

FEATURES

- Low leakage current, long life
- High power, high energy density
- High reliability
- Long cycle life, maintenance-free
- RoHS Directive Compliant

APPLICATIONS

- Main power, Back up power, UPS/Industrial, Wireless Alarms, Medical, Remote Metering, GSM/GPRS Pulse Applications.

OPERATING TEMPERATURE RANGE

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

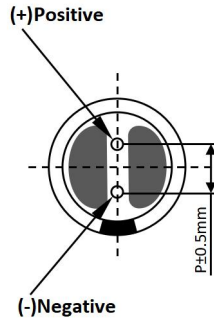
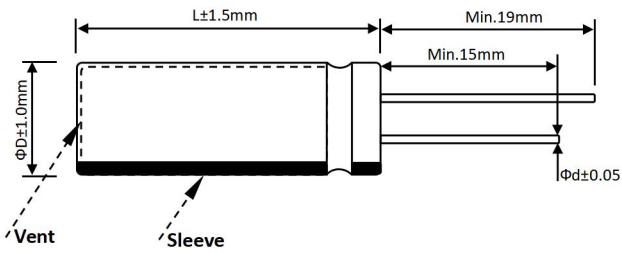


GENERAL SPECIFICATIONS

Item	Performance
Operating temperature	-40°C to +65°C
Capacitance range	1.0F to 600F
Capacitance tolerance	-0%~+100%; -10%~+30%
Rated voltage	2.7V
Surge voltage	2.85 VDC
Temperature characteristics	Capacitance change: Within ±30% of initial measured value at +25°C Internal resistance: Within ±200% of initial measured value at +25°C
High temperature load time	After 65°C 2000 hours (at:2.7V): Capacitance change: ±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 ±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/X, Y, Z(2hrs) /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.

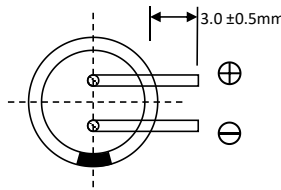
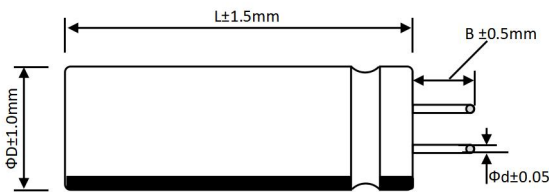
DIMENSIONS

RADIAL LEAD TYPE



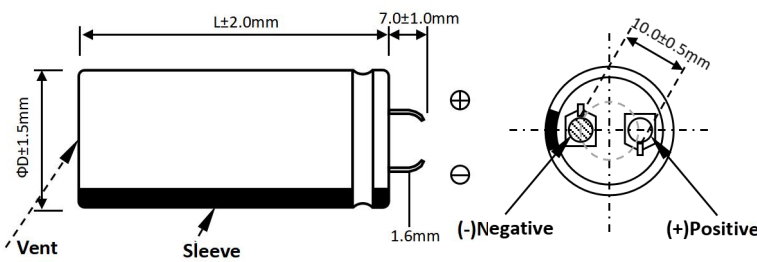
Size(mm)		
φD	P	φd
6.3	2.5	0.6
8	3.5	0.6
10	5.3	0.6
12.5	5.3	0.6
16	7.7	0.8
18	7.7	0.8

