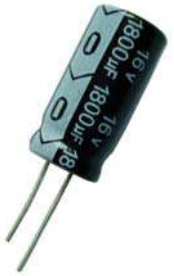
Low Impedance Aluminum Electrolytic Capacitor

SPKE03 2000-5000Hrs Series



- Used in communication equipments,switching power supply，industrial measuring instruments,etc.
- load life 2000~5000 Hrs at 105℃
- Safety vent construction design.
- For the special designing requirement,please contact us.

■ Specifications

Item	Performance Characteristics	
Operating Temperature Range	-40 to +105℃	-25 to +105℃
Rated Voltage Range	6.3 to 100VDC	160 to 450VDC
Capacitance Range	0.47 to 15000uF	0.47 to 470uF
Capacitance Tolerance	±20%(120Hz,+20℃)	
Leakage Current (+20℃,max)	I≤0.01CV or 3(uA) After 2 minutes,whichever is greater measured with rated working voltage	I≤0.03CV or 3(uA) After 2 minutes,with rated working voltage applied.

Dissipation Factor(tan δ)

Working Voltage(VDC)	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
D.F.(%)max	18	16	14	12	10	9	8	8	12	12	12	15	15	17

For Capacitance>1000uF,add 2% per another 1000uF.(+20℃,at 120Hz)

Low Temperature Characteristics (120Hz)

impedance radio max.

Working Voltage(VDC)	6.3	10	16	25	35	50	63	100
Z-25℃/Z+20℃	4	3	3	3	3	3	2	2
Z-40℃/Z+20℃	8	6	4	3	3	3	3	3

Working Voltage(VDC)	160	200	250	350	400	450
Z-25℃/Z+20℃	2	2	3	5	5	6
Z-25℃/Z+20℃	3	6	6	6	6	

For Capacitance>1000uF,add 0.5 per another 1000uF.for -25℃/+20℃,add 1 per another 1000uF.for -40℃/+20℃

Load Life

Test conditions

Duration time	:	As right
Ambient temperature	:	+105℃
Applied voltage	:	Rated DC working voltage
After test requirements at +20℃		
Capacitance change	:	≤±20% of the initial measured valu (160~45V:2000hrs)
Dissipation factor	:	≤200% of the initial specified value
Leakage current	:	≤The initial specified value

Dø	Life hours
5~6.3ø	2000
8ø	3000
≥10ø	5000

Shelf Life

Test conditions

Duration time	:	1000Hrs
Ambient temperature	:	+105℃
Applied voltage	:	None
After test requirements at +20℃	:	Same limits as Load life

Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes

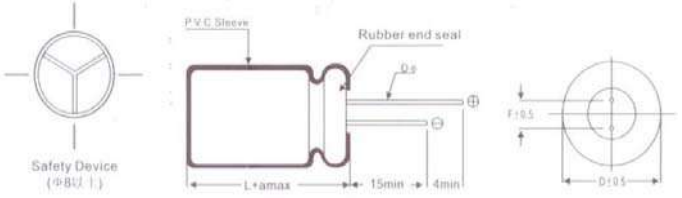
■ Multiplier for Ripple Current vs.Frequency

CAP(uF) \ Frequency(Hz)	50(60)	120	400	1K	10K	50K~100K
CAP≤10	0.47	0.59	0.76	0.85	0.97	1.00
10<CAP≤100	0.52	0.65	0.80	0.89	0.97	1.00
100<CAP≤1000	0.58	0.72	0.84	0.90	0.98	1.00
1000<CAP	0.63	0.78	0.87	0.91	0.98	1.00

■ Multiplier for Ripple Current vs.Temperature

Temperature(℃)	45	60	70	85	95	105
Multiplier	2.1	1.9	1.65	1.4	1.25	1

■ Diagram of Dimensions:(unit:mm)



Dø	5	6.3	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
dø	0.5			0.6		0.8	
a	1.5						

