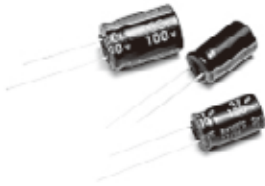


# Miniature Size Aluminum Electrolytic Capacitors

# SH [ For General ]

105°C Single-Ended Lead Aluminum Electrolytic Capacitors  
for the Rated Voltage up to 450V



## DESCRIPTION

Long life for 2,000 hours at 105°C, ideally suited for high quality and high reliability applications.

Feature High CV Product

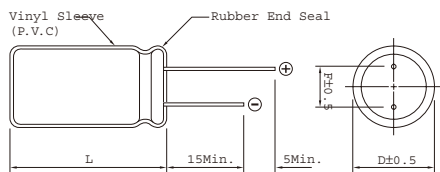
Multiplier for Ripple Current  
Frequency coefficient

Frequency (Hz)	120	300	1K	10K~100K
6.3~100V Below~68μF	1.00	1.30	1.57	2.00
6.3~100V 100~470μF	1.00	1.23	1.34	1.50
6.3~100V 471~22000μF	1.00	1.10	1.13	1.15
160~450V ALL Cap(μF)	1.00	1.25	1.40	1.60

Temperature coefficient

Temperature(°C)	65	85	105
Factor	1.70	1.40	1.00

## DIAGRAM OF DIMENSIONS



## ELECTRICAL CHARACTERISTICS

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

Working Voltage : 6.3 ~ 100V / 160 ~ 450V

Rate Capacitance Range : 0.1 ~ 15000μF / 0.1 ~ 15000μF

Capacitance Tolerance : -20 ~ +20%

DC Leakage Current (μA) : 0.01CV + 3 / 0.03CV+10

( Measurements shall be made after a2 minute charge at rated working voltage at 25°C )

Dissipation Factor : at 120 Hz, 25°C

WV (V) :	6.3	10	16	25	35	50	63 ~ 100	160 ~ 250	350 ~ 450
D.F (%) :	26	22	18	16	14	12	10	15	20

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

WV (V) :	6.3	10	16	25	35 ~ 100	160 ~ 250	350 ~ 450
Impedance : Z - 25°C / Z + 25°C	4	3	2	2	2	4	4
Z - 40°C / Z + 20°C	8	6	4	3	3	8	8

Load Life : 2000 Hours at 105°C Assured with Full Rated Maximum Ripple Current Applied

- (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

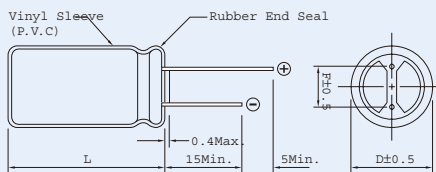
- (a) Capacitance Change : Within 20% of Initial Value
- (b) Dissipation Factor : Not Exceed 200% of Initial Requirement
- (c) Leakage Current : Not Exceed 200% of Initial Requirement



**RoHS**  
COMPLIANT

Dimensions : mm

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
6.0	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 & PERMISSIBLE RIPPLE CURRENT OF STANDARD PRODUCTS

