FEATURES

● High power,high energy density High reliability,Miniaturization of Φ4, Φ5
● Long cycle life,maintenance-free
● 3.0V High Operating Voltage
● Ultra low ESR for high power density
● REACH,RoHS Directive Compliant

APPLICATIONS

● Consumer electronics,Smart meter, Back up power, Stand alone or augment existing,energy/power source.

OPERATING TEMPERATURE RANGE

● -40℃ to +65℃ @3.0V, 65℃ for 1000 Hours
● -40℃ to +85℃ @2.5V, 85℃ for 1000 Hours

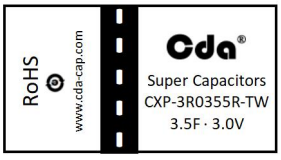
GENERAL SPECIFICATIONS

Item	Performance
Operating temperature	-40°C to +65°C
Capacitance range	0.22F to 600F
Rated voltage	3.0 V
Surge voltage	3.15V
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 1000 hours : 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.

PART NUMBER SYSTEM

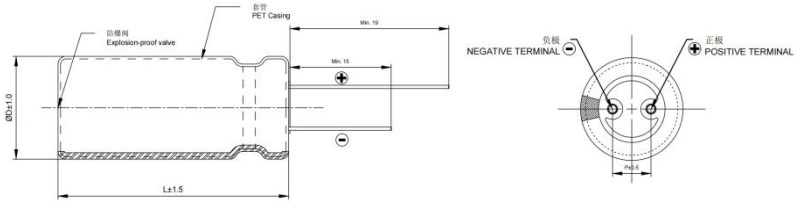
CXP	3R0	105	R	TW	*	***
Series	Rated Voltage	Capacity Code	Environmental Code	MFG Code	Special Code	Custom Code

Casing Display:



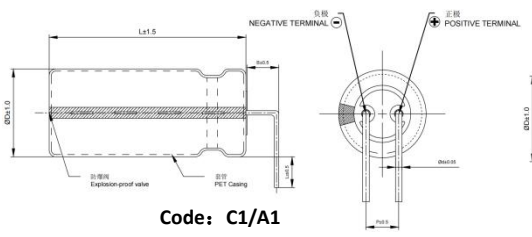
DIMENSIONS

RADIAL LEAD TYPE

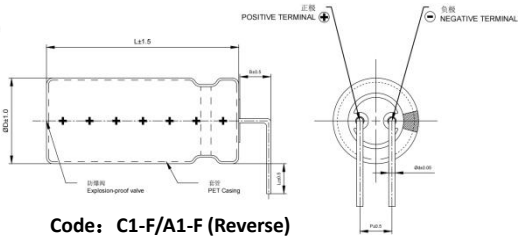


Size (mm)	ΦD	4	5	6.3	8	10	12.5	16	18
	P	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
	Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8

RADIAL BENT LEAD TYPE



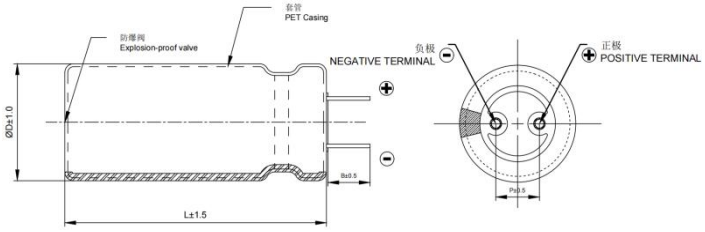
Code：C1/A1



Code：C1-F/A1-F (Reverse)

