SB [For Low Leakage Current]

105°C Single-Ended Lead Aluminum Electrolytic Capacitors

Miniature Size Aluminum Electrolytic Capacitors

ELECTRICAL CHARACTERISTICS

Operating Temperature : -40° ~ +105°C

Working Voltage : 6.3 ~ 100V

Rate Capacitance Range : 0.1 ~ 4700μF

Capacitance Tolerance : -20 ~ +20%

DC Leakage Current (μA) : I = 0.002CV (μA) or 0.4μA Whichever is greater.

(After 2 Minutes Application of DC Working Voltage at 25°C)

Equivalent Series Resistance (E.S.R., at 120Hz):

When measured at 25°C and 1 KHz E.S.R value shall not exceed the value given in the table on the next page.

WV (V) :	6.3	10	16	25	35 ~ 100
D.F (%) :	20	16	13	12	10

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

Load Life : 1000 Hours at 105°C Assured with Full Rated Maximum Ripple Current Applied

(a) Capacitance Change :Within 25% of Initial Value
(b) Dissipation Factor : Not Exceed 200% of Initial Requirement
(c) Leakage Current : Not Exceed the Initial Requirement

Shelf Life : 500 Hours, No Voltage Applied, at 105°C

(a) Capacitance Change :Within 25% of Initial Value
(b) Dissipation Factor : Not Exceed 200% of Initial Requirement
(c) Leakage Current : Not Exceed 200% of Initial Requirement

WV (V) :	6.3	10	16	25	35 ~ 100
Impedance : Z - 40°C / Z + 20°C	4	4	3	3	3

DESCRIPTION

Used in where low leakage current is essential as in coupling of pre-amplifies.

Very low leakage current remains even after prolonged storage.

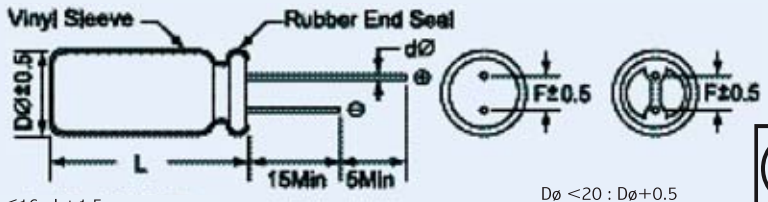
Multiplier for Ripple Current
Frequency coefficient

Frequency(Hz)	50	120	300	1K	10K	100K
6.3~25V	0.85	1.00	1.04	1.08	1.19	1.19
26~50V	0.80	1.00	1.30	1.40	1.43	1.43
50~100V	0.77	1.00	1.34	1.43	1.48	1.48

Temperature coefficient

Temperature(°C)	60	70	85	105
Factor	1.95	1.75	1.20	1.00

DIAGRAM OF DIMENSIONS



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

Dø <20 : Dø+0.5
Dø ≥20 : Dø+1

Pb-free
RoHS
COMPLIANT

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 Dø ≥ 6mm with Safety Vent at Can Bottom

CAP. (μF)	RATED VOLTAGE WV														
	6.3					10					16				
	SIZE	Ripple	Impedance	ESR		SIZE	Ripple	Impedance	ESR		SIZE	Ripple	Impedance	ESR	
0.1															
0.15															
0.22															
0.33															
0.47															
0.56															
0.68															
1.0															
1.5															
2.2															
3.3															
4.7															
6.8															
10											5x11	24	5.00	17.00	11.30
15											5x11	56	4.43	10.60	7.07
22											5x11	45		14.48	
	5 x11	21		16.89		5x11	33	4.01	7.83	5.22	6.3x11	70	3.70	7.23	4.82
33						5x11	48		9.65		5x11	54		8.04	
	5 x11	33		11.26		6.3x11	78	2.67	3.482	3.48	6.3x11	95	2.46	4.82	3.21
47						5x11	57		6.78		5x11	66		5.65	
	5 x11	45		7.91		6.3x11	106	1.87	2.44	2.44	8 x11	122	1.73	3.38	2.25
68	6.3x11	80	1.50	3.00	2.00	6.3x11	142	1.29	0.68	1.68	8 x11	168	1.20	2.34	1.56
100	5 x11	78		3.72		5 x11	81				6.3x11	105		2.65	
	6.3x11	126	0.88	1.72	1.15	8 x11	179	0.87	1.14	1.14	10x12	254	0.81	1.59	1.06
150	8 x11	196	0.59	1.15	0.77	10x12	280	0.58	0.76	0.76	10x15	416	0.53	1.06	0.70
220	6.3 x11	272		1.69		6.3 x11	138		1.45		8 x11	180		1.21	
	10 x12	272	0.40	0.78	0.52	10 x15	355	0.40	0.52	0.52	10x19.5	553	0.36	0.72	0.48
330	6.3 x11	388		1.13		8 x11	198		0.97		8 x11	216		0.80	
	10x15	388	0.26	0.52	0.34	10x19.5	480	0.26	0.34	0.34	13x20	732	0.24	0.48	0.32
470	8 x11	507		0.79		8 x11	234		0.68		10 x12	282		0.56	
	10x19.5	507	0.18	0.36	0.24	13x20	640	0.18	0.24	0.24	13x20	1040	0.16	0.33	0.22
680	13x25	627	0.12	0.25	0.16	13x20	848	0.12	0.16	0.16	13x25	1280	0.11	0.23	0.15
820	13x25	770	0.11	0.21	0.14						16x25	1450	0.09	0.18	0.12
1000	10x12	896		0.37	0.11						10x19.5	474		0.27	
	13x25	896	0.08	0.17	0.11	10 x15	378	0.08	0.32	0.11	16x25	1700	0.06	0.14	0.10
1500	13x25	1204	0.05	0.11	0.07						16x32	1750	0.06	0.10	0.06
2200	13x20			0.18	0.06	13 x20	660		0.16						
	16x25	1513	0.04	0.09	0.06	16x32	1680	0.04	0.06	0.06	18x36	1900	0.05	0.08	0.06
3300	13x20			0.13	0.04										
	16x36	1902	0.04	0.06	0.04	16x36	2155	0.03	0.04	0.04	18x40	2250	0.04	0.06	0.04
4700	18x36	2272	0.02	0.05	0.03	18x40	2560	0.02	0.03	0.03					