CAP. (μF)	RATED VOLTAGE WV															
	6.3		10		16		25		35		50		63			
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple		
0.1											5 x 11	10				
0.22											5 x 11	15				
0.33											5 x 11	18				
0.47											5 x 11	7	5 x 11	8		
1.0											5 x 11	12	5 x 11	12		
2.2											5 x 11	18	5 x 11	20		
3.3											5 x 11	25	5 x 11	24		
4.7							5 x 11	85	5 x 11	92	5 x 11	30	5 x 11	34		
6.8											5 x 11	30	5 x 11	37		
10							5 x 11	92	5 x 11	44	5 x 11	50	5 x 11	55		
15									5 x 11	50	5 x 11	50	5 x 11	65		
22							5 x 11	60	5 x 11	65	5 x 11	75	6 x 11	90		
33					5 x 11	70	5 x 11	75	5 x 11	85	6.3 x 11	105				
47			5 x 11	75	5 x 11	85	5 x 11	90	5 x 11	104	6.3 x 11	125	8 x 11	155		
										6.3 x 11	115					
68			5 x 11	80	5 x 11	100	6.3 x 11	125	8 x 11	130	8 x 11	159	10 x 12	198		
100	5 x 11	100	5 x 11	110	6.3 x 11	135	6.3 x 11	145	8 x 11	190	8 x 11	210	10 x 12	260		
											6.3 x 11	210				
150	5 x 11	120	6.3 x 11	130	8 x 11	180	8 x 11	200	10 x 12	240	10 x 12	289	10 x 15	330		
220	6.3 x 11	165	6.3 x 11	180			10 x 12	250	10 x 12	315	10 x 15	400	10 x 19.5	465		
					8 x 11	235			8 x 11	315						
330	8 x 11	200	8 x 11	255	8 x 11	285	10 x 12	355	10 x 15	440	10 x 19	535	13 x 20	650		
470	8 x 11	280	8 x 11	305			10 x 15	470			13 x 20	730	13 x 25	800		
					10 x 12	395	10 x 12	470	13 x 20	580						
680	10 x 12	320	10 x 12	420	10 x 15	530	10 x 19.5	650	13 x 20	730	13 x 25	860	16 x 25	1000		
1000	10 x 12	470			10 x 19.5	700	13 x 20	855	13 x 25	995	16 x 25	1110	16 x 32	1200		
			10 x 15	570			10 x 19.5	821	13 x 20	1023						
1500	10 x 15	600	10 x 19.5	750	13 x 20	860	13 x 25	1020	16 x 25	1110	16 x 32	1350	16 x 36	1450		
2200	13 x 20	930			13 x 25	1150	16 x 25	1230	16 x 32	1450	18 x 36	1530				
			13 x 20	1010					16 x 25	1200	18 x 32	1340				
3300	13 x 20	1100	13 x 25	1220	16 x 25	1350	16 x 32	1450	18 x 36	1660						
4700	16 x 25	1320	16 x 25	1410			18 x 36	1690								
			13 x 25	1190	16 x 32	1560										
6800	16 x 25	1490	16 x 32	1610	18 x 36	1790										
10000	16 x 32	1830	18 x 36	1980												
15000	18 x 36	2280														

Note : \* I. D x L : mm

\* 2. mA rms at 105°C, 120Hz



## CASE SIZE & PERMISSIBLE RIPPLE CURRENT OF STANDARD PRODUCTS

CAP. (μF)	RATED VOLTAGE WV															
	100		160		200		250		350		400		450			
	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple	Size	Ripple		
0.47	5 x 11	10	5 x 11	12	5 x 11	12	5 x 11	12			8 x 11	1/8	6.3 x 11	11		
							6.3 x 11	18								
1.0	5 x 11	15	5 x 11	17	6.3 x 11	17	6.3 x 11	17			10 x 12	30	8 x 11	22		
													10 x 12	19		
			6.3 x 11	18												
2.2	5 x 11	22	6 x 11	25	6.3 x 11	25	8 x 11	29			10 x 12	35	10 x 12	29		
													10 x 15	29		
3.3	5 x 11	29	8 x 11	36	8 x 11	36	10 x 12	42			10 x 12	41	10 x 19.5	35		
											10 x 15	49				
4.7	5 x 11	37	8 x 11	43	10 x 12	50	10 x 12	50			8 x 11	57	10 x 15	50		
											10 x 15	57	13 x 20	50		
6.8	6.3 x 11	46	10 x 12	54	10 x 12	60	10 x 12	60			10 x 19.5	67				
10	6.3 x 11	65	10 x 12	70	10 x 15	80	10 x 19.5	80			10 x 19.5	97	13 x 25	75		
											13 x 20	97				
15	8 x 11	82	10 x 15	90	10 x 19.5	110	13 x 20	120								
22	8 x 11	115	10 x 19.5	130	10 x 19.5	135	13 x 25	155			13 x 25	170	16 x 32	110		
											16 x 25	170				
											16 x 25	170				
											16 x 32	175				
33	10 x 12	160	13 x 20	175			13 x 25	190					18 x 36	205		
						13 x 25	190				16 x 32	200				
											16 x 36	220				
	10 x 15	210	13 x 25	230			16 x 25	230			16 x 25	213	18 x 40	250		
47						13 x 25	220				16 x 32	245				
68	10 x 19.5	241	13 x 25	270	16 x 25	270	16 x 32	300			18 x 36	325				
100	13 x 20	385	16 x 25	330	16 x 32	335	18 x 36	340								
120																
150	13 x 25	414	16 x 32	435	16 x 36	450	18 x 40	460			18 x 40	654				
220			16 x 36	500			22 x 40	525								
	16 x 25	590			18 x 40	515										
330	16 x 25	720	18 x 40	850												
					22 x 40	920										
470	16 x 32	875	22 x 40	980	22 x 40	1016										
680	16 x 36	1200														

Note : \* I. D x L : mm

\* 2. mA rms at 105°C, 120Hz