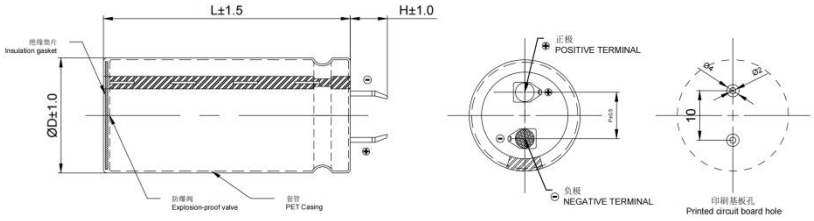
Style	B(mm)
A1/A1-F	4.0
C1/C1-F	2.0

PIN CUTTING: C TYPE



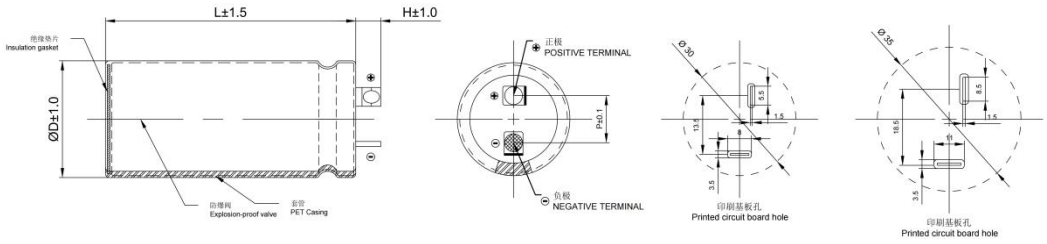
Size (mm)	ΦD	4	5	6.3	8	10	12.5	16	18
	P	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
	Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8	0.8
	B	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

SOLDER PIN TYPE 2-PIN PART TERMINAL: S1 TYPE



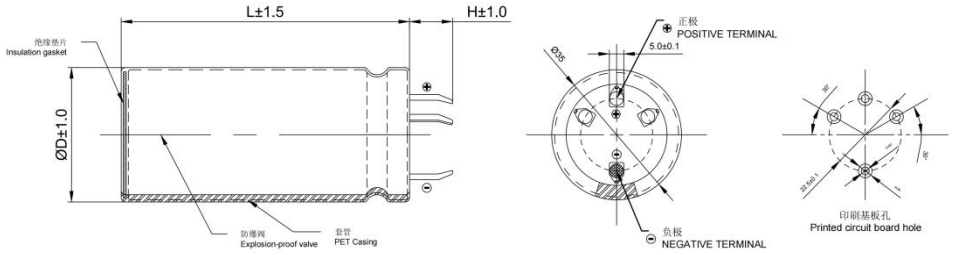
Size(mm)		
ΦD	P	H
22	10.0	7.0
25	10.0	7.0
30	10.0	7.0
35	10.0	7.0

SOLDER PIN TYPE 2-PIN PARTS TERMINAL: Z2 TYPE



Size(mm)		
ΦD	P	H
30	10.0	7.0
35	14.0	8.5

SOLDER PIN TYPE 4-PIN PART TERMINAL: S4 TYPE



Size(mm)		
ΦD	P	H
35	22.5	7.0

No. 4, Jifeng Road, Wufeng District, Taichung City, Taiwan. TEL:+86-852-51245795 www.cda-cap.com E-MAIL: zfw@cda-cap.tw