Low Impedance Aluminum Electrolytic Capacitor

■ Case Size

øD×L（mm）

WV(SV) / Cap.(uf) Spec	6.3(8)			10(13)			16(20)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
10							5×11	74	4.7
22				5×11	98	2.7	5×11	100	2.6
33				5×11	100	2.6	5×11	114	2
47				5×11	150	1.34	5×11	155	1.1
56				5×11	160	1.23	5×11	180	0.82
68				5×11	170	1.05	5×11	195	0.69
100	5×11	170	1	5×11	210	0.8	6.3×11	265	0.5
120	5×11	175	0.92	6.3×11	250	0.75	6.3×11	270	0.47
150	6.3×11	190	0.81	6.3×11	290	0.61	6.3×11	290	0.41
180	6.3×11	210	0.76	6.3×11	320	0.46	8×11	370	0.34
220	6.3×11	310	0.65	6.3×11	340	0.35	8×11	480	0.25
270	6.3×11	320	0.54	8×11	400	0.3	8×11	520	0.21
330	8×11	390	0.42	8×11	460	0.27	8×12	590	0.156
470	8×12	450	0.25	8×12	580	0.25	10×13	750	0.124
560	8×12	490	0.23	10×13	635	0.16	10×13	785	0.105
680	8×12	520	0.21	10×13	765	0.11	10×16	1100	0.092
820	8×16	620	0.19	10×16	890	0.1	10×16	1140	0.078
1000	10×13	750	0.17	10×16	1040	0.076	10×20	1350	0.065
1200	10×16	860	0.16	10×16	1200	0.067	10×25	1500	0.061
1500	10×16	1100	0.14	10×20	1400	0.062	10×30	1630	0.056
1800	10×20	1250	0.11	10×25	1550	0.058	13×20	1800	0.047
2200	13×20	1300	0.09	13×20	1750	0.041	13×25	2000	0.038
	10×25	1470	0.095						
2700	10×25	1480	0.079	13×20	1900	0.035	13×25	2450	0.033
3300	13×20	1650	0.06	13×25	2000	0.031	16×25	2790	0.03
4700	13×30	2100	0.036	16×25	2100	0.03	16×31	2880	0.026
5600	13×30	2340	0.034	16×25	2290	0.028	16×35	2990	0.025
6800	16×25	2450	0.032	16×31	2650	0.026	18×35	3200	0.024
8200	16×31	2650	0.027	16×35	2770	0.026	18×35	3320	0.024
10000	16×35	2700	0.024	18×35	2850	0.024	18×41	3550	0.024
15000	16×35	2950	0.023						

WV(SV) / Cap.(uf) Spec	25(32)			35(44)			50(63)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.5							5×11	25	5.4
1							5×11	40	4
2.2							5×11	55	2.8
3.3							5×11	60	2.2
4.7	5×11	68	3.95	5×11	85	3.65	5×11	90	2
5.6	5×11	75	3.25	5×11	92	3.09	5×11	105	1.93
6.8	5×11	80	2.98	5×11	97	2.82	5×11	110	1.89
10	5×11	85	2.56	5×11	105	2.37	5×11	120	1.82
22	5×11	125	1.95	5×11	150	1.5	5×11	135	1.35
33	5×11	155	1.42	5×11	180	1.21	6.3×11	250	0.8
47	5×11	205	1.1	6.3×11	280	0.8	6.3×11	290	0.65
56	5×11	230	0.83	6.3×11	310	0.64	8×11	310	0.49
68	6.3×11	280	0.65	8×11	350	0.52	8×11	375	0.33
100	6.3×11	370	0.35	8×12	450	0.25	10×13	480	0.17
120	6.3×11	380	0.33	8×12	510	0.22	10×13	530	0.156
150	8×11	410	0.31	8×12	540	0.191	10×13	590	0.132
180	8×12	455	0.25	10×13	650	0.172	10×16	860	0.114
220	8×12	550	0.15	10×13	750	0.114	10×16	930	0.096
270	10×13	720	0.125	10×16	910	0.095	10×20	960	0.078
330	10×13	820	0.114	10×16	1050	0.079	10×25	1150	0.065
470	10×16	1200	0.076	10×20	1200	0.065	13×20	1590	0.055
560	10×16	1250	0.072	10×25	1500	0.061	13×20	1660	0.05
680	10×20	1320	0.065	13×20	1570	0.056	13×25	1930	0.044
820	10×25	1530	0.052	13×20	1700	0.048	13×30	2100	0.039
1000	13×20	1650	0.045	13×25	1900	0.042	16×25	2300	0.036
1200	13×20	1980	0.041	13×30	2130	0.038	16×31	2650	0.036
1500	13×25	2210	0.038	16×25	2270	0.036	16×35	2750	0.034
1800	13×25	2510	0.032	16×31	2700	0.035	16×35	2850	0.034
2200	16×25	2650	0.036	16×31	2850	0.034	18×35	3040	0.032
2700	16×25	2820	0.031	16×35	2780	0.029	18×41	3070	0.027
3300	16×31	3240	0.026	18×35	3100	0.026	18×41	3100	0.025
4700	16×35	3650	0.024	18×41	3500	0.024			
5600	18×35	3720	0.024						
6800	18×41	3350	0.024						

