

FEATURES

- Low leakage current, long life
- High power, high energy density
- Small size and low-resistance
- Long cycle life, maintenance-free
- RoHS Directive Compliant

APPLICATIONS

- Consumer electronics, Ride thru power support, Back up power, Stand alone or augment existing, energy/power source.

OPERATING TEMPERATURE RANGE

- -40°C to +65°C @2.7V
- -40°C to +85°C @2.3V

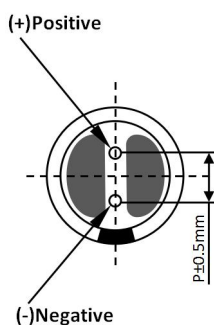
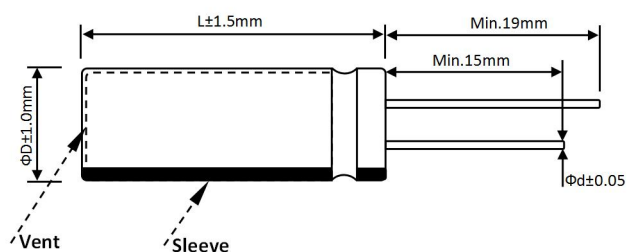
GENERAL SPECIFICATIONS



Item	Performance
Operating temperature	-40°C to +70°C
Capacitance range	0.2F to 120F
Capacitance tolerance	-0%to+100%; -20%to+20%; -20%to+50%
Rated voltage	2.7 V
Surge voltage	2.85 V
Temperature characteristics	Capacitance change: Within $\pm 30\%$ of initial measured value at +25°C Internal resistance: Within $\pm 200\%$ of initial measured value at +25°C
High temperature load time	After 70°C 1500 hours (at 2.7V): Capacitance change: $\pm 30\%$ of initial rated value Internal resistance: Within 2 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 $\pm 30\%$ 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 $\pm$ 2°C Capacitance change: Within $\pm 30\%$ 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 $\pm 30\%$ 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.

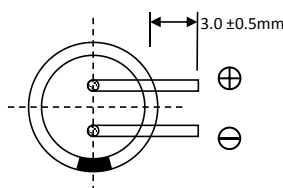
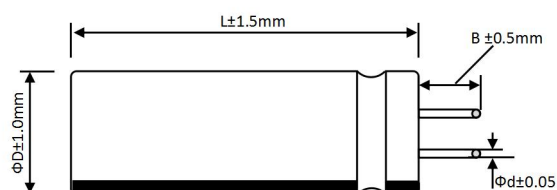
DIMENSIONS

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
12.5	5.0	0.6
16	7.5	0.8
18	7.5	0.8

RADIAL BENT LEAD TYPE



Style	B(mm)
A1	4.0
C1	2.0

STANDARD PRODUCTS

Part Number	Working Voltage (V DC)	Rated Cap. (F)	Dimensions (mm)	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)
			D*L	ESRAC (1kHz/mΩ)	ESRdc (mΩ)						
Radial Lead(Miniaturized)											
CXHP2R7224R-TW	2.7	0.22	4x10	1000	1820	0.001	0.17	0.09	833.1	0.0002	0.38
CXHP2R7224R-TWX	2.7	0.22	5x10	700	1200	0.002	0.19	0.10	1135.6	0.0002	0.34
CXHP2R7304R-TW	2.7	0.3	4x10	700	1200	0.002	0.19	0.11	1249.7	0.0003	0.38
CXHP2R7354R-TW	2.7	0.35	5x10	600	1000	0.002	0.40	0.15	1055.1	0.0003	0.87
CXHP2R7504R-TWX	2.7	0.5	5x12	600	1000	0.003	0.45	0.15	1077.3	0.0005	1.02
CXHP2R7504R- TW	2.7	0.5	6.3x12	240	1600	0.006	0.52	0.14	1003	0.0005	1.86
CXHP2R7604R-TW	2.7	0.6	4x22	700	1200	0.003	0.45	0.16	1093.5	0.0006	1.42
CXHP2R7105R-TWV	2.7	1	4x25	550	900	0.003	0.54	0.18	1023.2	0.0010	1.78
CXHP2R7105R-TWX	2.7	1	6.3x12	300	1500	0.006	0.54	0.16	1377.6	0.0012	1.92
CXHP2R7125R-TWX	2.7	1.2	6.3x11	200	400	0.003	0.66	0.18	3645	0.0012	1.62
CXHP2R7125R-TW	2.7	1.2	5x22	200	400	0.006	1.16	0.33	2499.4	0.0012	2.17
CXHP2R7335R-TWX	2.7	3.3	6.3x22	90	180	0.010	2.44	0.53	3332.6	0.0033	3.18
CXHP2R7405R-TWV	2.7	4	6.3x25	90	130	0.010	2.44	0.53	3332.6	0.0040	3.18