Spec. Date:2025-08-12

STANDARD PRODUCTS

Part Number	Working Voltage (V DC)	Rated Cap. (F)	Capacitance Tolerance	Dimensions (mm)		Max.ESR		Maximum Leakage (72hrs/mA)	Maximum Peak Current 1s (A)	Maximum Endurance Current 5s (A)	Power Density (W/Kg)	Maximum Energy (W.h)	Energy Density (Wh/kg)
				D	L	ESRAC (1kHz/mΩ)	ESRDC (mΩ)						
Radial Lead(Miniaturized)													
CXP-3R0224R-TWX	3.0	0.22	-10%~+30%	4	10	1000	1820	0.001	0.19	0.09	1028	0.0002	0.71
CXP-3R0224R-TW	3.0	0.22	-10%~+30%	5	10	700	1200	0.002	0.36	0.10	1021	0.0002	0.87
CXP-3R0304R-TW	3.0	0.3	-10%~+30%	4	10	700	1200	0.001	0.25	0.10	1123	0.0003	0.79
CXP-3R0354R-TW	3.0	0.35	-10%~+30%	5	10	600	1000	0.002	0.40	0.12	1253	0.0004	1.05
CXP-3R0504R-TW	3.0	0.5	-10%~+30%	5	12	400	700	0.002	0.44	0.15	1330	0.0006	1.08
CXP-3R0604R-TW	3.0	0.6	-10%~+30%	4	22	700	1200	0.003	0.50	0.16	1350	0.0007	1.75
CXP-3R0105R-TWV	3.0	1	-10%~+30%	4	25	550	900	0.003	0.60	0.18	1263	0.0013	2.19
CXP-3R0105R-TWX	3.0	1	-10%~+30%	6.3	12	240	1500	0.006	0.60	0.29	1108	0.0013	1.92
CXP-3R0105R-TWQ	3.0	1	-10%~+30%	6.3	10	220	1300	0.003	0.66	0.18	1200	0.0013	1.67
CXP-3R0125R-TW	3.0	1.2	-10%~+30%	5	22	200	400	0.006	1.29	0.33	3085	0.0015	2.68
CXP-3R0125R-TWX	3.0	1.2	-10%~+30%	6.3	11	250	500	0.006	1.10	0.20	3085	0.0013	1.86
CXP-3R0355R-TW	3.0	3.5	-10%~+30%	6.3	22	90	130	0.010	2.71	0.53	4114	0.0041	3.93
CXP-3R0455R-TW	3.0	4.5	-10%~+30%	6.3	25	90	120	0.010	3.0	0.56	3512	0.0050	4.07
Radial Lead													
CXP-3R0105R-TW	3.0	1	-10%~+30%	8	12	180	860	0.006	1.21	0.47	1322	0.0013	1.32
CXP-3R0155R-TW	3.0	1.5	-10%~+30%	8	20	98	280	0.012	3.31	0.74	2660	0.0018	1.34
CXP-3R0205R-TWX	3.0	2	-10%~+30%	8	12	130	260	0.006	1.15	0.26	1483	0.0025	2.75
CXP-3R0205R-TW	3.0	2	-10%~+30%	8	16	100	360	0.010	2.21	0.61	2609	0.0025	2.17
CXP-3R0335R-TW	3.0	3.3	-10%~+30%	8	20	98	280	0.012	3.31	0.74	2660	0.0041	2.84
CXP-3R0405R-TW	3.0	4	-10%~+30%	10	20	75	113	0.018	4.20	0.90	4141	0.0063	2.47
CXP-3R0505R-TWX	3.0	5	-10%~+30%	8	25	90	135	0.015	4.48	0.87	4141	0.0063	3.23
CXP-3R0505R-TW	3.0	5	-10%~+30%	10	20	75	113	0.018	4.80	0.97	3794	0.0063	2.47
CXP-3R0605R-TW	3.0	6	-10%~+30%	10	20	70	170	0.020	4.79	0.79	4500	0.0075	2.50
CXP-3R0705R-TWX	3.0	7	-10%~+30%	8	25	80	160	0.018	3.94	0.71	2842	0.0088	4.61
CXP-3R0705R-TW	3.0	7	-10%~+30%	10	20	70	170	0.020	4.79	0.79	2118	0.0088	2.92
CXP-3R0705R-TWQ	3.0	7	-10%~+30%	10	25	60	150	0.024	6.44	1.20	2769	0.0088	3.37
CXP-3R0106R-TWX	3.0	10	-10%~+30%	10	25	55	83	0.030	8.22	1.25	4156	0.0125	3.97
CXP-3R0106R-TWQ	3.0	10	-10%~+30%	10	30	45	68	0.036	8.96	1.51	4417	0.0125	3.45
CXP-3R0106R-TW	3.0	10	-10%~+30%	12.5	20	45	68	0.036	8.96	1.42	4033	0.0125	3.15
CXP-3R0126R-TW	3.0	12	-10%~+30%	12.5	25	40	60	0.048	10.47	1.66	4288	0.0150	3.57
CXP-3R0156R-TWX	3.0	15	-10%~+30%	12.5	30	35	53	0.062	12.59	1.93	4209	0.0188	3.84
CXP-3R0156R-TW	3.0	15	-10%~+30%	12.5	25	30	45	0.048	13.43	1.92	5581	0.0188	4.36