RADIAL BENT LEAD TYPE

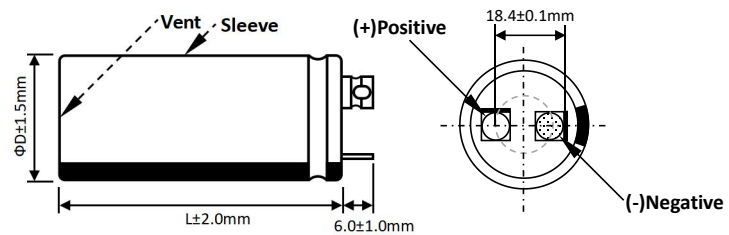


Style	B(mm)
A1	4.0
C1	2.0

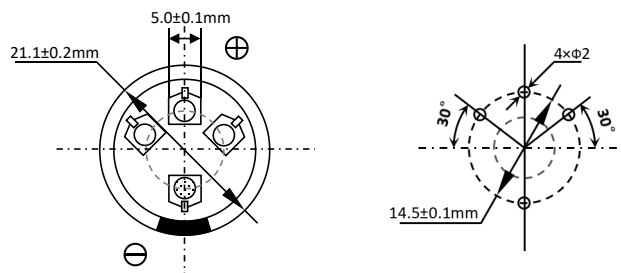
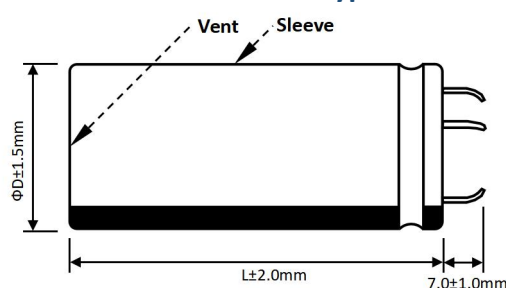
SOLDER PIN TYPE 2-PIN 100~300F PART Terminal S1 type



SOLDER PIN TYPE 2-PIN 300~600F PARTS Terminal Z2 type



SOLDER PIN TYPE 4-PIN 300~600F PART Terminal S4 type



STANDARD PRODUCTS

Part Number	Working Voltage (V DC)	Rated Cap. (F)	Dimensions (mm) D*L	Max.ESR		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)						
Radial Lead											
CHV-2R7105R-TWX	2.7	1	6.3*12	200	500	0.006	0.90	0.16	2692	0.0010	1.56
CHV-2R7105R-TW	2.7	1	8*12	150	360	0.006	0.99	0.38	2887	0.0010	1.20
CHV-2R7125R-TW	2.7	1.2	6.3*15	240	620	0.006	0.93	0.22	1933	0.0012	1.66
CHV-2R7155R-TW	2.7	1.5	8*12	160	240	0.010	1.82	0.47	4050	0.0020	2.25
CHV-2R7205R-TW	2.7	2	8*16	120	180	0.010	1.99	0.61	4459	0.0020	1.86
CHV-2R7335R-TW	2.7	3.3	8*20	95	260	0.012	2.40	0.56	2720	0.0033	2.70
CHV-2R7405R-TWX	2.7	4	8*20	100	150	0.015	3.38	0.74	4486	0.0041	3.12
CHV-2R7405R-TW	2.7	4	10*20	70	170	0.015	3.65	0.79	2339	0.0051	2.40
CHV-2R7475R-TW	2.7	4.7	10*20	75	113	0.015	4.32	0.97	3535	0.0047	2.30
CHV-2R7505R-TWX	2.7	5	8*25	85	220	0.015	3.21	0.68	2339	0.0051	2.98
CHV-2R7505R-TW	2.7	5	10*20	70	170	0.015	3.65	0.80	2441	0.0051	2.40
CHV-2R7705R-TW	2.7	7	10*20	70	170	0.018	4.32	0.79	2144	0.0071	2.95
