Large Can Aluminum Electrolytic Capacitors

Series

CLR

FEATURESS

1. Highly reliable capacitors that withstand low ESR .
2. Tow or three dimensions with same ratings.
3. Aluminum case designed explosion-proof vent.
4. Best for switching power supplies

SPECIFICATIONS

Item	Performance Characteristics
Operating Temperature Range	-40 to +85℃
Rated Working voltage Range	10 to 450V DC
Nominal Capacitance Range	47~47000(uF)
Capacitance Tolerance	±20%（120Hz，+20℃）
Leakage Current	$I \leqslant 3\sqrt{CV}$ after 5minutes application of rated working voltage at +20℃

Dissipation Factor tan δ (120Hz+20℃)

Working voltage(V)	10~16	25	35～50	63	80	100	160~200	250	315~450
tan δ (max.)	0.50	0.30	0.25	0.20	0.15	0.15	0.15	0.15	0.25

Low Temperature characteristics

Impedance ratio max. at 120Hz

Working voltage(V)	10	16	25	35	50	63	80	100	160	200	250	400	450
Z-25℃/Z+20℃	6	6	6	6	4	3	3	3	8	8	8	8	8
Z-40℃/Z+20℃	15	15	15	10	8	6	6	6	8	8	8	8	8

High temperature Loading

Test conditions
After 2000 hours application of rated voltage at +85℃the capacitor shall meet the following limits
Post test requirements at +20℃
Leakage current : ≤ Initial specified value
Capacitance change : ≤±20% of initial measured value
tan δ : ≤200% of initial specified value

Shelf life

At 85℃ no voltage applied after 1000hours the capacitors shall meet the following limite
Post test requirements at+20℃
Leakage current :≤200 of Initial specified value
Capacitance change :≤±15% of initial measured value
Tan δ :≤150% of initial specified value

Others	JIS C-5141 JIS C-5102

Ripple current MULTIPLIERS

1)Maximum rims ripple current at 120Hz,85℃ are given in the table

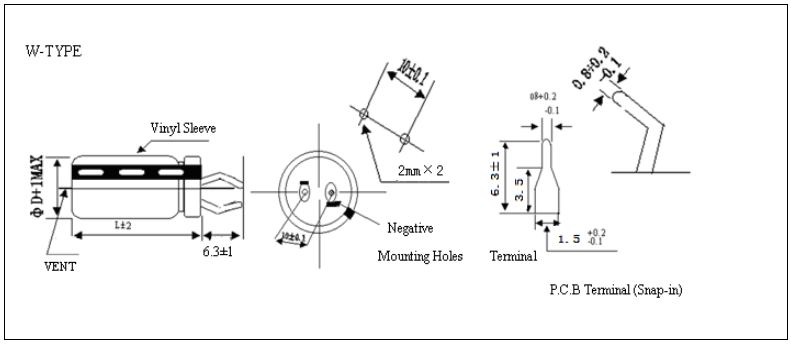
2)Temperature multiplying factor: Where capacitors are operated at
temperature other than 85℃,the maximum ripple current must be multiplied by the figure shown in the table below.

Temperature coefficient

Temperature (℃)	20~45	65	75	85
Factor	1	0.91	0.86	0.73

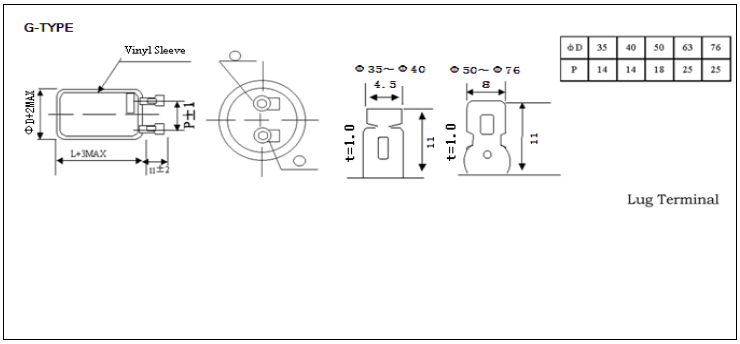
3) Frequency multiplying factor:
If capacitor are used to filter circuits at a frequency other than120 Hz, the maximum ripple current must be multiplied by the figure shown in the table below.