CXP-3R0186R-TW	3.0	18	-10%~+30%	12.5	25	35	47	0.040	12.98	1.59	3829	0.0230	4.79
CXP-3R0206R-TW	3.0	20	-10%~+30%	12.5	25	35	47	0.050	13.64	1.66	3981	0.0250	3.91
CXP-3R0206R-TWQ	3.0	20	-10%~+30%	12.5	30	33	45	0.072	15.08	1.98	4195	0.0250	4.81
CXP-3R0206R-TWX	3.0	20	-10%~+30%	16	20	30	60	0.072	15.79	2.05	3692	0.0250	3.85
CXP-3R0226R-TW	3.0	22	-10%~+30%	12.5	35	34	48	0.060	14.50	1.97	3103	0.0275	4.58
CXP-3R0256R-TWQ	3.0	25	-10%~+30%	12.5	35	26	41	0.082	18.99	2.40	4858	0.0313	5.48
CXP-3R0256R-TW	3.0	25	-10%~+30%	16	25	25	38	0.082	19.35	2.41	3491	0.0313	3.79
CXP-3R0306R-TW	3.0	30	-10%~+30%	16	30	20	30	0.090	23.68	2.92	3930	0.0375	4.09
CXP-3R0306R-TWX	3.0	30	-20%~+20%	16	25	23	35	0.090	21.96	2.50	3677	0.0375	4.46
CXP-3R0346R-TW	3.0	34	-10%~+30%	12.5	45	20	45	0.080	21.93	2.79	2428	0.0425	6.75
CXP-3R0356R-TWX	3.0	35	-10%~+30%	16	30	20	40	0.070	21.88	3.09	3103	0.0438	5.03
CXP-3R0356R-TW	3.0	35	-10%~+30%	16	35	18	25	0.105	26.99	3.30	4310	0.0438	4.71
CXP-3R0406R-TW	3.0	40	-10%~+30%	12.5	46	20	45	0.080	23.68	3.01	3694	0.0500	6.76
CXP-3R0506R-TWQ	3.0	50	-10%~+30%	12.5	50	18	35	0.105	28.72	3.40	3640	0.0625	7.02
CXP-3R0506R-TW	3.0	50	-10%~+30%	18	40	18	20	0.075	37.50	3.96	4154	0.0625	4.81
CXP-3R0606R-TW	3.0	60	-10%~+30%	18	40	15	20	0.100	40.90	2.00	4000	0.0750	5.56
CXP-3R0706R-TW	3.0	70	-20%~+20%	18	40	15	20	0.180	40.24	4.05	3354	0.0750	6.25
CXP-3R0107R-TWV	3.0	100	-10%~+30%	18	60	13	20	0.260	50.85	5.30	2523	0.1250	5.69
CXP-3R0127R-TWV	3.0	120	-10%~+30%	18	60	12	15	0.300	61.45	6.72	2688	0.1370	6.20
SOLDER PIN TYPE 2-PIN													
CXP-3R0107R-TW	3.0	100	-10%~+30%	22	45	8.0	11.2	0.276	70.75	6.84	4231	0.1250	5.48
CXP-3R0127R-TW	3.0	120	-10%~+30%	22	50	7.5	10.5	0.345	79.65	7.40	3594	0.1500	5.24
CXP-3R0157R-TWX	3.0	150	-10%~+30%	22	55	7.0	9.8	0.460	93.40	7.00	3800	0.2000	7.00
CXP-3R0167R-TW	3.0	160	-10%~+30%	22	55	7.0	9.5	0.460	94.20	8.00	3800	0.2100	7.00
CXP-3R0157R-TW	3.0	150	-10%~+30%	25	50	7.0	9.8	0.460	91.09	8.22	3150	0.1875	5.36
CXP-3R0227R-TW	3.0	220	-10%~+30%	30	50	6.0	8.4	0.598	115.87	9.83	2726	0.2750	5.83
CXP-3R0257R-TW	3.0	250	-10%~+30%	30	55	5.5	7.7	0.667	128.21	10.71	2877	0.3125	6.41
SOLDER PIN TYPE 2-PIN & SOLDER PIN TYPE 4-PIN													
CXP-3R0357R-TW	3.0	350	-10%~+30%	35	60	3	3.5	1.00	235.90	13.90	2657	0.4300	6.83
CXP-3R0367R-TW	3.0	360	-10%~+30%	35	60	4.0	5.4	0.98	183.42	14.49	2657	0.4500	5.98
CXP-3R0387R-TW	3.0	380	-10%~+30%	35	60	3.8	5.1	1.05	193.26	14.86	2751	0.4750	6.21
CXP-3R0407R-TW	3.0	400	-10%~+30%	35	66	3.5	4.7	1.15	207.61	16.15	2537	0.5000	5.55
CXP-3R0437R-TW	3.0	430	-10%~+30%	35	66	3.2	4.5	1.24	223.14	16.55	2505	0.5625	5.87
CXP-3R0487R-TW	3.0	480	-10%~+30%	35	70	3.1	4.4	1.35	234.30	17.17	2405	0.6050	6.13
CXP-3R0507R-TW	3.0	500	-10%~+30%	35	65	2.9	3.4	1.30	277.70	18.75	2405	0.6250	7.81
CXP-3R0607R-TW	3.0	600	-10%~+30%	35	70	3	3.5	1.50	290.30	19.95	3760	0.7500	9.14

