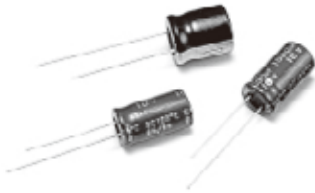


# Miniature Size Aluminum Electrolytic Capacitors

# SA [ High Ripple Current and Long load life ]

105°C Single-Ended Lead Aluminum Electrolytic Capacitors



## DESCRIPTION

High Temperature Load Life at 105°C for 3000~8000 Hours

### Frequency coefficient

Rated voltage(V)	Cap(μF)	Freq.(Hz)				
		50	120	300	1K	10K-
6.3~100V	-47	0.75	1.00	1.35	1.57	2.00
	100~470	0.80	1.00	1.23	1.34	1.50
	≥560	0.85	1.00	1.10	1.13	1.15
160~450	0.47~220	0.80	1.00	1.25	1.40	1.60
	≥270	0.90	1.00	1.10	1.13	1.15

### Temperature coefficient

Temperature(°C)	-55	60	70	85	105
Factor	2.23	2.17	2.00	1.75	1.00

## ELECTRICAL CHARACTERISTICS

Operating Temperature : -40° ~ +105°C -25° ~ +105°C

Working Voltage : 6.3 ~ 100V 160 ~ 450V

Rate Capacitance Range : 0.1 ~ 22000μF

Capacitance Tolerance : -20 ~ +20%

DC Leakage Current (μA) :  $I \leq 0.03 CV$  or  $4(\mu A)$  after 1 minute,  $I \leq 0.04 CV + 40(\mu A)$  after 1 minute  
( Measurements shall be Made After a 1 Minute Charge at Rated Working Voltage )

Dissipation Factor : at 120 Hz, 25°C

WV (V) :	6.3	10	16	25	35	50	63	100	160	200	250	315	400	450
D.F (%) :	28	24	20	16	14	12	10	8	20	20	20	25	25	25

For capacitor whose capacitance exceeds 1000μF. 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 - 25°C / Z + 20°C	5	4	3	2	2	2	2	2
Impedance : Z - 40°C / Z + 20°C	12	10	8	5	4	3	3	3
WV (V) :	160	200	250	350	400	450		
Impedance : Z - 25°C / Z + 20°C	3	3	4	4	6	15		

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

ø5~ø6=3000 hours.

ø8~ø10=5000 hours.

>ø12=8000 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

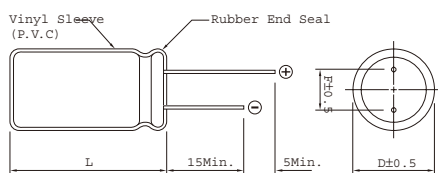
(b) Dissipation Factor : Not Exceed 200 % of Initial Requirement

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

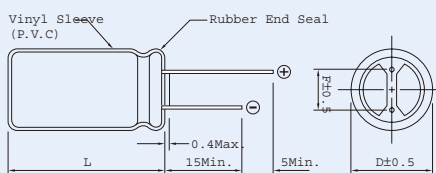


**RoHS**  
COMPLIANT

## DIAGRAM OF DIMENSIONS



### Rubber Stand-off



$L \leq 16 : L + 1.5\text{max}$

$L > 16 : L + 2\text{max}$

$D\phi = 8 \& 10 : L + 2.5$

$D\phi < 20 : D\phi + 0.5$

$D\phi \geq 20 : D\phi + 1$

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


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

CAP. ( $\mu\text{F}$ )	RATED VOLTAGE WV									
	6.3		10		16		25		35	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1										
0.22										
0.33										
0.47										
1										
2.2										
3.3										
4.7							5 x 11	18	5 x 11	21
10					5 x 11	24	5 x 11	30	5 x 11	33
22	5 x 11	21	5 x 11	33	5 x 11	45	5 x 11	48	5 x 11	51
33	5 x 11	33	5 x 11	48	5 x 11	54	5 x 11	57	5 x 11	63
47	5 x 11	45	5 x 11	57	5 x 11	66	5 x 11	69	6.3 x 11	84
100	5 x 11	78	5 x 11	87	6.3 x 11	105	6.3 x 11	111	8 x 11	138
220	6.3 x 11	129	6.3 x 11	138	8 x 11	180	8 x 11	192	10 x 12	222
330	6.3 x 11	159	8 x 11	198	8 x 11	216	10 x 12	252	10 x 15	294
470	8 x 11	216	8 x 11	234	10 x 12	282	10 x 15	324	10 x 19.5	384
1000	10 x 12	342	10 x 15	378	10 x 19.5	474	12 x 20	570	13 x 25	660
2200	13 x 20	630	13 x 20	660	13 x 25	810	16 x 25	730	16 x 32	708
3300	13 x 20	750	13 x 25	840	16 x 25	1020	16 x 32	1170	18 x 36	1330
									22 x 30	1330
									18 x 40	1330
4700	16 x 25	1020	16 x 25	1080	16 x 32	1260	18 x 36	1410	18 x 40	1490
							22 x 30	1410	22 x 35	1470
							18 x 40	1410		
6800	16 x 25	1140	16 x 32	1290	18 x 36	1500	22 x 40	1550		
					22 x 30	1480	18 x 40	1550		
10000	16 x 32	1350	18 x 36	1500	18 x 40	1580				
			22 x 30	1480	22 x 35	1560				
			18 x 40	1480						
12000	16 x 36	1470	18 x 36	1560	22 x 40	1640				
			22 x 30	1530						
15000	18 x 36	1508	18 x 40	1632						
	22 x 30	1590	22 x 35	1600						
	18 x 40	1590								
18000	18 x 40	1650	22 x 40	1710						
	22 x 35	1650								
22000	22 x 40	1710								