Frequency coefficient



Large Can Aluminum Electrolytic Capacitors

Frequency(Hz)	60	120	1k	10~50k
10~100V	0.9	1.0	1.15	1.25
160~250V	0.8	1.0	1.25	1.47
350~450V	0.8	1.0	1.30	1.47



DIMENSIONS

ΦD×L(mm)

WV(SV) / Cap.(uF) Code / ϕD		10(13)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
5600	568	22×25	1.11	125									
6800	688	22×25	1.31	125	25×25	1.10	88						
8200	828	22×25	1.57	125	25×25	1.57	88						
10000	109	22×30	1.60	97	25×25	1.60	88	30×25	1.61	75			
12000	129	22×35	1.81	81	25×30	1.801	77	30×25	1.80	75			
15000	159	22×35	2.10	81	25×30	2.10	69	30×25	2.10	75			
18000	189	22×35	2.21	81	25×30	2.21	68	30×30	2.21	66			
22000	229	22×40	2.76	69	25×35	2.76	63	30×30	2.76	49	35×25	2.76	69
27000	279				25×50	3.05	42	30×40	3.05	31	35×30	3.05	47
33000	339				25×50	3.41	42	30×40	3.01	31	35×35	3.41	37
39000	399							30×50	3.61	28	35×40	3.61	32
47000	479							30×50	4.61	28	35×50	4.61	26

WV(SV) / Cap.(uF) Code / ϕD		16(20)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
5600	568	22×25	1.41	126									
6800	688	22×30	1.61	98	25×25	1.61	89						
8200	828	22×35	1.80	82	25×30	1.80	74						
10000	109	22×40	2.10	68	25×30	2.10	68	30×25	2.10	75			
12000	129	22×40	2.41	68	25×35	2.41	53	30×25	2.41	75			
15000	159	22×50	2.70	53	25×40	2.70	52	30×30	2.70	48			
18000	189				25×50	3.05	42	30×35	3.05	36	35×30	3.05	47
22000	229				25×50	3.40	42	30×40	3.40	30	35×45	3.40	37
27000	279							30×50	4.03	28	35×40	4.03	32
33000	339							30×50	4.33	28	35×40	4.33	32
39000	399										35×50	4.94	26

WV(SV) / Cap.(uF) Code / ϕD		25(32)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
3900	398	22×25	1.30	125									
4700	478	22×30	1.50	99	25×25	1.50	89						
5600	568	22×35	1.60	83	25×25	1.60	88						
6800	688	22×40	1.87	68	25×30	1.87	68	30×25	1.87	76			
8200	828	22×45	2.20	63	25×35	2.20	63	30×30	2.20	48	35×25	2.20	68
10000	109	22×50	2.35	42	25×40	2.35	53	30×35	2.35	37	35×30	2.35	60
12000	129				25×50	2.72	42	30×35	2.72	37	35×30	2.72	47
15000	159							30×40	3.16	30	35×35	3.16	37
18000	189							30×50	3.60	28	35×40	3.60	32
22000	229										35×45	3.80	30
27000	279										35×50	4.61	26

Large Can Aluminum Electrolytic Capacitors

WV(SV) / Cap.(uF) Code / φD		35(44)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
2200	228	22×25	1.11	125									
2700	278	22×25	1.30	125									
3300	338	22×30	1.41	98	25×25	1.41	88						
3900	398	22×35	1.54	81	25×30	1.54	68						
4700	478	22×40	1.76	68	25×30	1.76	68	30×25	1.76	75			
5600	568	22×45	1.94	62	25×35	1.94	62	30×30	1.94	48	35×25	1.94	68
6800	688	22×50	2.21	52	25×40	2.21	52	30×35	2.21	36	35×30	2.21	60
8200	828				25×50	2.51	40	30×35	2.51	35	35×30	2.51	47
10000	109							30×40	2.80	30	35×35	2.80	37
12000	129							30×50	3.30	28	35×40	3.30	30
15000	159										35×50	4.26	25

Allowable Ripple (A rms)at 85℃120Hz
Max Impedance (Z mΩ)at 20℃ 30KHZ

DIMENSIONS

ΦD×L(mm)

