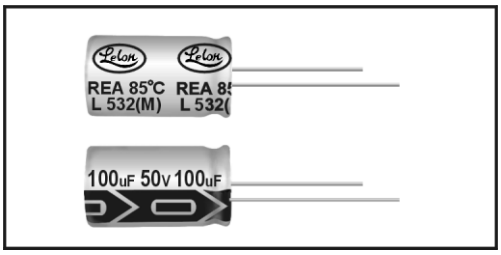
Aluminum Electrolytic Capacitors

CE04 Type

Features

- 85°C, 2000 ~ 3000 hours assured
- Standard series for general purpose



SPECIFICATIONS

Items	Performance
Operating Temperature Range	-40℃ ~ +85℃
Capacitance Tolerance	±20% (at 120Hz, 20℃)

Leakage Current (at 20℃)

Rated voltage	≦100V	>100V	
Time	after 2 minutes	after 5 minutes	
Leakage Current	I = 0.01CV or 3 (μA) whichever is greater	CV≦1000 I=0.03CV+15(μA)	CV>1000 I=0.02CV+25(μA)

Where, C= rated capacitance in μF. V = rated DC working voltage in V.

Dissipation Factor (Tan δ at 120 Hz, 20℃)

Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
Tan δ (max)	0.23	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.12	0.14	0.17	0.20	0.25	0.25

When the capacitance exceeds 1000 μF, 0.02 shall be added every 1000 μF increase.

Low Temperature Characteristics (at 120Hz)

Impedance ratio shall not exceed the values given in the table below.

Rated Voltage			6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
Impedance Ratio	Z(-25℃) /Z(+20℃)	φD<16	6	4	3	3	2	2	2	2	3	6	8	12	14	16
		φD≧16	8	6	4	4	3	3	3	3						
	Z(-40℃) /Z(+20℃)	φD<16	10	8	6	6	4	3	3	3	4	8	10	16	18	20
		φD≧16	18	16	12	10	8	8	6	6						

Load Life Test

Test Time	2000 hrs (3000 hrs for φD≧10mm)
Capacitance Change	With in ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

* The above specifications shall be satisfied when the capacitors are restored to 20℃after the rated voltage applied with rated ripple current for 2000/3000 hrs at 85℃.

Shelf Life Test

Test Time	1000 hrs
Capacitance Change	With in ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

* The above specifications shall be satisfied when the capacitors are restored to 20℃after exposing them for 1000 hrs at 85℃ without voltage applied. The rated voltage shall be applied to the capacitors before the measurements for 160 ~ 450V(Refer to JIS C 5102).

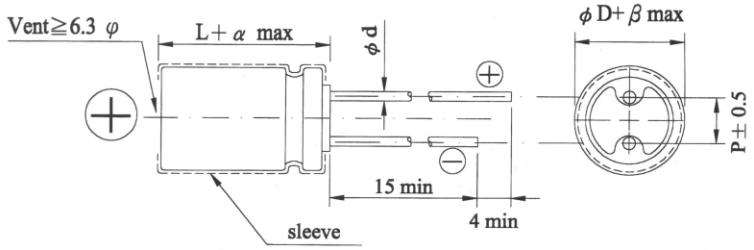
Ripple Current & Frequency Multipliers

Freq. (Hz) / Cap. (μF)	60 (50)	120	500	1K	10K up
Under 100	0.70	1.00	1.30	1.40	1.50
100<C≦1000	0.75	1.00	1.20	1.30	1.35
1000 up above	0.80	1.00	1.10	1.12	1.15

Other Standards	JIS C 5101-4

CE04 Type

DIAGRAM OF DIMENSIONS



Unit: mm

LEAD SPACING AND DIAMETER

φD	5	6.3	8	10	12.5	16	18	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10	12.5
φd	0.5		0.6			0.8		1.0	
α	1.0			1.5				2.0	
β	0.5								

Dimension: φD × L(mm)

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Ripple Current: mA/rms at 120 Hz, 85°C