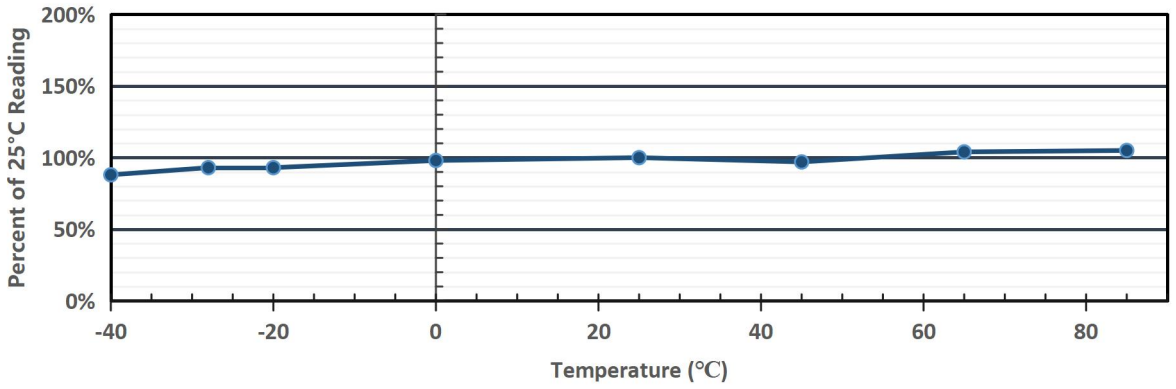
*** operating temperature can be extended to 85°C with appropriate voltage.**