WV(SV) / Cap.(uF) Code / φD		50(63)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
1500	158	22×25	1.01	125									
1800	188	22×30	1.11	99	25×25	1.11	88						
2200	228	22×35	1.30	83	25×25	1.30	88						
2700	278	22×40	1.46	68	25×30	1.46	68	30×25	1.46	75			
3300	338	22×40	1.70	68	25×35	1.70	62	30×30	1.70	48			
3900	398	22×50	1.90	52	25×40	1.90	52	30×35	1.90	36			
4700	478				25×40	2.11	51	30×35	2.11	35	35×30	2.11	48
5600	568				25×50	2.36	42	30×40	2.36	30	35×35	2.36	38
6800	688							30×50	2.70	28	35×40	2.70	32
8200	828							30×50	3.15	28	35×40	3.15	32
10000	109										35×50	3.51	25

WV(SV) / Cap.(uF) Code / φD		63(79)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
1000	108	22×25	1.01	126									
1200	128	22×25	1.15	126	25×25	1.15	88						
1500	158	22×35	1.31	83	25×30	1.31	68						
1800	188	22×41	1.45	68	25×30	1.45	68	30×25	1.45	75			
2200	228	22×45	1.65	63	25×35	1.65	63	30×30	1.65	48	35×25	1.65	68
2700	278	22×50	1.91	54	25×40	1.91	52	30×35	1.91	35	35×30	1.91	60
3300	338				25×50	2.16	42	30×35	2.16	35	35×30	2.16	48
3900	398							30×40	2.40	30	35×35	2.40	38
4700	478							30×50	2.70	28	35×40	2.70	32
5600	568							30×50	3.10	28	35×40	3.10	32
6800	688										35×50	3.50	25

WV(SV) / Cap.(uF) Code / φD		80(100)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
680	687	22×25	0.96	148									
820	827	22×30	1.01	118									
1000	108	22×35	1.21	98	25×25	1.21	116						
1200	128	22×40	1.40	78	25×30	1.40	81						
1500	158	22×45	1.60	48	25×35	1.60	66	30×25	1.60	82			
1800	188	22×50	1.81	58	25×40	1.81	62	30×30	1.81	58	35×25	1.81	68
2200	228				25×50	2.05	44	30×35	2.05	52	35×30	2.05	48
2700	278							30×40	2.36	42	35×36	2.35	42
3300	338							30×50	2.70	28	35×40	2.70	28

Large Can Aluminum Electrolytic Capacitors

3900	398										35×45	2.80	25
4700	478										35×50	3.40	22

WV(SV) / Cap.(uF) Code / ϕD		100(125)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
560	567	22×30	0.96	118	25×25	0.95	116						
680	687	22×35	1.11	98	25×30	1.10	80						
820	827	22×40	1.40	78	25×30	1.40	80	30×25	1.40	82			
1000	108	22×45	1.41	76	25×35	1.41	66	30×30	1.41	58	35×25	1.41	68
1200	128	22×50	1.60	58	25×40	1.60	62	30×35	1.60	52	35×30	1.60	66
1500	158				25×50	1.86	44	30×40	1.86	42	35×30	1.86	48
1800	188							30×45	2.06	38	35×35	2.06	42
2200	228							30×50	2.40	28	35×40	2.40	28
2700	278										35×50	2.80	23

Allowable Ripple (A rms)at 85℃120Hz
Max Impedance (Z mΩ)at 20℃ 30KHZ

DIMENSIONS

ΦD×L(mm)

WV(SV) / Cap.(uF) Code / ϕD		160(200)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
270	277	22×30	0.61	566									
330	337	22×35	0.80	456	25×25	0.80	526						
390	397	22×35	0.86	456	25×30	0.86	416						
470	477	22×45	1.10	380	25×35	1.10	366	30×30	1.10	316			
560	567	22×45	1.15	380	25×35	1.15	300	30×30	1.15	316			
680	687				25×45	1.30	280	30×35	1.30	262			
820	827				25×45	1.44	280	30×40	1.44	346	35×30	1.44	256
1000	108							30×45	1.70	300	35×35	1.70	206
1200	128										35×45	1.95	166
1500	158										35×50	2.40	146