V. DC / Contents / μF		6.3V (0J)				10V (1A)				16V (1C)				25V (1E)			
		φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA
4.7	4R7													5 × 11	31		
10	100									5 × 11	49			5 × 11	54		
22	220					5 × 11	70			5 × 11	75			5 × 11	80		
33	330	5 × 11	72			5 × 11	84			5 × 11	90			5 × 11	97		
47	470	5 × 11	90			5 × 11	100			5 × 11	110			5 × 11	115		
100	101	5 × 11	130			5 × 11	145			6.3 × 11	180	5 × 11	160	6.3 × 11	190		
220	221	6.3 × 11	230	5 × 11	200	6.3 × 11	250	5 × 11	220	8 × 11.5	300	6.3 × 11	260	8 × 11.5	320		
330	331	8 × 11.5	290	6.3 × 11	270	8 × 11.5	350	6.3 × 11	290	8 × 11.5	370			10 × 12.5	470	8 × 11.5	440
470	471	8 × 11.5	380	6.3 × 11	320	8 × 11.5	415	6.3 × 11	350	10 × 12.5	520	8 × 11.5	440	10 × 16	620	10 × 12.5	545
1000	102	8 × 11.5	540			10 × 12.5	650			10 × 16	785			12.5 × 20	1090	10 × 20	955
2200	222	10 × 20	1000			12.5 × 20	1240	10 × 20	1070	12.5 × 20	1295			16 × 25	1660	12.5 × 25	1540
3300	332	12.5 × 20	1380	10 × 20	1185	12.5 × 20	1420			16 × 25	1840	12.5 × 25	1655	16 × 31.5	2070	16 × 25	1975
4700	472	16 × 25	1880	12.5 × 20	1545	16 × 25	1980	12.5 × 25	1780	16 × 31.5	2260	16 × 25	2090	18 × 35.5	2520	16 × 31.5	2420
6800	682	16 × 25	2120	12.5 × 25	1880	16 × 25	2220			16 × 31.5	2520			18 × 35.5	2880		
10000	103	16 × 31.5	2500	16 × 25	2330	18 × 35.5	2880	16 × 35.5	2670	18 × 40	3080	18 × 35.5	2920	22 × 40	3440	18 × 40	3080
22000	223	22 × 40	3700	18 × 40	3320	22 × 40	3790	18 × 40	3370	22 × 40	3900						

V. DC / Contents / μF		35V (1V)				50V (1H)				63V (1J)				100V (2A)			
		φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA
0.1	0R1					5 × 11	1.5			5 × 11	3			5 × 11	3		
0.22	R22					5 × 11	3.5			5 × 11	4.5			5 × 11	5.8		
0.33	R33					5 × 11	5			5 × 11	7.5			5 × 11	8.8		
0.47	R47					5 × 11	7			5 × 11	9.5			5 × 11	12		
1	010					5 × 11	15			5 × 11	17			5 × 11	22		
2.2	2R2					5 × 11	29			5 × 11	28			5 × 11	33		
3.3	3R3					5 × 11	35			5 × 11	34			5 × 11	40		
4.7	4R7	5 × 11	40			5 × 11	42			5 × 11	45			5 × 11	48		
10	100	5 × 11	58			5 × 11	65			5 × 11	70			6.3 × 11	80		
22	220	5 × 11	87			5 × 11	95			6.3 × 11	115			8 × 11.5	135	6.3 × 11	115
33	330	6.3 × 11	115	5 × 11	108	6.3 × 11	136	5 × 11	125	8 × 11.5	150	6.3 × 11	140	10 × 16	195	8 × 11.5	145
47	470	6.3 × 11	145	5 × 11	130	6.3 × 11	165			8 × 11.5	190	6.3 × 11	170	10 × 16	255	10 × 12.5	235
100	101	8 × 11.5	240	6.3 × 11	210	8 × 11.5	260			10 × 12.5	320			10 × 20	370		
220	221	10 × 12.5	420	8 × 11.5	385	10 × 16	490	10 × 12.5	455	10 × 20	565	10 × 16	490	12.5 × 25	675	12.5 × 20	640
330	331	10 × 16	570	10 × 12.5	490	12.5 × 20	635	10 × 16	585	12.5 × 20	765	10 × 20	710	16 × 31.5	972	16 × 25	825
470	471	10 × 16	740			12.5 × 20	860	10 × 20	755	16 × 25	1050	12.5 × 20	900	18 × 35.5	1135	16 × 31.5	1070
1000	102	12.5 × 20	1145			16 × 25	1530	12.5 × 25	1340	16 × 31.5	1700	16 × 25	1560	22 × 40	2600	18 × 40	2410
2200	222	16 × 31.5	1890	16 × 25	1785	18 × 40	2231	16 × 35.5	2075	18 × 40	2385						
3300	332	18 × 35.5	2430	16 × 35.5	2275	22 × 40	2785	18 × 35.5	2500	22 × 40	3000						
4700	472	18 × 40	2890	18 × 35.5	2700	25 × 40	3300	22 × 40	3155	25 × 40	3560						

Case size in mark of "*" is smaller.

Aluminum Electrolytic Capacitors

CE04 Type

Dimension: φD × L(mm)

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Ripple Current: mA/rms at 120 Hz, 85°C