CHV-2R7705R-TWQ	2.7	7	10*25	60	150	0.020	4.61	0.82	2243	0.0071	2.73
CHV-2R7805R-TW	2.7	8	12.5*20	60	150	0.020	4.61	0.93	2303	0.0081	2.80
CHV-2R7106R-TW	2.7	10	10*25	50	75	0.030	7.71	1.43	2083	0.0101	3.62
CHV-2R7106R-TWQ	2.7	10	10*30	50	75	0.030	7.71	1.43	3800	0.0101	3.30
CHV-2R7126R-TW	2.7	12	10*30	50	75	0.030	8.53	1.5	3812	0.0122	3.97
CHV-2R7106R-TWX	2.7	10	12.5*20	50	75	0.030	7.71	1.35	3454	0.0101	2.98
CHV-2R7126R-TW	2.7	12	12.5*25	50	75	0.035	8.53	1.53	3535	0.0122	3.68
CHV-2R7156R-TW	2.7	15	12.5*26	50	75	0.030	7.71	1.35	3454	0.0152	3.00
CHV-2R7156R-TWQ	2.7	15	12.5*30	35	80	0.050	11.33	1.93	2430	0.0152	3.38
CHV-2R7166R-TW	2.7	16	16*16	40	60	0.050	10.66	1.80	3359	0.0152	3.50
CHV-2R7186R-TW	2.7	18	12.5*30	40	60	0.055	11.68	1.66	3378	0.0182	4.93
CHV-2R7206R-TW	2.7	20	12.5*30	35	53	0.055	13.17	1.93	3920	0.0203	4.76
CHV-2R7226R-TW	2.7	22	12.5*30	34	65	0.060	13.05	1.97	2824	0.0223	4.17
CHV-2R7226R-TWX	2.7	22	16*20	30	55	0.075	14.21	2.00	3240	0.0203	3.38
CHV-2R7256R-TW	2.7	25	16*25	27	50	0.060	15.00	2.09	2419	0.0253	3.50
CHV-2R7306R-TW	2.7	30	16*30	20	40	0.070	18.41	2.53	2664	0.0304	3.70
CHV-2R7506R-TW	2.7	50	18*40	18	20	0.075	33.75	4.34	3365	0.0506	3.89
CHV-2R7606R-TW	2.7	60	18*40	15	23	0.150	36.80	4.58	2160	0.0608	4.50
CHV-2R7107R-TWV	2.7	100	18*60	15	18	0.260	48.21	5.51	2430	0.1013	5.06

