

# Miniature Aluminum Electrolytic Capacitors

## SC [ Low Impedance and Low ESR Suitable for Motherboard Output Termination ]

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



### DESCRIPTION

Applicable for switching regulator of computers, especially for high frequency

#### MULTIPLIER FOR RIPPLE CURRENT

Frequency Coefficient

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

### ELECTRICAL CHARACTERISTICS

Operating Temperature Range : -40 ~ +105°C

Rated Voltage Range : 6.3 ~ 100V

Rated Capacitance Range : 4.7 ~ 15000μF

Capacitance Tolerance : -20 ~ +20% at 120Hz, 20°C

DC Leakage Current (μA) : I = 0.01CV or 3μA whichever is greater.  
(After Rated Voltage Applied for 2 Minutes)

Dissipation Factor

WV (V) :	6.3	10	16	25	35	50	63	100
D.F. (%) :	22	19	16	14	12	10	9	8

When nominal capacitance is over 1000μF, tan δ shall be added 0.02 to listed value with increase of every 1000μF.

WV (V) :						6.3	10	16	25	35	50	63	100
Impedance :	Z(120Hz)	Z - 25°C / Z + 20°C				4	3	3	3	3	2	2	2
	Z(120Hz)	Z - 40°C / Z + 20°C				8	6	4	4	4	4	4	4

Endurance : After the rated voltage has been applied at 105°C for 3000 hours, the capacitors shall meet the following requirements.

If Dimension is Down Size, Endurance will be Less 1000 hours than Standard

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

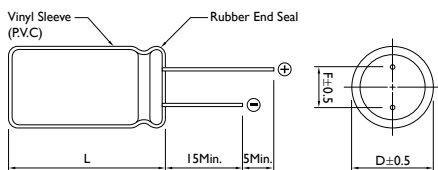
(b) Dissipation Factor: Not Exceeding 200% of Specified Value

(c) Leakage Current: Not Exceeding the Specified Value

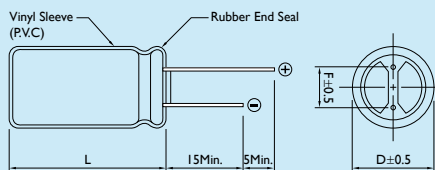
CASE SIZE	5×11 ~ 10×12	10×15 higher
LIFE	2000	3000

Shelf Life : After having been placed at 105°C without voltage applied for 1000 hours, the capacitors shall meet the same requirements as Endurance.

### DIAGRAM OF DIMENSIONS



Rubber Stand-off



L ≤ 16 L + 1.5Max.  
L > 16 L + 2Max.

Dø = 8 & 10 L + 2.5Max.

Dø < 20 Dø + 0.5  
Dø ≥ 20 Dø + 1

Dimensions: mm

Dø	F	dø
4.0	1.5	0.45
5.0	2.0	0.5
6.3	2.5	
8.0	3.5	0.6
10.0	5.0	
12.0		
13.0		
16.0	7.5	0.8
18.0		
22.0	10.0	0.8 (1.0)

## CASE SIZE & PERMISSIBLE RIPPLE CURRENT OF STANDARD PRODUCTS

D x L: mm

CAP. (μF)	RATED VOLTAGE WV (SURGE VOLTAGE WV)											
	6.3 (8)			10 (13)			16 (20)			25 (32)		
	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR
10										*4 x 7	40	2.000
										5 x 11	50	0.550
47										5 x 11	150	0.450
56							5 x 11	100	0.630	5 x 11	150	0.420
68							5 x 11	150	0.420	6.3 x 11	200	0.370
100				5 x 11	150	0.420	5 x 11	200	0.370	6.3 x 11	250	0.220
120				5 x 11	200	0.370	6.3 x 11	250	0.320	8 x 11	300	0.200
150	5 x 11	200	0.420	6.3 x 11	250	0.320	6.3 x 11	300	0.220	8 x 11	550	0.140
220	6.3 x 11	250	0.320	6.3 x 11	300	0.220	8 x 11	550	0.140	*8 x 11	620	0.120
										8 x 15	750	0.100
270	*6.3 x 11	300	0.220									
330	*6.3 x 11	320	0.230	8 x 11	550	0.140	*8 x 11	620	0.120	*8 x 15	660	0.100
	8 x 11	400	0.180				8 x 15	750	0.100	8 x 20	800	0.069
							10 x 12	688	0.080	10 x 15	900	0.086
470	*6.3 x 11	440	0.180	*8 x 11	620	0.120	*8 x 15	730	0.093	*8 x 20	1000	0.067
	8 x 11	550	0.140	8 x 15	750	0.100	10 x 12	800	0.085	*10 x 12	900	0.086
										10 x 15	1050	0.064
680	*8 x 11	580	0.120	*8 x 11	640	0.110	10 x 15	1050	0.064	10 x 19.5	1100	0.039
	8 x 15	700	0.100	10 x 12	800	0.085						
820	8 x 20	750	0.085	10 x 15	1050	0.064	10 x 19.5	1100	0.044	10 x 19.5	1250	0.039
1000	*8 x 11	580	0.150	8 x 20	1080	0.065	*10 x 15	1140	0.043	*10 x 19.5	1160	0.047
	*8 x 15	670	0.085	10 x 12	930	0.075	10 x 19.5	1250	0.039	*10 x 25	1310	0.042
	8 x 20	800	0.069	10 x 15	990	0.085				13 x 20	1450	0.038
	10 x 12	690	0.080	10 x 19.5	1100	0.050						
1200	10 x 15	1000	0.064	10 x 19.5	1250	0.044	*10 x 25	1310	0.042	13 x 25	1600	0.029
							13 x 20	1450	0.038			
1500	*8 x 15	980	0.085	10 x 19.5	1450	0.039	*10 x 19.5	1200	0.045	*12 x 30	1750	0.032
	*8 x 20	1070	0.051				13 x 20	1600	0.034	16 x 25	2000	0.028
	*10 x 15	1070	0.055									
	10 x 19.5	1250	0.044									