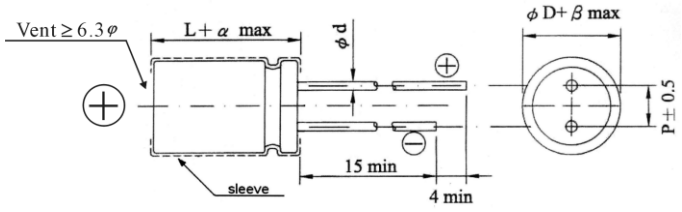
μF \ V. DC	Contents	160V (2C)				200V (2D)				250V (2E)			
		φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA
0.47	R47	6.3 × 11	15	5 × 11	13	6.3 × 11	16	5 × 11	14	8 × 11.5	21		
1	010	6.3 × 11	24	5 × 11	20	6.3 × 11	25	5 × 11	21	8 × 11.5	32		
2.2	2R2	6.3 × 11	34	5 × 11	29	8 × 11.5	44	6.3 × 11	37	8 × 11.5	49	6.3 × 11	42
3.3	3R3	8 × 11.5	50	6.3 × 11	43	8 × 11.5	54	6.3 × 11	46	10 × 12.5	70	8 × 11.5	60
4.7	4R7	8 × 11.5	60	6.3 × 11	51	10 × 12.5	76	8 × 11.5	64	10 × 16	93	8 × 11.5	72
10	100	10 × 16	115	10 × 12.5	104	10 × 20	138	10 × 12.5	112	10 × 20	150	10 × 16	138
22	220	12.5 × 20	216	10 × 20	189	12.5 × 20	234	10 × 20	204	12.5 × 20	255	10 × 20	220
33	330	12.5 × 20	270	10 × 20	228	12.5 × 25	318	12.5 × 20	288	12.5 × 25	348	12.5 × 20	310
47	470	12.5 × 25	354	12.5 × 20	318	16 × 25	426	12.5 × 25	378	16 × 25	468	12.5 × 25	420
100	101	16 × 25	582	12.5 × 25	510	16 × 35.5	678	16 × 25	582	18 × 40	822	16 × 35.5	732
220	221	18 × 35.5	900	16 × 31.5	792	18 × 40	1062	18 × 35.5	1002	22 × 40	1134		
330	331	18 × 40	1010	18 × 35.5	984								

μF \ V. DC	Contents	350V (2V)				400V (2G)				450V (2W)			
		φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA	φD×L	mA	* φD×L	mA
0.47	R47	8 × 11.5	21	6.3 × 11	18	10 × 12.5	26	8 × 11.5	21	10 × 12.5	26	8 × 11.5	21
1	010	8 × 11.5	32	6.3 × 11	27	10 × 12.5	38	8 × 11.5	32	10 × 12.5	38	8 × 11.5	32
2.2	2R2	10 × 16	63	8 × 11.5	49	10 × 16	63	10 × 12.5	57	10 × 16	63	10 × 12.5	57
3.3	3R3	10 × 16	78	10 × 12.5	70	10 × 20	86	10 × 16	78	10 × 20	86	10 × 16	78
4.7	4R7	10 × 20	103	10 × 16	93	12.5 × 20	120	10 × 20	103	12.5 × 20	120	10 × 20	103
10	100	12.5 × 20	174	10 × 20	150	12.5 × 25	192	12.5 × 20	174	12.5 × 25	192	12.5 × 20	174
22	220	12.5 × 25	282	12.5 × 20	255	16 × 25	318	12.5 × 25	280	16 × 25	354		
33	330	16 × 31.5	438	16 × 25	390	16 × 35.5	460	16 × 25	390	18 × 35.5	490	16 × 31.5	435
47	470	16 × 35.5	500	16 × 31.5	474	18 × 35.5	585	16 × 31.5	474	18 × 40	600	16 × 35.5	510
100	101	18 × 40	685			22 × 40	710			22 × 45	750		

Case size in mark of "*" is smaller. 500WV specifications are available upon request.

※ Low-Profile Size

DIAGRAM OF DIMENSIONS



Unit: mm

LEAD SPACING AND DIAMETER

φD	12.5	16	18
P	5.0	7.5	7.5
φd	0.6	0.8	
α	1.5		
β	0.5		

Dimension: φD × L(mm)

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Ripple Current: mA/rms at 120 Hz, 85°C

μF \ V. DC	Contents	6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)	
		φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA
470	471											16 × 16	745
1000	102							12.5 × 16	830	16 × 16	1010	16 × 20	1160
2200	222			12.5 × 16	970	16 × 16	1160	16 × 20	1360	18 × 20	1560		
3300	332			16 × 16	1310	16 × 20	1460	18 × 20	1720	18 × 25	1970		
4700	472	16 × 16	1410	16 × 20	1560	18 × 20	1770	18 × 25	2070				
6800	682	16 × 20	1660	18 × 20	1870	18 × 25	2170						
10000	103	18 × 20	2020	18 × 25	2370								

μF \ V. DC	Contents	160V (2C)		200V (2D)		250V (2E)		400V (2G)	
		φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA
10	101							12.5 × 16	150
22	220					12.5 × 16	280	16 × 16	280
33	330			16 × 16	350	16 × 16	350	16 × 20	355
47	470	16 × 16	420	16 × 20	420	16 × 20	420	18 × 20	435
68	680	16 × 20	490	18 × 20	490	18 × 20	490		
100	101	18 × 20	590	18 × 25	590				
150	151	18 × 25	710						