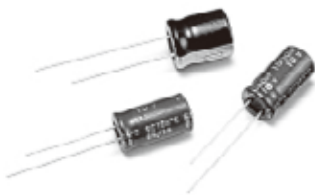


Miniature Size Aluminum Electrolytic Capacitors

SC [For Low Impedance and Low E.S.R Suitable for Output of Mother Board]

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



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 higher operating temperature (-40°C to +105°C).

High Temperature Load Life at 105°C for 3000 Hours

ELECTRICAL CHARACTERISTICS

Operating Temperature : -40° ~ +105°C

Working Voltage : 6.3 ~ 100V

Rate Capacitance Range : 4.7 ~ 15000µF

Capacitance Tolerance : -20 ~ +20%

DC Leakage Current (µA) : I = 0.01 CV(µA) or 3µA Whichever is greater.

(Measurements shall be Made After a 2 Minute Charge at Rated Working Voltage)

Dissipation Factor : at 120 Hz, 25°C

WV (V) :	6.3	10	16	25	35	50	63	80	100
D.F (%) :	15	14	12	10	10	8	8	7	7

For capacitor whose capacitance exceeds 2000µF. The value of D.F(%) is increased by 2% for every addition of 1000µF.

WV (V) :	6.3	10	16	25	35	50	63	100
Impedance : Z - 40°C / Z + 20°C	10	8	5	4	4	4	4	4

Load Life : 3000 Hours at 105°C Assured with Full Rated Maximum Ripple Current Applied

5 x 11 ~ 10 x 12 : Life = 2000 Hours

10 x 15 or Higher : Life = 3000 Hours

(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 105°C

(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

Multiplier for Ripple Current

Frequency coefficient

Frequency(Hz)	50	120	300	1K	10K	100K
~4.7µF	0.30	0.40	0.50	0.70	0.80	1.00
5.6~33µF	0.40	0.50	0.60	0.80	0.90	1.00
34~330µF	0.60	0.70	0.80	0.90	0.95	1.00
331~1000µF	0.65	0.80	0.90	0.98	1.00	1.00
1200µF Higher	0.85	0.90	0.95	0.98	1.00	1.00

Temperature coefficient

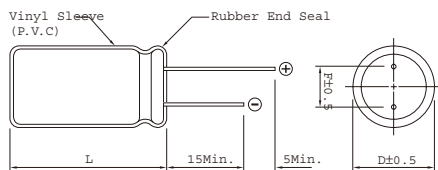
Temperature(°C)	65	85	105
Factor	1.80	1.50	1.00



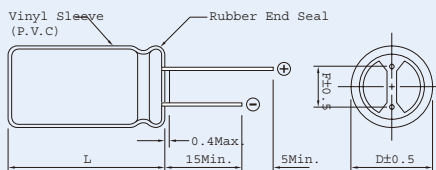
RoHS COMPLIANT

Dimensions : mm

DIAGRAM OF DIMENSIONS



Rubber Stand-off



L ≤ 16 : L + 1.5max
L > 16 : L + 2max
Dø = 8&10 : L + 2.5

Dø < 20 : Dø + 0.5
Dø ≥ 20 : Dø + 1

Dø	F	dø
4.0	1.5	0.45
5.0	2.0	0.5
6.3	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



CASE SIZE OF STANDARD PRODUCTS $D\varnothing \geq 6\text{mm}$ with Safety Vent at Can Bottom