CXHP(2.7V)Series



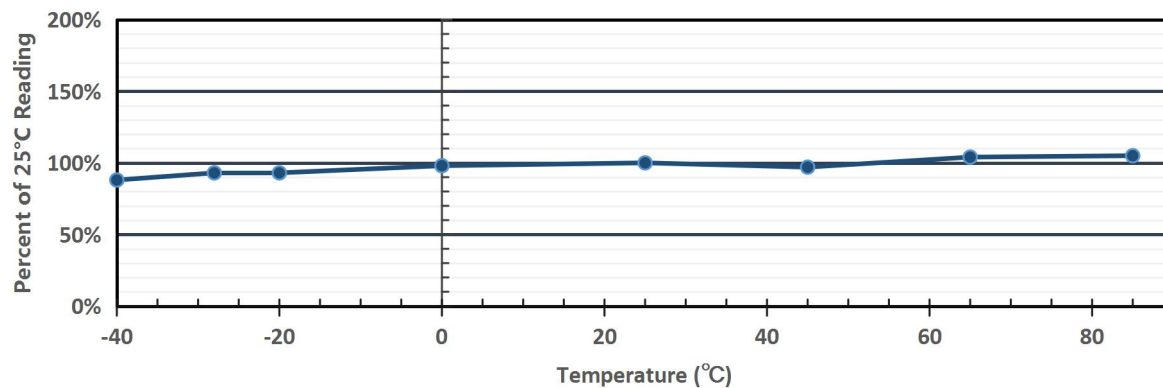
www.cda-cap.com

Part Number	Working Voltage (V DC)	Rated Cap. (F)	Dimensions (mm)	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)
			DxL	ESRAC (1kHz/mΩ)	ESRDC (mΩ)						
Radial Lead											
CXHP2R7105R- TW	2.7	1	8x12	160	240	0.006	1.09	0.47	4050	0.0010	1.13
CXHP2R7205R- TW	2.7	2	8x12	100	280	0.010	1.73	0.49	2924	0.0020	1.90
CXHP2R7205R- TWQ	2.7	2	8x20	100	120	0.012	2.15	0.55	2924	0.0020	2.15
CXHP2R7255R- TW	2.7	2.5	8x16	130	180	0.025	2.27	0.59	4115	0.0025	2.32
CXHP2R7305R- TWX	2.7	3	8x16	130	195	0.012	2.56	0.59	4116	0.0030	2.79
CXHP2R7305R- TW	2.7	3	8x20	100	120	0.012	2.79	0.65	4486	0.0030	2.34
CXHP2R7335R- TW	2.7	3.3	8x20	100	150	0.012	2.98	0.74	4486	0.0033	2.57
CXHP2R7405R- TW	2.7	4	10x20	70	170	0.015	3.65	0.79	2339	0.0040	2.40
CXHP2R7475R- TW	2.7	4.7	10x20	72	170	0.017	3.60	0.75	2340	0.0047	2.50
CXHP2R7505R-TWX	2.7	5	8x25	90	135	0.015	4.03	0.87	3857	0.0051	3.01
CXHP2R7505R- TW	2.7	5	10x20	75	113	0.015	4.32	0.97	3535	0.0051	2.30
CXHP2R7605R- TW	2.7	6	10x20	75	113	0.020	5.20	0.97	3518	0.0061	2.77
CXHP2R7705R- TW	2.7	7	10x20	75	113	0.020	5.29	0.97	3535	0.0071	3.22
CXHP2R7705R- TWX	2.7	7	8x25	90	135	0.015	4.86	0.87	3600	0.0071	3.94
CXHP2R7805R- TW	2.7	8	10x25	60	150	0.020	4.61	0.93	2303	0.0081	2.80
CXHP2R7805R- TWX	2.7	8	12.5x20	60	150	0.020	7.58	1.35	3557	0.0081	2.94
CXHP2R7106R- TW	2.7	10	10x25	65	98	0.030	6.84	1.15	3451	0.0101	3.89
CXHP2R7106R- TWQ	2.7	10	10x30	50	75	0.030	7.71	1.43	3800	0.0101	3.30