Note : \* I. D x L : mm

\* 2. mA rms at 105°C, 120Hz


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

CAP. ( $\mu\text{F}$ )	RATED VOLTAGE WV									
	50		63		100		160		200	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.1	5 x 11	1.1			5 x 11	1.1				
0.22	5 x 11	2.3			5 x 11	2.3				
0.33	5 x 11	3.5			5 x 11	3.5				
0.47	5 x 11	5			5 x 11	5	6.3 x 11	7.2	6.3 x 11	7.2
1	5 x 11	10			5 x 11	10	6.3 x 11	10.2	6.3 x 11	10.2
2.2	5 x 11	14			5 x 11	18	6.3 x 11	16	6.3 x 11	16
3.3	5 x 11	21			5 x 11	24	8 x 11	21	8 x 11	21
4.7	5 x 11	24	5 x 11	27	5 x 11	27	8 x 11	24	10 x 12	27
10	5 x 11	39	5 x 11	42	6.3 x 11	45	10 x 12	39	10 x 15	42
22	6.3 x 11	57	6.3 x 11	69	8 x 11	78	10 x 19.5	66	10 x 22	66
33	6.3 x 11	75	8 x 11	84	10 x 12	102	13 x 20	90	13 x 25	96
47	6.3 x 11	90	8 x 11	114	10 x 15	138	13 x 25	108	13 x 25	108
100	8 x 11	150	10 x 12	180	13 x 20	240	16 x 25	180	16 x 32	198
150							16 x 36	252	18 x 36	270
									18 x 40	270
									22 x 30	270
220	10 x 15	264	10 x 19.5	294	16 x 25	436	18 x 36	306	18 x 40	312
									18 x 36	312
							22 x 30	306	22 x 35	312
							16 x 36	306		
270							18 x 40	324	22 x 40	342
							22 x 35	324	18 x 40	342
							18 x 32	324		
330	10 x 19.5	398	13 x 20	408	16 x 25	516	22 x 40	360		
							18 x 36	360		
470	13 x 20	456	13 x 25	528	16 x 32	660				
1000	16 x 25	810	18 x 32	930	18 x 40	1010				
					22 x 35	1010				
2200	18 x 36	1250	18 x 40	1320						
	18 x 40	1250								
	22 x 30	1250	22 x 35	1350						
3300	22 x 40	1420								

Note : \* I. D x L : mm

\* 2. mA rms at 105°C, 120Hz



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

CAP. ( $\mu\text{F}$ )	RATED VOLTAGE WV									
	250		315		350		400		450	
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple
0.47	6.3 x 11	7.2								
1	6.3 x 11	10.2	6.3 x 11	10.2	8 x 11	10.8	8 x 11	10.8	10 x 12	11.4
2.2	8 x 11	18	8 x 11	18	10 x 12	18	10 x 12	18	10 x 19.5	17.4
3.3	10 x 12	21	10 x 12	21	10 x 15	21	10 x 19.5	21	10 x 19.5	21
4.7	10 x 12	27	10 x 15	45	10 x 15	27	10 x 19.5	27	13 x 20	30
10	10 x 19.5	42	10 x 19.5	42	13 x 20	42	13 x 20	42	13 x 25	45
22	13 x 25	78	13 x 25	72	13 x 25	66	16 x 25	66	16 x 32	66
33	13 x 25	96	16 x 25	90	16 x 32	84	16 x 32	84	18 x 36	90
									22 x 30	84
47	16 x 25	126	16 x 32	144	18 x 36	132	18 x 36	132	22 x 40	138
					22 x 30	132	22 x 30	132		
100	18 x 36	204	18 x 40	204	22 x 40	216				
	18 x 40	204								
	22 x 30	204	22 x 35	204						
150	18 x 40	276	22 x 40	270						
	22 x 35	276								
220	22 x 40	320								

Note : \* I. D x L : mm

\* 2. mA rms at 105°C, 120Hz