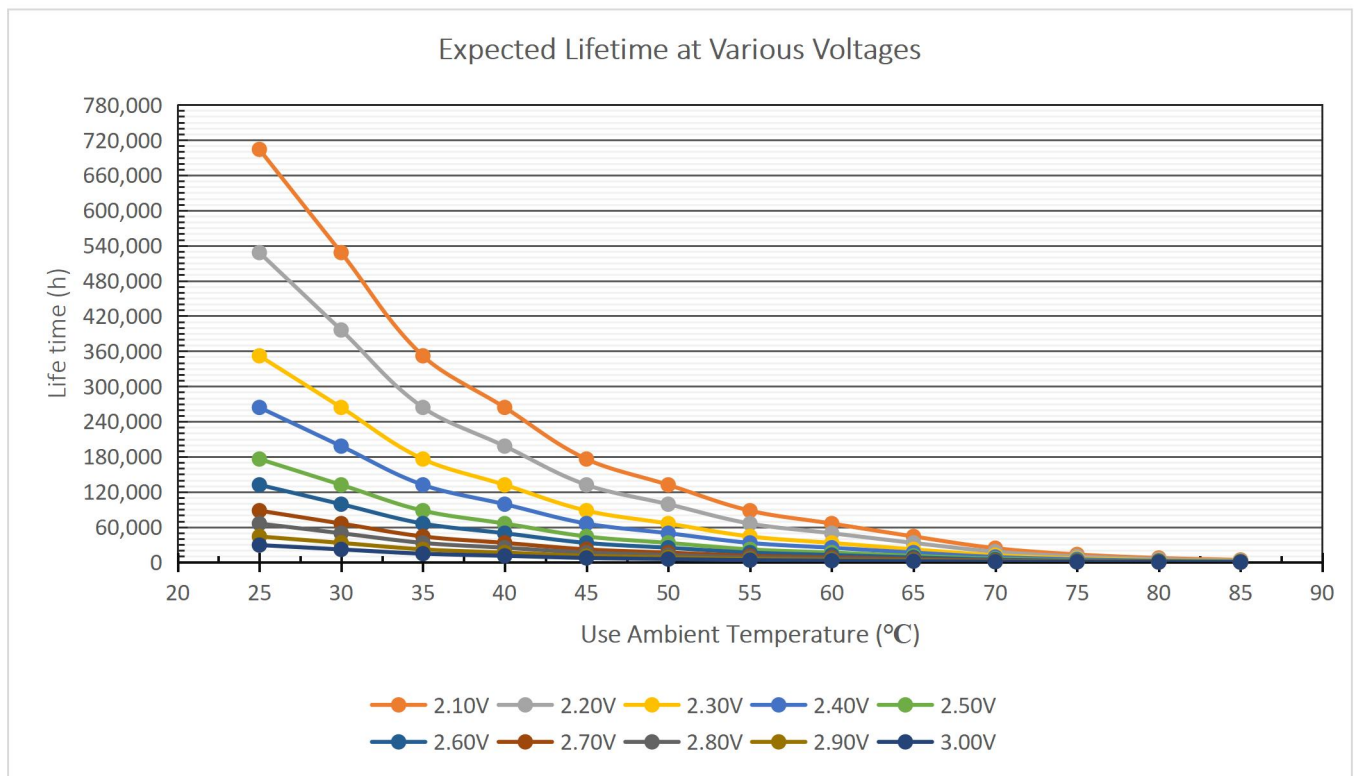
$L_R$  = Load life rating of the super capacitor

$T_m$  = Max temperature rating of the super capacitor

$T_a$  = Ambient temperature of the application

$V_r$  = Rated voltage of the super capacitor

$V_a$  = Maximum applied voltage on the super capacitor in the application





CHW(2.7V)85°C Series



High Temperature Series

www.cda-cap.com

## SAFETY RECOMMENDATIONS

### WARNINGS

- To Avoid Short Circuit, after usage or test, SuperCapacitor voltage needs to discharge to  $\leq 0.1V$
- Do not Apply Overvoltage, Reverse Charge, Burn or Heat Higher than 150°C, explosion-proof valve may break open
- Do not Press, Damage or disassemble the SuperCapacitors, housing could heat to high temperature causing Burns
- If you observe Overheating or Burning Smell from the capacitor disconnect Power immediately, and do not touch

### REGULATORY

- MSDS
- RoHS Compliant
- Reach Compliant

### TRANSPORTATION

Not subjected to US DOT or IATA regulations  
 UN3499, <10Wh, Non-Hazardous Goods  
 International shipping description –  
 “Electronic Products – Capacitor”

## PRECAUTIONS FOR WELDING

When soldering supercapacitors to a PCB, the temperature & time that the body of the supercapacitor sees during soldering can have a negative effect on performance. We advise following these guidelines:

- Do not immerse the supercapacitors in solder. Only the leads should come in contact with the solder.
- Ensure that the body of the supercapacitor is never in contact with the molten solder, the PCB or other components during soldering.
- Excessive temperatures or excessive temperature cycling during soldering may cause the safety vent to burst or the case to shrink or crack, potentially damaging the PCB or other components, and significantly reduce the life of the capacitor.

### HAND SOLDERING

Keep distance between the supercapacitor body and the tip of the soldering iron and the tip should never touch the body of the capacitor. Contact between supercapacitor body and soldering iron will cause extensive damage to the supercapacitor, and change its electrical properties. It is recommended that the soldering iron temperature should be less than 350°C, and contact time should be limited to less than 4 seconds. Too much exposure to terminal heat during soldering can cause heat to transfer to the body of the supercapacitor, potentially damaging the electrical properties of the supercapacitor.

### WAVE SOLDERING

Only use wave soldering on Radial type supercapacitors. The PCB should be preheated only from the bottom and for less than 60 seconds, with temperature at, or below, 100°C on the top side of the board for PCBs equal to or greater than 0.8 mm thick.

Solder Temperature (°C)	Suggested Solder Time (s)	Maximum Solder Time (s)
220	7	9
240	7	9
250	5	7
260	3	5

### REFLOW SOLDERING

Infrared or conveyor over reflow techniques can be used on these supercapacitors. Do not use a traditional reflow oven without clear rated reflow temperature for supercapacitors.