CAP. (μF)	RATED VOLTAGE WV											
	6.3			10			16			25		
	Size	Ripple	ESR	Size	Ripple	ESR	Size	Ripple	ESR	Size	Ripple	ESR
4.7												
6.8												
10												
22										5 x 11	60	0.51
39										5 x 11	10	0.58
47							5 x 11	210	0.580	5 x 11	150	0.058
56							5 x 11	210	0.580	5 x 11	150	0.58
68							5 x 11	150	0.580	6 x 11	200	0.370
82				5 x 11	150	0.580	5 x 11	210	0.580	6 x 11	200	0.22
100				5 x 11	150	0.580	5 x 11	200	0.370	6 x 11	250	0.220
	5 x 11	210	0.580				6 x 11	200	0.370			
120	5 x 11	210	0.580	5 x 11	200	0.370	6 x 11	250	0.22	8 x 11	300	0.200
							8 x 11	330	0.22			
150	5 x 11	200	0.580	6 x 11	250	0.320	6 x 11	300	0.220	8 x 11	550	0.140
180				6 x 11	250	0.32				8 x 11	640	0.13
220	6 x 11	250	0.320	6 x 11	300	0.220	8 x 11	550	0.140	*8 x 11	640	0.130
				8 x 11	300	0.220				8 x 15	750	0.100
270	*6 x 11	300	0.220	8 x 11	300	0.220	8 x 11	640	0.10	10 x 12	865	0.08
330	*6 x 11	170	0.22	8 x 11	550	0.140	*8 x 11	750	0.120	*8 x 15	840	0.087
	8 x 11	400	0.22				8 x 15	750	0.100	8 x 20	800	0.069
										10 x 12	865	0.080
390				8 x 11	550	0.140	10 x 12	750	0.10	10 x 15	1210	0.060
470	*6 x 11	540	0.22	*8 x 11	750	0.120	*8 x 15	780	0.09	*8 x 20	1050	0.069
	8 x 11	550	0.13	8 x 15	750	0.100	10 x 12	800	0.085			
				10 x 12	750	0.10	8 x 20	780	0.09	10 x 15	1210	0.060
560	8 x 11	640	0.13	10 x 12	750	0.1				10 x 19	1400	0.046
680				*8 x 15	780	0.09	10 x 15	1210	0.65	10 x 19	1100	0.046
				8 x 20	380	0.09						
	8 x 15	700	0.100	10 x 12	800	0.08	8 x 15	1050	0.69			
820	8 x 15	730	0.09	8 x 20	1000	0.08				10 x 25	1650	0.042
	8 x 20	750	0.085	10 x 15	1050	0.045	10 x 19	1100	0.046	10 x 19	1250	0.039
	10 x 12	750	0.085							13 x 20	1900	0.035
1000	*8 x 11	580	0.150	8 x 20	1080	0.069				*10 x 30	1450	0.038
	*8 x 15	780	0.085	8 x 15	1050	0.070						
	8 x 20	800	0.069	10 x 12	930	0.075	10 x 19	1250	0.046	*10 x 25	1310	0.042
	10 x 12	865	0.080	10 x 15	1100	0.065	10 x 25	1250	0.046	13 x 20	1450	0.038
				10 x 19	1100	0.050						
1200	10 x 15	1000	0.064	10 x 19	1250	0.046	*10 x 25	1450	0.038	13 x 25	1600	0.030
	8 x 15	950	0.067				13 x 20	1450	0.038			
	8 x 20	1000	0.069									
1500	*10 x 15	1200	0.055	10 x 19	1450	0.039	*10 x 30	1600	0.035	*13 x 25	2124	0.030
	10 x 19	1250	0.046	10 x 25	1450	0.042	13 x 20	1600	0.035	16 x 25	2000	0.028
	10 x 25	1650	0.042	13 x 20	1330	0.047						
1800	10 x 25	1650	0.042				13 x 25	2124	0.030	13 x 30	2524	0.026
2200				*10 x 19	1330	0.047	*10 x 30	1780	0.032	12 x 35	2743	0.022
	*10 x 25	1450	0.042	*10 x 30	1330	0.047				18 x 20	2495	0.034
	13 x 20	1450	0.043	13 x 20	1330	0.047	13 x 25	2000	0.028	16 x 32	2200	0.024
2700	10 x 30	1450	0.35	13 x 25	2000	0.038	13 x 30	2524	0.026	16 x 25	2552	0.028
	13 x 20	1700	0.35									
3300	10 x 20	1700	0.035							16 x 36	2550	0.019
	13 x 25	1700	0.035	13 x 25	2000	0.028	16 x 25	2200	0.024	16 x 32	3029	0.022
				13 x 30	2000	0.026	18 x 20	2459	0.034	18 x 25	2771	0.022
3900	13 x 25	1700	0.030				16 x 25	2552	0.028	16 x 36	3124	0.024
							18 x 20	2495	0.034	16 x 32	3600	0.020
4700	*13 x 30	1800	0.028				16 x 32	2298	0.022	18 x 36	2800	0.019
				16 x 25	2200	0.028	16 x 36	2550	0.019			
	16 x 25	1800	0.028				18 x 25	2771	0.024			
5600				16 x 25	2550	0.028	16 x 36	3124	0.02	18 x 40	3781	0.015
				18 x 20	2495	0.034	18 x 32	3600	0.02			
6800	16 x 25	2000	0.024	16 x 32	2550	0.022						
	16 x 32	2000	0.024	16 x 36	2550	0.019	18 x 36	2800	0.019			
	18 x 20	2000	0.024	18 x 25	2550	0.024	16 x 40	2886	0.017			
8200	16 x 32	2350	0.022	16 x 32	2550	0.022	18 x 36	3638	0.019			
				16 x 25	2550	0.024						
				16 x 36	2550	0.019						
10000	16 x 36	2350	0.022	18 x 32	3638	0.019	18 x 40	3781	0.015			
	18 x 25	2550	0.020									
12000	16 x 40	3886	0.017									
	18 x 32	3600	0.020									
15000	18 x 36	3000	0.019	18 x 40	3781	0.015						
18000	18 x 40	3781	0.015									