Note: 1. Ripple Current: (mA/rms) 105°C, 100KHz  
 2. ESR: 100KHz / 20°C (Ω Max.)  
 3. \* Down Size: 1000 Hours less than standard



## CASE SIZE & PERMISSIBLE RIPPLE CURRENT OF STANDARD PRODUCTS

D x L: mm

CAP. (μF)	RATED VOLTAGE WV (SURGE VOLTAGE WV)											
	6.3 (8)			10 (13)			16 (20)			25 (32)		
	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR
2200	*10 × 19.5	1220	0.051	*10 × 19.5	1330	0.047	*10 × 30	1780	0.032	*13 × 30	1810	0.029
	*10 × 25	1310	0.048	*10 × 25	1450	0.039	*13 × 20	1720	0.033	*16 × 25	1660	0.032
	13 × 20	1450	0.043	13 × 20	1600	0.038	13 × 25	2000	0.028	16 × 32	2200	0.024
3300	*10 × 25	1400	0.043	*10 × 30	1740	0.032	*13 × 40	2200	0.026	*16 × 36	2540	0.019
	13 × 25	1700	0.035	13 × 25	2000	0.028	16 × 25	2200	0.024	18 × 36	2550	0.019
3900	13 × 25	1750	0.032									
4700	*12 × 30	1570	0.033	*13 × 25	1860	0.028	16 × 36	2550	0.019	18 × 36	2800	0.019
	*13 × 25	1520	0.032	16 × 25	2200	0.024						
	16 × 25	1800	0.028									
6800	16 × 32	2000	0.024	16 × 36	2550	0.019	18 × 36	2800	0.019	18 × 36	2800	0.019
8200	16 × 32	2350	0.019	18 × 36	2800	0.019						
10000	16 × 36	2550	0.019									
15000	18 × 36	3000	0.019									

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## CASE SIZE & PERMISSIBLE RIPPLE CURRENT OF STANDARD PRODUCTS

D x L: mm

CAP. (μF)	RATED VOLTAGE WV (SURGE VOLTAGE WV)											
	35 (44)			50 (63)			63 (79)			100 (125)		
	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR	SIZE	RIPPLE	ESR
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	140	1.850
10	5 x 11	140	0.900	5 x 11	140	1.700	5 x 11	140	1.850	6.3 x 11	200	1.500
15	5 x 11	170	0.690	5 x 11	180	1.200	5 x 11	200	1.700	6.3 x 11	250	1.200
22	5 x 11	190	0.420	5 x 11	200	0.700	6.3 x 11	250	1.200	8 x 11	300	0.790
33	5 x 11	200	0.420	6.3 x 11	250	0.600	6.3 x 11	300	0.900	8 x 15	450	0.590
47	6.3 x 11	250	0.370	6.3 x 11	300	0.520	8 x 11	450	0.700	10 x 15	550	0.350
68	6.3 x 11	300	0.220	8 x 11	450	0.350	8 x 11	550	0.520	10 x 19.5	650	0.240
100	*6.3 x 11	360	0.180	*8 x 11	480	0.290	8 x 20	650	0.350	13 x 20	800	0.180
	8 x 11	450	0.140	8 x 15	550	0.250						
120	8 x 11	550	0.130	8 x 20	650	0.210	10 x 15	800	0.300	13 x 25	1050	0.150
150	8 x 15	650	0.100	10 x 12	800	0.160	10 x 15	1050	0.200	13 x 25	1300	0.110
220	*8 x 15	730	0.100	*10 x 15	1050	0.100	10 x 19.5	1300	0.150	16 x 25	1400	0.071
	10 x 12	800	0.069	10 x 25	1050	0.068						
330	*10 x 15	900	0.052	10 x 19.5	1300	0.072	13 x 20	1400	0.100	16 x 32	1550	0.049
	10 x 19.5	1050	0.044									
470	10 x 19.5	1300	0.039	*10 x 19.5	1390	0.075	13 x 25	1550	0.064	18 x 36	1770	0.038
				13 x 20	1400	0.060						
680	13 x 20	1400	0.038	13 x 25	1550	0.050	16 x 25	1700	0.052			
820	13 x 20	1550	0.034	16 x 25	1700	0.040	16 x 32	1900	0.048			
1000	13 x 25	1700	0.029	16 x 25	1900	0.039	16 x 32	2100	0.042			
1200	16 x 25	1900	0.028	16 x 32	2100	0.025	16 x 36	2550	0.036			
1500	16 x 25	2100	0.024	16 x 36	2550	0.025	18 x 36	2800	0.033			
2200	*16 x 32	2300	0.021	18 x 40	2800	0.025						
	16 x 36	2550	0.019									
3300	18 x 36	2880	0.019									

Note: 1. Ripple Current: (mA/rms) 105°C, 100KHz  
 2. ESR: 100KHz / 20°C (Ω Max.)  
 3. \* Down Size: 1000 Hours less than standard