WV(SV) / Cap.(uF) Code / ϕD		200(250)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
180	187	22×25	0.58	640									
220	227	22×30	0.66	560									
270	277	22×35	0.78	450	25×25	0.78	520						
330	337	22×40	0.90	400	25×30	0.90	410						
390	397	22×40	0.98	400	25×35	0.98	400	30×25	0.98	400			
470	477	22×40	1.16	400	25×35	1.16	400	30×25	1.16	400			
560	567	22×45	1.30	340	25×35	1.30	360	30×25	1.30	400			
680	687	22×50	1.46	310	25×40	1.46	310	30×30	1.46	310	35×25	1.46	340
820	827				25×45	1.60	300	30×35	1.60	360	35×35	1.60	280
1000	108				25×55	1.90	230	30×45	1.90	300	35×35	1.90	200
1200	128							30×50	2.10	172	35×40	2.10	172

WV(SV) / Cap.(uF) Code / ϕD		250(300)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
150	157	22×25	0.51	640									
180	187	22×30	0.65	560	25×25	0.65	520						
220	227	22×35	0.76	450	25×30	0.76	410						
270	277	22×40	0.85	400	25×30	0.85	410	30×25	0.85	400			
330	337	22×45	1.00	380	25×35	1.00	360	30×30	1.00	310	35×25	1.00	340
390	397	22×50	1.11	310	25×40	1.11	300	30×35	1.11	260			
470	477				25×50	1.20	230	30×35	1.20	260	35×30	1.20	250
560	567							30×40	1.35	245	35×35	1.35	205
680	687							30×50	1.55	175	35×40	1.55	175

Large Can Aluminum Electrolytic Capacitors

820	827							30×55	1.70	150			
1000	108										35×50	2.00	145

WV(SV) / Cap.(uF) Code / φD		350(400)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
68	686	22×25	0.35	790									
82	826	22×30	0.40	700									
100	107	22×35	0.50	560	25×25	0.50	650						
120	127	22×40	0.55	500	25×30	0.55	520	30×25	0.55	490			
150	157	22×45	0.64	460	25×35	0.64	430	30×30	0.64	390			
180	187	22×50	0.70	380	25×40	0.70	370	30×30	0.70	390			
220	227				25×50	0.82	300	30×35	0.82	320	35×30	0.82	310
270	277							30×40	0.90	280	35×35	0.90	250
330	337							30×50	1.10	210	35×40	1.10	220
390	397										35×45	1.20	210
470	477										35×50	1.30	170

Allowable Ripple (A rms)at 85℃120Hz
Max Impedance (Z mΩ)at 20℃ 30KHZ

DIMENSIONS

ΦD×L(mm)

WV(SV) / Cap.(uF) Code / φD		400(450)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
56	566	22×25	0.33	795									
68	686	22×30	0.41	700	25×25	0.41	655						
82	826	22×35	0.46	560	25×30	0.46	522						
100	107	22×40	0.50	500	25×30	0.50	522	30×25	0.50	490			
120	127	22×40	0.55	500	25×35	0.55	430	30×30	0.55	390			
150	157	22×50	0.65	380	25×40	0.65	370	30×35	0.65	320			
180	187				25×45	0.75	350	30×35	0.75	320	35×30	0.75	310
220	227				25×50	0.85	300	30×40	0.85	280	35×35	0.85	250
270	277							30×50	1.05	210	35×40	1.05	220
330	337										35×45	1.10	210
390	397										35×50	1.20	175

WV(SV) / Cap.(uF) Code / φD		450(500)											
		22			25			30			35		
		Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z	Size	Ripple	Z
47	476	22×30	0.45	845									
68	686	22×40	0.58	582	25×30	0.58	582						
100	107	22×45	0.71	391	25×35	0.71	400						
120	127	22×50	0.80	332	25×40	0.80	342						
150	157				25×45	0.95	271	30×35	0.96	262			
180	187							30×40	1.11	220			
220	227							30×45	1.31	182	35×40	1.31	185
270	277							30×50	1.41	150	35×45	1.51	152
330	337										35×50	1.72	122
390	397										35×55	1.80	105

Allowable Ripple (A rms)at 85℃120Hz
Max Impedance (Z mΩ)at 20℃ 30KHZ