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

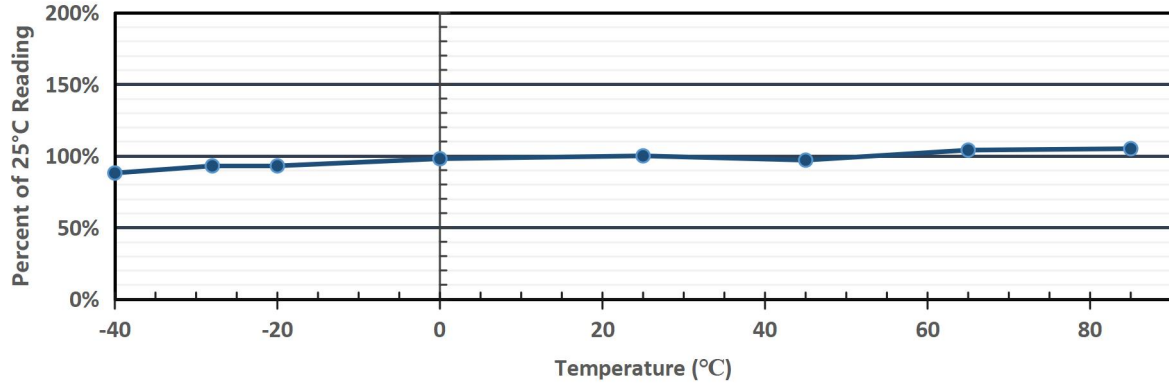
STANDARD PRODUCTS

Part Number	Working Voltage (V DC)	Rated Cap. (F)	Dimensions (mm)	Max.ESR		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)						
SOLDER PIN TYPE 2-PIN											
CHV-2R7107R-TW	2.7	100	22*45	8	12	0.240	63.68	6.84	3633	0.1013	4.71
CHV-2R7127R-TW	2.7	120	22*50	7.5	10.5	0.300	71.68	7.40	3086	0.1215	4.50
CHV-2R7127R-TWX	2.7	120	25*45	8	11.6	0.250	67.73	6.72	3351	0.1215	5.40
CHV-2R7157R-TW	2.7	150	25*50	7	9.8	0.400	81.98	8.22	2705	0.1519	4.60
CHV-2R7187R-TW	2.7	180	25*50	7	10.2	0.415	84.20	8.08	2535	0.1823	5.36
CHV-2R7207R-TW	2.7	200	30*50	6	8	0.600	103.85	9.83	2457	0.2025	4.55
CHV-2R7227R-TW	2.7	220	30*50	6	8.4	0.520	107.61	10.08	2430	0.2228	5.01
CHV-2R7257R-TW	2.7	250	30*55	5.5	7.7	0.580	115.38	10.71	2470	0.2531	5.50
CHV-2R7307R-TWX	2.7	300	30*50	5.5	8.0	0.600	119.38	10.52	2385	0.3038	6.60
CHV-2R7307R-TW	2.7	300	30*55	6	9.0	0.600	112.19	10.08	2186	0.3038	6.60
SOLDER PIN TYPE 2-PIN / SOLDER PIN TYPE 4-PIN											
CHV-2R7307R-TW	2.7	300	35*50	5.5	8.0	0.60	119.38	10.52	2385	0.3038	6.60
CHV-2R7337R-TW	2.7	330	35*50	5	7	0.80	138.07	11.76	2048	0.3341	5.30
CHV-2R7357R-TW	2.7	350	35*60	3	3.5	1.00	212.30	16.17	2536	0.3501	5.28
CHV-2R7367R-TW	2.7	360	35*60	4	5	0.95	173.57	15.06	2536	0.3645	5.28
CHV-2R7407R-TW	2.7	400	35*60	3.8	4.5	1.00	177.63	14.91	2256	0.4050	5.33
CHV-2R7407R-TWX	2.7	400	35*55	4.5	6.3	1.00	153.41	12.92	2200	0.4050	6.53
CHV-2R7457R-TW	2.7	450	35*60	4.0	5.6	1.20	174.70	14.23	2170	0.4559	6.61
CHV-2R7507R-TWX	2.7	500	35*60	3	3.3	1.00	244.47	19.58	3119	0.5000	5.36
CHV-2R7507R-TW	2.7	500	35*67	2.9	3.4	1.30	250.0	20.05	3210	0.5063	6.32
CHV-2R7607R-TW	2.7	600	35*70	3.2	4.5	1.60	219.63	17.02	2170	0.6075	6.75

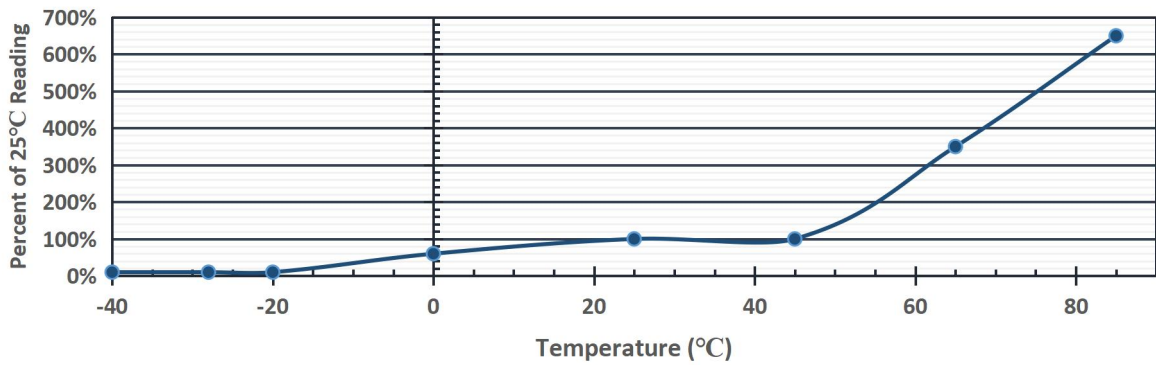
*with appropriate voltage derating operating temperature can be extended to 85°C