Ripple Current (mA,rms) at 105℃ 100KHz; Max Impedance(Ω) at 20℃ 100KHz

Low Impedance Aluminum Electrolytic Capacitor

■ Case Size

øD×L（mm）

WV(SV) / Cap.(uf) Spec	63(79)			100(125)			160(200)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	5×11	25	5.4	5×11	20	5.90	5×11	36	9.44
1	5×11	33	4	5×11	30	4.40	6.3x11	45	7.85
2.2	5×11	45	2.8	5×11	42	3.30	6.3x11	55	5.21
3.3	5×11	58	2.2	5×11	55	2.80	8x11	70	4.31
4.7	5×11	65	2	5×11	72	2.60	8x11	72	4.16
5.6	5×11	95	1.9	5×11	100	2.33	10x13	91	3.61
6.8	5×11	100	1.82	6.3×11	115	1.95	10x16	100	3.12
10	5×11	110	1.75	6.3×11	130	1.77	10x16	120	2.69
22	6.3×11	240	0.8	8×12	220	0.85	10x20	205	1.3
33	8×11	270	0.61	10×13	320	0.69	13x20	260	1.1
47	8×11	300	0.56	10×13	370	0.58	13x20	320	0.91
56	8×12	330	0.38	10×13	400	0.43	13x20	340	0.67
				10×16	440	0.42	13x25	370	0.66
68	10×13	480	0.21	10×16	470	0.35	13x25	410	0.56
100	10×16	610	0.14	10×25	560	0.30	16x25	500	0.47
120	10×16	620	0.125	10×25	660	0.22	16x25	520	0.35
150	10×16	700	0.111	13×20	780	0.174	16x31	660	0.26
180	10×20	800	0.096	13×20	820	0.142	16x35	760	0.22
220	10×20	1100	0.08	13×25	880	0.13	16x35	820	0.19
270	13×20	1150	0.065	13×30	1120	0.11	18x35	890	0.18
330	13×20	1250	0.055	16×25	1440	0.10	18x41	1000	0.16
470	13×25	1620	0.053	16×31	1650	0.09			
560	13×25	1680	0.049	16×35	1720	0.085			
680	13×30	1950	0.043	18×35	1790	0.08			
820	16×25	2150	0.038	18×35	1840	0.071			
1000	16×31	2350	0.034	18×41	1930	0.066			
1200	16×31	2550	0.032						
1500	18×35	2710	0.031						
1800	18×41	3000	0.027						

WV(SV) / Cap.(uf) Spec	200(250)			250(300)			350(400)		
	Size	Ripple	Impedance	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	5×11	36	9.38	5x11	40	8.85	6.3x11	40	8.82
1	6.3×11	45	7.76	6.3x11	50	6.54	8x11	58	6.35
2.2	6.3×11	55	5.18	8x11	72	4.12	10x13	86	4.02
3.3	8x11	71	4.25	8x11	75	3.85	10x16	100	3.52
4.7	10x13	85	4.12	10x13	100	2.95	10x20	130	2.77
5.6	10x13	92	3.55	10x13	105	2.72	10x20	132	2.58
6.8	10x16	115	2.71	10x16	140	1.86	10x25	180	1.65
10	10x16	132	2.02	10x16	160	1.40	10x25	200	1.35
22	10x20	205	1.2	10x20	185	1.30	13x20	220	1.22
33	13x20	330	0.62	13x20	260	0.90	13x25	290	0.86
47	13x25	400	0.51	13x25	405	0.45	16x31	430	0.62
56	13x25	430	0.45	13x25	420	0.42	16x35	460	0.6
68	16x25	540	0.35	16x25	490	0.38	16x35	475	0.56
100	16x25	700	0.19	16x31	675	0.25	18x35	513	0.55
	16x31	820	0.17						
120	16x31	820	0.17	16x35	730	0.24	18x41	560	0.52
150	16x35	840	0.16	18x31	750	0.230			
180	18x31	920	0.15	18x35	830	0.210			
220	18x41	1080	0.14	18x41	910	0.20			

WV(SV) / Cap.(uf) Spec	400(450)			450(500)		
	Size	Ripple	Impedance	Size	Ripple	Impedance
0.47	6.3x11	26	23.1	8x12	30	23.2
1	8x11	36	16.5	10x13	41	17.35
2.2	10x13	65	9.58	10x16	60	10.25
3.3	10x16	86	5.01	10x20	89	5.65
4.7	10x20	120	4.82	10x25	130	5.01
5.6	10x25	130	4.81	13x20	140	4.92
6.8	10x25	160	3.55	13x20	145	4.05
10	13x20	245	3.32	13x25	165	3.78
22	13x25	305	2.65	13x25	255	2.8
33	16x25	335	1.21	16x25	360	2.2
47	16x31	560	0.92	16x35	550	1.02
56	16x35	600	0.85	18x31	580	0.95
68	18x31	750	0.75	18x35	700	0.78
100	18x41	950	0.52			

Ripple Current (mA,rms) at 105℃ 100KHz; Max Impedance(Ω) at 20℃ 100KHz