CXHP2R7106R-TWX	2.7	10	12.5x20	45	68	0.030	8.06	1.42	3757	0.0101	2.94
CXHP2R7126R- TW	2.7	12	12.5x20	50	75	0.036	8.53	1.35	3381	0.0122	3.52
CXHP2R7156R- TW	2.7	15	12.5x26	40	60	0.050	10.66	1.80	3359	0.0152	3.50
CXHP2R7156R- TWX	2.7	15	12.5x20	45	68	0.040	10.06	1.42	3550	0.0152	4.16
CXHP2R7186R- TW	2.7	18	12.5x26	40	60	0.055	12.27	1.66	3645	0.0183	5.06
CHXP2R7206R- TW	2.7	20	12.5x26	30	60	0.060	13.50	2.70	2692	0.0203	3.10
CHXP2R7206R- TWQ	2.7	20	12.5x30	35	53	0.055	13.17	1.93	3920	0.0203	4.76
CXHP2R7256R- TW	2.7	25	16x25	27	50	0.060	15.00	2.09	2419	0.0253	3.50
CXHP2R7306R- TW	2.7	30	16x30	20	40	0.070	18.41	2.53	2664	0.0304	3.70
CXHP2R7306R- TWX	2.7	30	16x25	25	38	0.072	19.06	2.41	3049	0.0304	3.97
CXHP2R7356R-TWX	2.7	35	16x30	22	33	0.080	21.93	2.79	3194	0.0354	4.27
CXHP2R7356R-TW	2.7	35	16x35	19	42	0.086	23.86	3.24	3220	0.0354	3.65
CXHP2R7406R-TW	2.7	40	12.5x46	20	45	0.080	23.68	3.01	3694	0.0405	5.47
CXHP2R7506R- TW	2.7	50	18x40	16	24	0.105	30.68	3.96	2848	0.0506	3.96
CXHP2R7506R- TWQ	2.7	50	12.5x50	18	35	0.105	28.72	3.40	3640	0.0506	5.69
CXHP2R7506R- TWX	2.7	50	18x35	18	27	0.110	30.92	3.52	2700	0.0506	5.06
CXHP2R7606R- TW	2.7	60	18x40	15	23	0.150	34.47	4.09	2880	0.0608	4.28
CXHP2R7107R-TWV	2.7	100	18x60	13	20	0.240	45.76	5.30	2136	0.1013	4.82
CXHP2R7127R- TWV	2.7	120	18x60	13	20	0.280	48.50	5.30	2039	0.1215	5.52

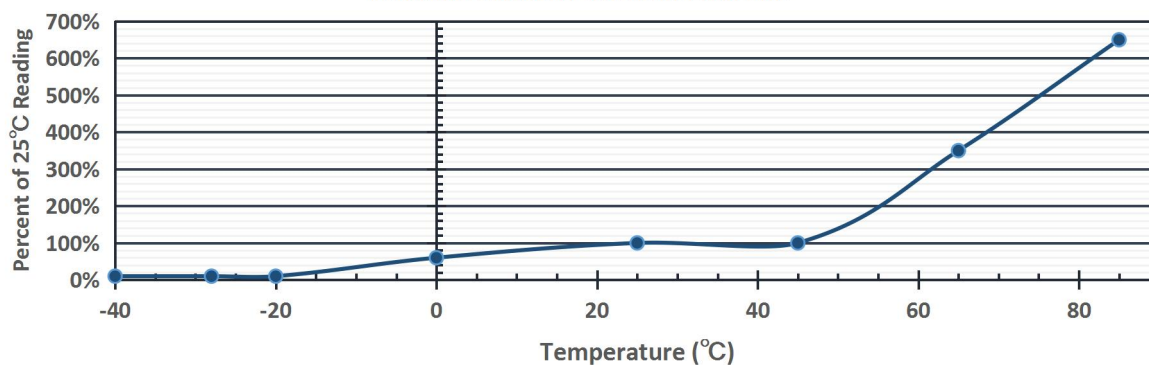
*with appropriate voltage derating operating temperature can be extended to 85°C

