SX [For Low Impedance & Low E.S.R]

105°C Single-Ended Lead Aluminum Electrolytic Capacitors For High Frequency Applications

Miniature Size Aluminum Electrolytic Capacitors

ELECTRICAL CHARACTERISTICS

Working Voltage : 6.3 ~ 100V

Operating Temperature : -40º ~ +105ºC

Rate Capacitance Range : 22 ~ 15000μF

Capacitance Tolerance : -20 ~ +20%

DC Leakage Current (μA) : I = 0.01 CV or 3(μA) Whichever is greater.
(Measurements shall be Made After a 2 Minute Charge at Rated Working Voltage)

Dissipation Factor : at 120 Hz, 25ºC

WV (V) :	6.3	10	16	25	35	50	63	80	100
D.F (%) :	19	16	14	12	10	8	8	7	7

For capacitor whose capacitance exceeds 1000μF. The value of D.F(%) is increased by 2% for every addition of 1000μF.

Temperature Characteristics : at 120 Hz

WV (V) :	6.3	10	16	25	35	50	63	100
Impedance : Z - 40°C / Z + 20°C	10	6	5	4	4	4	4	4

Load Life : At 105°C Assured with Full Rated Maximum Ripple Current Applied

Case Dia	øD ≤ 8	øD = 10	øD ≥ 12
Load Life	2000	3000	5000

(a) Capacitance Change : Within 20% of Initial Value

(b) Dissipation Factor : Not Exceed 200% of Initial Requirement

(c) Leakage Current : Not Exceed the Initial Requirement

Shelf Life : 1000 Hours, No Voltage Applied, at 105ºC

(a) Capacitance Change : Within 20% of Initial Value

(b) Dissipation Factor : Not Exceed 200 % of Initial Requirement

(c) Leakage Current : Not Exceed 200% of Initial Requirement



DESCRIPTION

Used in switching regulator applications in computers. Especially for high frequency.

Low impedance and E.S.R., high permissible ripple current at high frequency and highter operation temperature (-40ºC to +105ºC).

High Temperature Load Life at 105ºC for 2000 ~ 5000 Hours

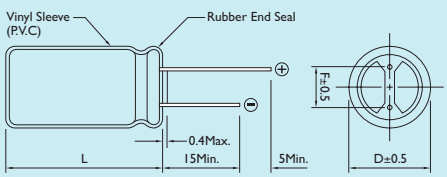
For Detail Specifications, Please Refer to Engineering Bulletin No. 2059

DIAGRAM OF DIMENSIONS

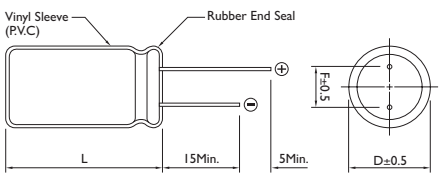
Dimensions : mm

Dø	F	dø
4.0	1.5	0.45
5.0	2.0	0.5
6.0	2.5	
8.0	3.5	
10.0	5.0	0.6
12.0		
13.0		
16.0	7.5	0.8
18.0		
22.0	10.0	0.8

Rubber Stand-off



$L \le 12$ $L + 1.5$Max.
$13 \le L \le 15$ $L^{+1.0}_{-0.5}$
$L \ge 16$ $L + 2.0$Max.



CASE SIZE OF STANDARD PRODUCTS Dø ≥ 6mm with Safety Vent at Can Bottom

D x L : mm

CAP. (μF)	RATED VOLTAGE W V (SV)								
	6.3 (8)	10 (13)	16 (20)	25 (32)	35 (44)	50 (63)	63 (79)	80 (100)	100 (125)
4.7							5 x 11	5 x 11	5 x 11
6.8							5 x 11	5 x 11	8 x 11
10						5 x 11	5 x 11	6 x 11	8 x 11
15						5 x 11	6 x 11	8 x 11	8 x 11
22		5 x 11	5 x 11	5 x 11	5 x 11	6 x 11	8 x 11	8 x 11	10 x 12
33		5 x 11	5 x 11	5 x 11	6 x 11	8 x 11	8 x 11	10 x 12	10 x 15
47		5 x 11	5 x 11	5 x 11	8 x 11	8 x 11	10 x 12	10 x 15	10 x 19
68		5 x 11	6 x 11	8 x 11	8 x 11	10 x 12	10 x 15	10 x 19	10 x 25
100	5 x 11	5 x 11 6 x 11	6 x 11 8 x 11	6 x 11 8 x 11	8 x 11 10 x 12	8 x 15 10 x 15	10 x 15	10 x 25	10 x 30 13 x 20
120	5 x 11	6 x 11	8 x 11	8 x 11	10 x 12	10 x 15	10 x 19	10 x 30	12 x 30
150	6 x 11	6 x 11	8 x 11	10 x 12	10 x 12	10 x 19	10 x 25	10 x 30	12 x 30
220	8 x 11	6 x 11 8 x 11	8 x 11	10 x 15	10 x 12 10 x 15	10 x 15 10 x 25	12 x 25	12 x 30	16 x 32
330	8 x 11	8 x 11	10 x 12	10 x 12 10 x 15	10 x 19	10 x 30 13 x 25	12 x 30	12 x 35	16 x 32 16 x 36
470	10 x 12	8 x 11 10 x 12	8 x 20 10 x 15	10 x 15 10 x 19	10 x 30 13 x 25	12 x 25	12 x 35	16 x 32	16 x 40 18 x 36
680	10 x 15	8 x 20 10 x 15	10 x 19	10 x 30	12 x 25	12 x 35	16 x 32	16 x 40	
820	10 x 15	10 x 19	10 x 25	12 x 25	12 x 30	12 x 40	16 x 36	18 x 36	
1000	10 x 19	10 x 15 10 x 19	10 x 30	12 x 25	12 x 30	16 x 25 16 x 32	18 x 36	18 x 40	
1200	10 x 19	10 x 25	10 x 25 12 x 25	12 x 30	12 x 35	16 x 36	18 x 40		
1500	10 x 19 10 x 25	10 x 30	12 x 25	12 x 30	12 x 40	16 x 40			
2200	10 x 30	12 x 30 13 x 20	12 x 30 13 x 25	12 x 40	16 x 36				
3300	12 x 35	10 x 30 12 x 35	13 x 40	16 x 36	18 x 40				
4700	12 x 35	13 x 40 16 x 32	16 x 36	18 x 40					
6800	16 x 32	16 x 36	18 x 36						
8200	16 x 36	16 x 40	18 x 40						
10000	16 x 40	18 x 40							
15000	18 x 40								