Note : * 1. D x L : mm

* 2. Ripple Current : (mA r.m.s 105°C / 100KHz), ESR (Ω Max20°C/100KHz)

* 3. " * " is down size, Edurance is less 1000 hrs than standard



CASE SIZE OF STANDARD PRODUCTS $D\varnothing \geq 6\text{mm}$ with Safety Vent at Can Bottom

CAP. (μF) RATED VOLTAGE WV

	35			50			63			100		
	Size	Ripple	ESR	Size	Ripple	ESR	Size	Ripple	ESR	Size	Ripple	ESR
1.0				5 x 11	180	2.4				5 x 11	80	3.5
2.2				5 x 11	180	1.3						
3.3				5 x 11	180	1.3						
4.7	5 x 11	115	1.200	5 x 11	115	2.000	5 x 11	115	2.200	5 x 11	120	2.000
6.8	5 x 11	120	1.000	5 x 11	120	1.850	5 x 11	120	2.000	5 x 11	55	1.850
10	5 x 11	140	0.900	5 x 11	140	1.700	5 x 11	140	1.850	6 x 11	200	1.500
12							5 x 11	55	1.84			
15	5 x 11	170	0.690	5 x 11	180	1.3	5 x 11	200	1.700	6 x 11	115	1.200
18				5 x 11	180	0.700	5 x 11	55	1.84			
22	5 x 11	190	0.58	5 x 11	200	0.700	6 x 11	115	1.200	8 x 11	300	0.790
27	5 x 11	190	0.58	5 x 11	180	0.700				8 x 11	232	0.504
33	5 x 11	200	0.58	6 x 11	295	0.600	6 x 11	115	0.96	8 x 15	450	0.590
39	5 x 11	200	0.58	6.3 x 11	295	0.30	8 x 11	232	0.504	8 x 15	300	0.36
47	6.3 x 11	250	0.370	6.3 x 11	295	0.520	8 x 11	232	0.700	10 x 15	550	0.350
										10 x 12	288	0.344
56	6.3 x 11	340	0.220	8 x 11	555	0.17	8 x 11	232	0.504	8 x 20	362	0.264
68	6 x 11	340	0.220	8 x 11	555	0.17	8 x 11	232	0.520	10 x 19.5	650	0.240
	8 x 11	300	0.220							10 x 15	357	0.248
82	8 x 11	640	0.130	8 x 11	555	0.17	10 x 12	288	0.344			
100	*6.3 x 11	340	0.220	*8 x 11	480	0.290	8 x 20	650	0.350	13 x 20	800	0.180
				10 x 12	760	0.120	8 x 15	300	0.36			
	8 x 11	450	0.140	8 x 15	550	0.250	10 x 12	288	0.344	10 x 25	531	0.16
120				8 x 15	650	0.21				10 x 30	663	0.120
	8 x 11	550	0.130	8 x 20	650	0.210	10 x 15	357	0.300	13 x 25	1050	0.150
				10 x 12	560	0.24				13 x 20	690	0.128
150	8 x 11	640	0.13	10 x 12	800	0.160	8 x 20	362	0.264	13 x 25	1300	0.110
	8 x 15	650	0.100	8 x 20	780	0.18	10 x 15	1050	0.200			
				10 x 15	1050	0.084						
180	10 x 12	865	0.08	8 x 20	910	0.091	10 x 19.5	466	0.168	13 x 25	784	0.078
				10 x 15	1050	0.084						