QUALITY AND RELIABILITY

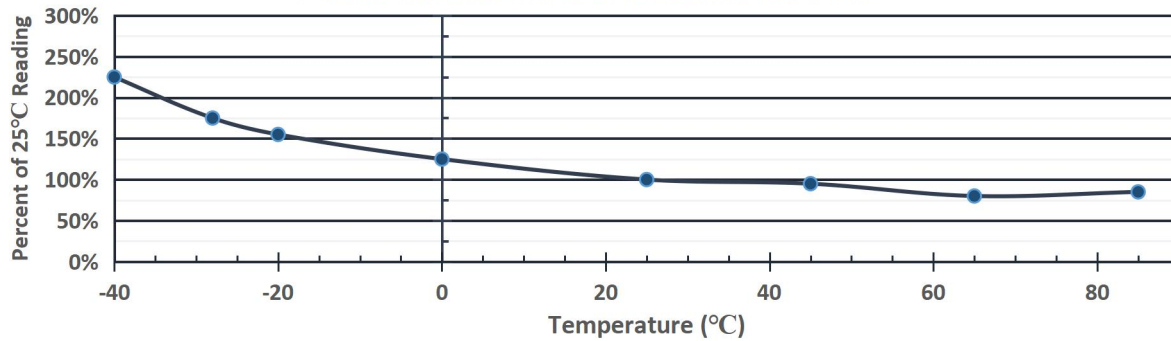
CAPACITANCE VS. TEMPERATURE



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

LS = Expected life of the super capacitor in the application

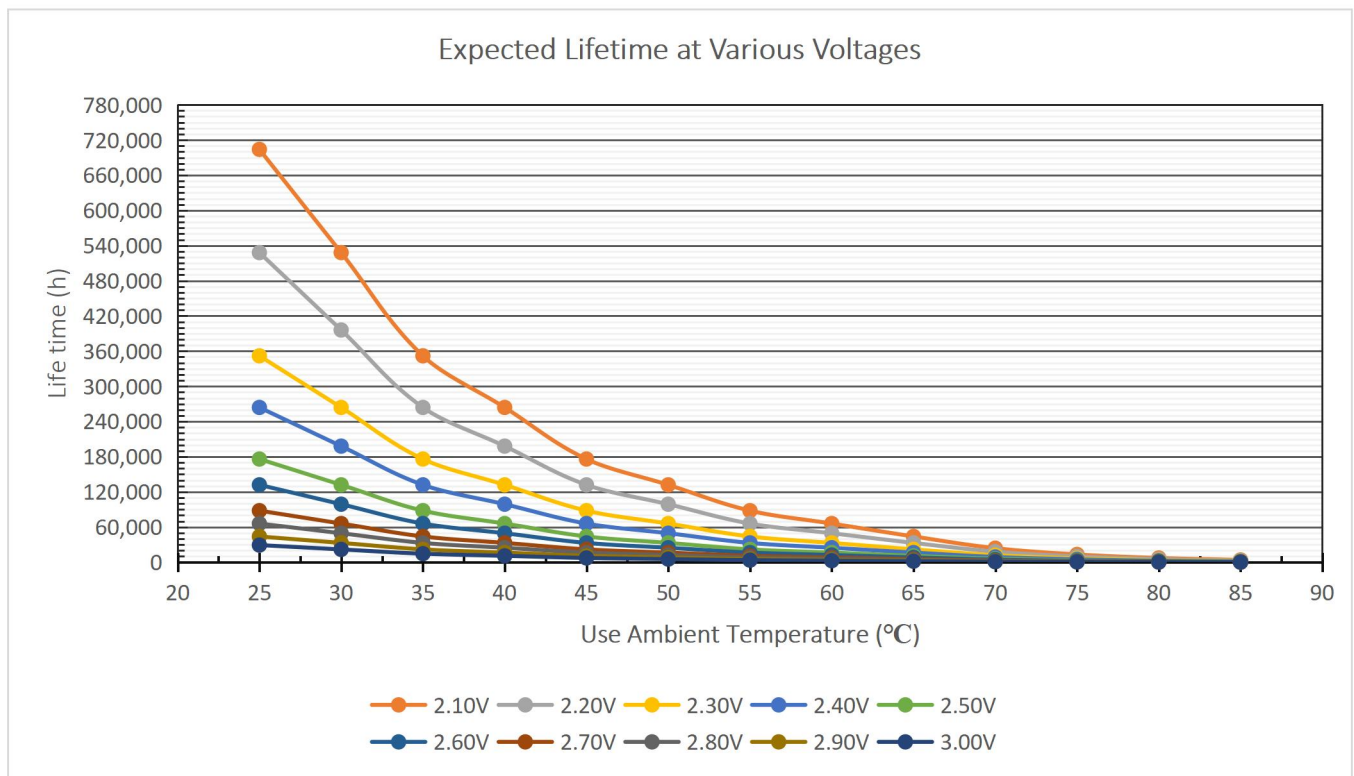
LR = Load life rating of the super capacitor

Tm = Max temperature rating of the super capacitor

Ta = Ambient temperature of the application

Vr = Rated voltage of the super capacitor

Va = Maximum applied voltage on the super capacitor in the application



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.