No. 4, Jifeng Road, Wufeng District, Taichung City, Taiwan. TEL:+86-852-51245795 www.cda-cap.com E-MAIL: zfw@cda-cap.tw

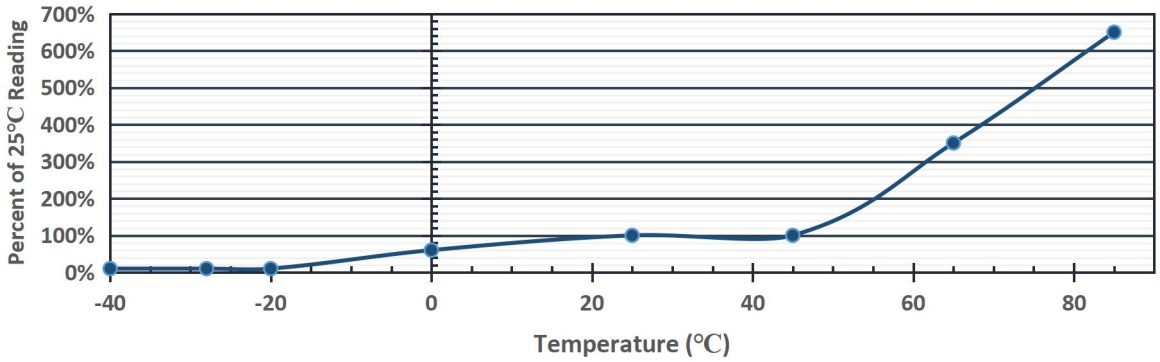
Spec. Date:2025-08-12

QUALITY AND RELIABILITY

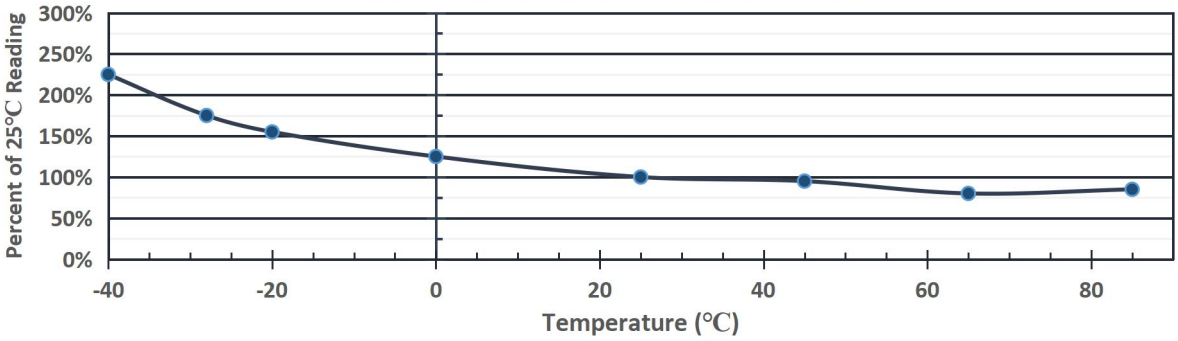
CAPACITANCE VS. TEMPERATURE



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 :

$$\mathbf{L = L_0 \times 3.25^{\frac{T_0 - T}{10}} \times 1.52^{\frac{V_0 - V}{0.1}}}$$

L : is the theoretical lifetime at T temperature;

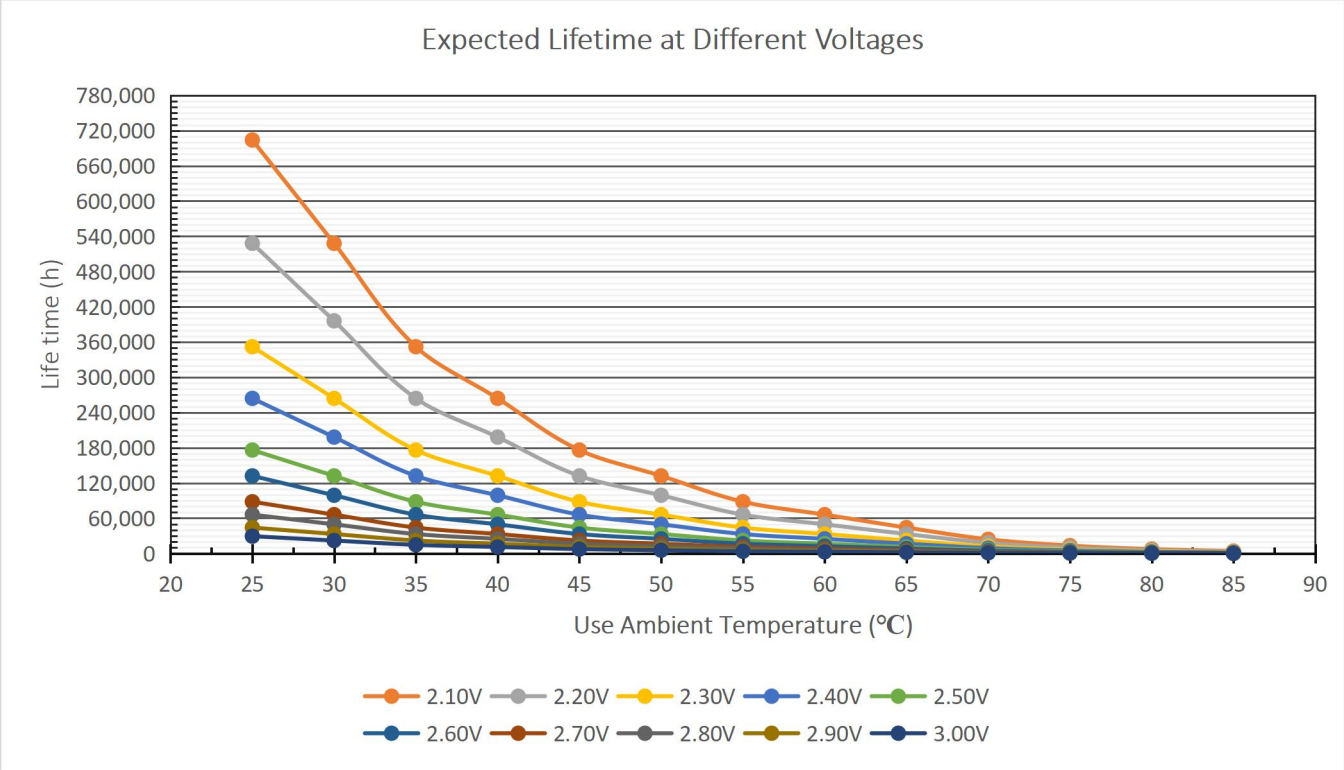
L_0 : is the working life of the highest rated working temperature;