QUALITY AND RELIABILITY

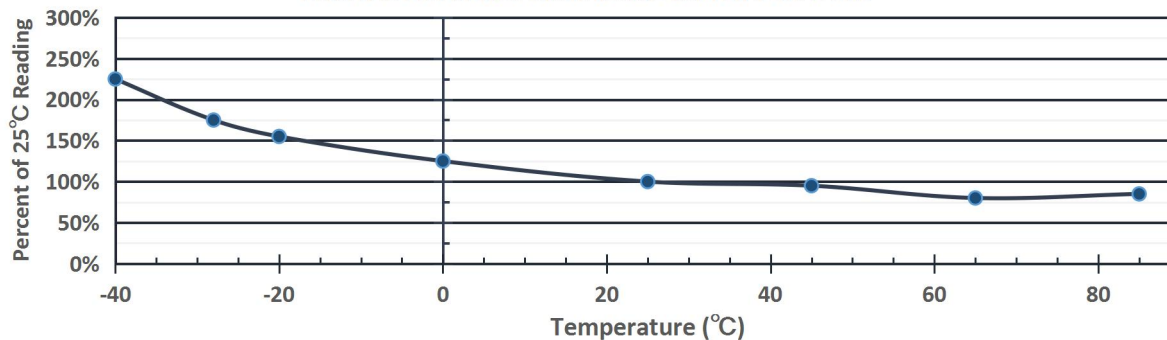
CAPACITANCE VS. TEMPERATURE



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

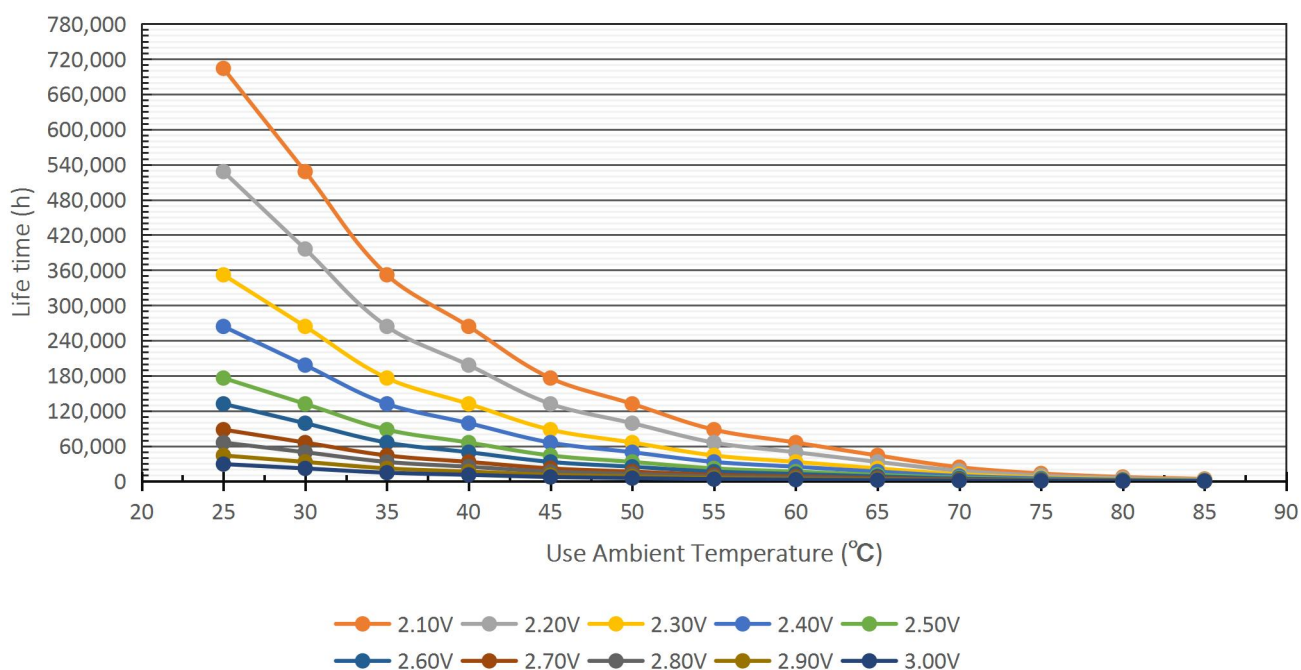
T_m = Max temperature rating of the super capacitor

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

Expected Lifetime at Various Voltages



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 $150^{\circ}C$, 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 $350^{\circ}C$, 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, $100^{\circ}C$ on the top side of the board for PCBs equal to or greater than 0.8 mm thick.

Solder Temperature ($^{\circ}C$)	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 with-out clear rated reflow temperature for supercapacitors.