PERMISSIBLE RIPPLE CURRENT AT 100KHZ, 105°C mA, rms

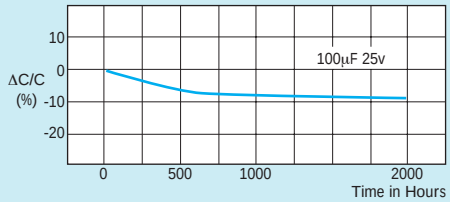
μF	W V								
	6.3	10	16	25	35	50	63	80	100
4.7	7	8	11	12	21	27	36	43	65
6.8	11	13	16	18	31	39	52	62	94
10	16	20	24	30	46	58	77	92	138
15	24	30	36	45	69	88	116	138	207
22	36	44	53	66	101	129	170	203	305
33	54	66	79	99	151	194	256	305	500
47	78	94	113	141	216	276	365	410	600
68	112	136	163	204	312	400	500	600	795
100	166	170 200	190 241	240 300	370 460	530 635	750	795	870 955
120	175	240	290	400	550	670	820	900	1040
150	225	265	380	460	600	860	950	955	1200
220	285	290 370	410	630	690 800	780 1030	1150	1200	1440
330	410	470	600	690 800	1060	1300	1420	1450	1610 1790
470	550	480 590	750	890 1050	1420	1500	1780	1790	2200
680	735	790	1050	1400	1650	1850	2050	1990	
820	795	990	1220	1450	1750	2020	2200	2200	
1000	950	900 1060	1400	1650	2000	1800 2120	2330	2370	
1200	1020	1290	1240 1450	1700	2200	2260	2520		
1500	1000 1200	1450	1650	1950	2350	2420			
2200	1450	1570 1900	1820 2000	2360	2700				
3300	1700	1690 2110	2400	2700	3050				
4700	2110	2300 2450	2650	3000					
6800	2350	2680	2900						
8200	2550	2850	3050						
10000	2750	3050							
15000	2950								

IMPEDANCE AT 100KHZ, 25°C Ohm

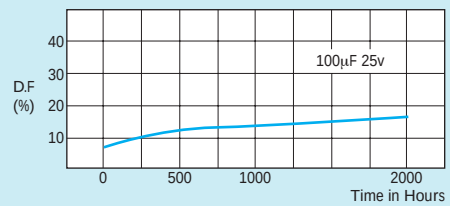
μF	W V								
	6.3	10	16	25	35	50	63	80	100
4.7	7.2	6.7	6.2	5.7	5.2	5.0	4.6	4.2	4.1
6.8	6.5	6.1	5.8	5.4	5.2	3.1	4.3	1.9	1.3
10	6.2	5.9	5.5	5.3	3.1	2.0	2.0	1.4	1.1
15	6.0	5.6	5.3	4.1	2.1	1.2	1.4	1.1	0.8
22	5.8	5.4	3.3	3.3	1.3	0.9	1.2	0.64	0.53
33	4.6	3.3	2.1	1.3	0.87	0.72	0.66	0.54	0.35
47	3.4	2.2	1.3	1.1	0.87	0.66	0.56	0.36	0.3
68	2.2	1.3	0.92	0.57	0.37	0.31	0.36	0.26	0.19
100	1.5	1.15 1.0	1.1 0.89	0.53 0.42	0.39 0.32	0.24 0.20	0.31	0.19	0.17 0.15
120	1.3	0.91	0.58	0.38	0.26	0.17	0.27	0.17	0.13
150	0.92	0.7	0.47	0.33	0.23	0.15	0.2	0.15	0.11
220	0.61	0.59 0.48	0.33	0.23	0.21 0.18	0.15 0.11	0.16	0.13	0.086
330	0.40	0.33	0.23	0.22 0.19	0.13	0.086	0.13	0.088	0.07 0.062
470	0.28	0.30 0.24	0.18	0.165 0.14	0.089	0.068	0.091	0.063	0.047
680	0.22	0.18	0.14	0.09	0.07	0.058	0.065	0.058	
820	0.19	0.14	0.12	0.085	0.066	0.052	0.056	0.050	
1000	0.17	0.135 0.12	0.091	0.078	0.061	0.06 0.05	0.049	0.044	
1200	0.14	0.12	0.1 0.086	0.07	0.049	0.043	0.046		
1500	0.14 0.12	0.093	0.072	0.062	0.046	0.035			
2200	0.095	0.087 0.073	0.069 0.063	0.054	0.044				
3300	0.081	0.077 0.062	0.055	0.045	0.035				
4700	0.063	0.057 0.054	0.046	0.036					
6800	0.055	0.046	0.04						
8200	0.047	0.038	0.036						
10000	0.039	0.037							
15000	0.037								

LOAD LIFE

Capacitance Change Ratio



Dissipation Factor Change



Leakage Current Change