T : is the actual working temperature;

T_0 : is the highest rated working temperature;

V : is the actual working voltage;

V_0 : is the highest rated working voltage.



*Note : Estimated lifespan: The estimated lifespan under different operating voltages and operating temperatures in a theoretical environment. For the actual service life, please contact us to discuss the working conditions.

SAFETY RECOMMENDATIONS

WARNINGS

• To Avoid Short Circuit, after usage or test, SuperCapacitors voltage needs to discharge to ≤ 0.1V.
• Do not Apply Over-voltage, Reverse Charge, Burn or Heat Higher than 150°C, explosion-proof valve may break open.
• Do not Press, Damage or disassemble the SuperCapacitor, 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.

Emergency Handling

In case of leakage from the housing:
• Skin contact: Immediately clean the contacted area thoroughly with soap and water.
• Eye contact: Rinse with running water or normal saline, and seek medical attention immediately.
• Ingestion: Immediately rinse the contacted areas (such as the mouth) with water, and seek medical attention.

Precautions for Polarity and Reverse Voltage Usage

To ensure product consistency and optimal performance, it is recommended to use the capacitor in accordance with the marked polarity. Reverse polarity may cause permanent damage to the circuit, including a significant increase in leakage current within a short period of time, and will shorten the service life of the supercapacitor.

In practical applications, it is necessary to strictly confirm the connection in accordance with the circuit design and the polarity markings on the capacitor body (such as "+" and "-" symbols, differences in pin length, etc.) to avoid the application of reverse voltage.

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"

Storage Requirements

The storage temperature range of the capacitor is -40°C to +70°C, with a relative humidity of < 60%. Lower storage temperatures are preferable, as they can extend the capacitor's shelf life. For products where the production date code indicates storage duration of more than 1 year but less than 2 years, it is recommended to perform recharge activation for at least 24 hours before initial use.

Optimal Storage Conditions

• Temperature: 25°C, relative humidity: ≤ 60%, with no voltage applied.
• Avoid direct exposure to sunlight.
• Prevent direct contact with water, salt, oil, or other chemicals.
• Prevent direct contact with corrosive substances, acids, alkalis, or toxic gases.
• Avoid storage in dusty environments.
• Avoid storage in environments with shock and vibration.

PRECAUTIONS FOR WELDING

When soldering supercapacitors to a PCB, the temperature & time that the body of the supercapacitor sees during soldering can have anegative 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 com-ponents, 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 (ºC)	Suggested Solder Time (s)	Maximum Solder Time (s)
220	7	9
240	7	9
250	5	7
260	3	5

Selective wave soldering		
Solder Temperature (ºC)	Suggested Solder Time (s)	Maximum Solder Time (s)
290	2	4

*Caution：For all products with PET sleeves, the use of any type of cleaning agent is prohibited for cleaning.
During all welding processes, it is recommended to protect the shrink film from contact with any liquids (including but not limited to: water, strong acids, strong alkalis, strong oxidizing solutions, and strong solvents), so as to avoid the risk of damage, cracking, and discoloration of the outer shrink film.