220	*8 x 15	840	0.087	10 x 15	1050	0.100	10 x 19.5	466	0.168	16 x 25	1400	0.071
	8 x 20	780	0.085	10 x 12	908	0.115	10 x 25	531	0.160	13 x 30	905	0.08
	10 x 12	800	0.080	10 x 19.5	1220	0.06	13 x 20	690	0.128			
270	10 x 15	1210	0.060	10 x 25	1440	0.055				16 x 25	1250	0.058
330	*10 x 15	1210	0.06	10 x 19	1300	0.072	10 x 30	1180	0.057	16 x 32	1550	0.049
	8 x 20	1050	0.069	10 x 30	1690	0.043	13 x 20	690	0.128	18 x 20	1240	0.064
	10 x 19.5	1050	0.044	13 x 20	1690	0.045						
390				13 x 20	1660	0.045	13 x 25	784	0.096	16 x 32	1570	0.043
										18 x 25	1490	0.046
470	10 x 19.5	1300	0.046	*10 x 30	1440	0.060	13 x 25	1550	0.064	18 x 36	1700	0.038
				13 x 25	1400	0.060	13 x 30	1040	0.073	18 x 32	630	0.038
				13 x 20	1400	0.060				16 x 36	790	0.036
560	10 x 25	1650	0.042	13 x 25	1950	0.034	16 x 25	1250	0.058	18 x 40	2020	0.032
	13 x 20	1900	0.038									
680	13 x 20	1400	0.038	13 x 25	1550	0.050	16 x 25	1700	0.052	18 x 36	1790	0.032
	10 x 30	1400	0.035	13 x 30	2310	0.03	18 x 20	1240	0.064	18 x 40	1870	0.030
820	13 x 20	1550	0.034	16 x 25	1700	0.040	16 x 32	1570	0.048	18 x 40	2330	0.03
	13 x 25	1550	0.030	18 x 20	2490	0.036	18 x 25	1490	0.046			
1000	13 x 25	1700	0.030	16 x 25	1900	0.039	16 x 32	2100	0.042			
							16 x 36	1790	0.036			
1200	13 x 30	1900	0.026	16 x 32	2100	0.025	16 x 36	2550	0.036			
	16 x 25	1900	0.028	18 x 25	2740	0.026	16 x 40	2020	0.032			
							18 x 32	1630	0.038			
1500	16 x 25	2100	0.028	16 x 36	2550	0.025	18 x 36	1790	0.033			
1800	18 x 20	2882	0.034	16 x 40	3710	0.016						
	16 x 25	2948	0.028	18 x 32	3535	0.021						
2200	*16 x 32	2500	0.022	18 x 40	2800	0.025						
	16 x 25	1960	0.025	18 x 36	3680	0.017						
	16 x 36	2550	0.019									
	18 x 25	3201	0.024									
2700	16 x 36	3608	0.02	18 x 40	3800	0.014						
	18 x 32	4158	0.02									
3300	18 x 36	2880	0.019									
3900	18 x 40	4367	0.015									
4700												
6800												
8200												
10000												
15000												

Note : * 1. D x L : mm

* 2. Ripple Current : (mA r.m.s 105°C / 100KHz), ESR (Ω Max20°C / 100KHz)

* 3. " * " is down size, Edurance is less 1000 hrs than standard