Large Can Aluminum Electrolytic Capacitors

Series

CHL

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 +105℃
Rated Working voltage Range	10 to 500V 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	315~500
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	160～500
Z-25℃/Z+20℃	6	6	6	6	4	3	3	3	8
Z-40℃/Z+20℃	15	15	15	10	8	6	6	6	8

High temperature Loading

Test conditions
After 3000 hours application of rated voltage at +105℃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 105℃ 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

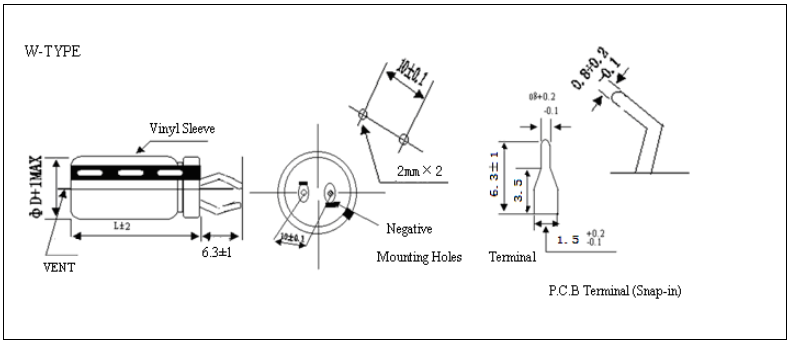
1)Maximum rims ripple current at 120Hz,105℃ are given in the table

2)Temperature multiplying factor: Where capacitors are operated at temperature other than 105℃,the maximum ripple current must be multiplied by the figure shown in the table below.

Temperature coefficient

Temperature (℃)	20~45	65	75	105
Factor	1	0.91	0.73	0.36

3) Frequency multiplying factor:



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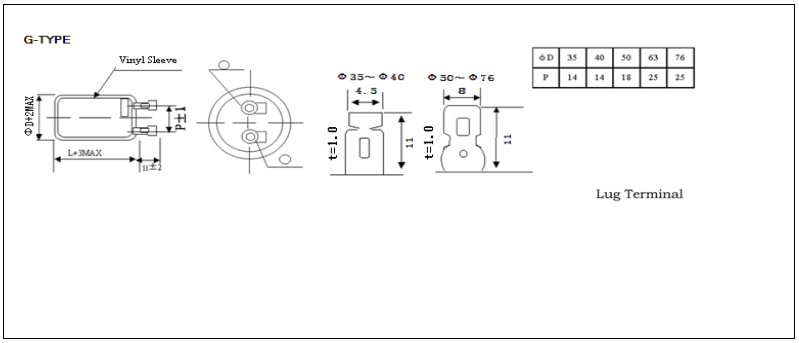
If capacitor are used to filter circuits at a frequency other than120 Hz, the maximum ripple current must be multiplied by the figure shown in the table below.

Frequency coefficient

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
350~500V	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

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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 105℃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

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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 105℃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
820	827							30×55	1.70	150			

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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 105℃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 105℃120Hz
Max Impedance (Z mΩ)at 20℃ 30KHZ