Note : * 1. D x L : mm

* 2. Ripple Current mA rms at 105°C, 100Hz

* 3. Impedance : (ohm) 25°C/10KHz

* 4. ESR : (ohm) 25°C/120Hz and 1KHz

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

CAP. (μF)	RATED VOLTAGE WV														
	25					35					50				
	SIZE	Ripple 120Hz	Impedance 10K Hz	ESR 120Hz	ESR 1K Hz	SIZE	Ripple 120Hz	Impedance 10K Hz	ESR 120Hz	ESR 1K Hz	SIZE	Ripple 120Hz	Impedance 10K Hz	ESR 120Hz	ESR 1K Hz
0.1											5x11	1	323.00	510.0	215.0
0.15											5x11	4	270.00	355.0	126.0
0.22											5x11	2	235.00	223.0	80.00
0.33											5x11	4	175.00	185.0	65.20
0.47											5x11	5	90.00	96.00	45.70
0.56											5x11	5	40.00	50.00	33.00
0.68											5x11	9	38.50	47.00	31.20
1.0											5x11	10	32.70	43.40	25.30
1.5											5x11	24	28.50	35.20	21.70
2.2											5x11	14	22.40	32.50	17.50
3.3											5x11	21	17.40	24.30	13.20
4.7											5x11	45		33.88	
	5x11	18	8.00	20.00	13.00	5x11	21	14.40	39.53	18.80	6.3x11	45	12.50	20.70	9.20
6.8	5x11	42	7.60	19.50	11.00	5x11	45	10.00	19.50	13.00	6.3x11	55	10.00	19.50	9.00
10	5x11	30		21.23		5x11	33		18.58		5x11	39		15.92	
	6.3x11	63	6.80	13.20	8.84	6.3x11	67	6.80	13.20	8.84	8x11	82	6.80	13.20	8.84
15	6.3x11	67	4.53	8.84	5.89	8x11	75	4.53	8.80	5.89	8x11	97	4.56	8.84	5.89
22	5x11	48		9.65		5x11	97		8.44		6.3x11	57		7.24	
	8x11	84	3.08	6.02	4.01	8x11	97	3.08	6.02	4.01	10x12	127	3.08	6.02	4.01
33	5x11	57		6.43		5x11	63		5.63		6.3x11	75		4.83	
	8x11	102	2.05	4.01	2.67	10x12	139	2.05	4.01	2.67	10x15	156	2.05	4.01	2.67
47	5x11	69		4.52		6.3x11	84		3.95		6.3x11	90		3.39	
	10x12	141	1.44	2.82	1.88	10x12	166	1.44	2.82	1.88	10x15	217	1.44	2.82	1.88
68	10x12	190	1.00	1.95	1.30	10x15	238	1.00	1.95	1.30	10x19.5	300	1.00	1.95	1.30
100	6.3x11	111		2.12		8 x11	138		1.86		10 x12	250		1.6	
	10x15	277	0.67	1.32	0.88	10x19.5	310	0.67	1.32	0.88	13x20	390	0.67	1.32	0.88
150	10x19.5	455	0.44	0.88	0.58	13x20	491	0.44	0.88	0.58	13x25	569	0.44	0.88	0.58
220	8 x11										10 x15			0.72	
	13x20	590	0.30	0.60	0.40	10x12	222	0.30	0.84	0.40	16x25	910	0.30	0.60	0.40
330	10 x12	252		0.64							10x19.5	398		0.48	
	13x25	754	0.20	0.40	0.26	10x15	294	0.20	0.56	0.26	16x32	986	0.20	0.40	0.26
470	10 x15	324		0.45							13 x25	825		0.339	
	16x25	1110	0.13	0.28	0.18	10x19.5	384	0.15	0.4	0.18	16x36	1249	0.13	0.28	0.18
680	16x32	1385	0.09	0.19	0.12	16x32	1462	0.09	0.19	0.12	16x36	1870	0.09	0.19	0.12
820	16x32	1540	0.08	0.15	0.10	16x36	1630	0.08	0.15	0.10	16x36	1950	0.08	0.15	0.10
1000	13x20	570		0.21											
	16x36	1710	0.06	0.13	0.08	18x36	1723	0.06	0.13	0.08	18x40	2070	0.06	0.13	0.08
1500	16x36	1779	0.03	0.08	0.05	18x4	2006	0.03	0.08	0.05					
2200	18x40	2174	0.03	0.06	0.04										
3300															
4700															

Note : * 1. D x L : mm

* 2. Ripple Current mA rms at 105°C, 100Hz

* 3. Impedance : (ohm) 25°C/10KHz

* 4. ESR : (ohm) 25°C/120Hz and 1KHz

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

CAP. (µF)	RATED VOLTAGE WV								
	SIZE	63 Ripple 120Hz	ESR 120Hz	SIZE	80 Ripple 120Hz	ESR 120Hz	SIZE	100 Ripple 120Hz	ESR 120Hz
0.1	5 x 11	1	484	5 x 11	1	409	5 x 11	1	1061
0.15	5 x 11	4	337	5 x 11	4	319			
0.22	5 x 11	4	209	5 x 11	4	198	5 x 11	2	187
0.33	5 x 11	6	175	5 x 11	6	166	5 x 11	4	157
0.47	5 x 11	7	91.2				5 x 11	5	81.6
0.56	5 x 11	7	47.5	5 x 11	7	45	5 x 11	7	42.5
0.68	5 x 11	9	45.1	5 x 11	9	42.7	5 x 11	9	40.3
1.0	5 x 11	18	41.2	5 x 11	18	39.0	5 x 11	10	36.8
1.5	5 x 11	24	33.4	5 x 11	24	31.6	5 x 11	24	29.9
2.2							5 x 11	18	48.25
	5 x 11	30	30.8	5 x 11	30	29.2	6.3 x 11	30	27.6
3.3							5 x 11	24	32.17
	5 x 11	36	23	6.3 x 11	36	21.9	8 x 11	36	20.6
4.7	5 x 11	27	28.23				5 x 11	27	22.59
	6.3 x 11	45	19.6	6.3 x 11	45	18.6	8 x 11	60	17.5
6.8	6.3 x 11	55	18.5	8 x 11	60	17.5	10 x 12	67	16.5
10	5 x 11	42	13.27				6.3 x 11	45	10.62
	8 x 11	82	12.5	10 x 12	90	11.9	10 x 15	94	11.2
15	10 x 12	103	8.39	10 x 15	112	7.59	10 x 19.5	117	7.51
22	6.3 x 11	69	6.03						
	10 x 15	148	5.17	10 x 15	165	5.41	8 x 11	78	4.83
33	8 x 11	84	4.02						
	10 x 15	210	3.3	10 x 19.5	217	3.6	10 x 12	102	3.22
47	8 x 11	114	2.82				10 x 15	138	2.26
	10 x 19.5	240	2.67	10 x 19.5	276	2.53	13 x 25	285	2.39
68	10 x 19.5	328	1.85	13 x 20	631	1.75	13 x 25	375	1.65
100	10 x 12	180	1.33				13 x 20	240	1.06
	13 x 25	420	1.25	13 x 25	447	1.18	16 x 25	456	1.12
150	13 x 25	618	0.83	16 x 25	663	0.79	16 x 32	707	0.74
220	13 x 20	640	0.603						
	16 x 32	930	0.57	16 x 32	970	0.54	18 x 36	1010	0.51
330	13 x 20	750	2.533						
	16 x 36	1088	0.38	16 x 36	1198	0.36	18 x 40	1377	0.34
470	18 x 36	1385	0.26	18 x 36	1509	0.25			
680	18 x 36	1870	0.18						
820									
1000									
1500									
2200									
3300									
4700									