



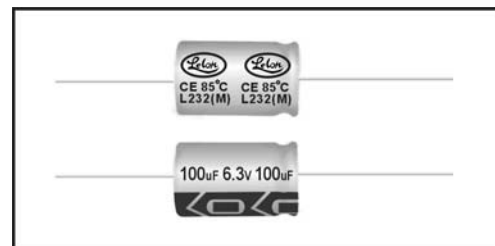
Aluminum Electrolytic Capacitors

TEA

CE02 Type

Features

- 85°C, 2000 hours assured
- For general purpose application



SPECIFICATIONS

Items	Performance																																												
Operating Temperature Range	6.3 ~ 250V										350 ~ 450V																																		
	-40℃ ~ +85℃										-25℃ ~ +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 = 0.02CV or 3 (μ A) whichever is greater					CV ≤ 1000 I=0.03CV+15(μ A)				CV > 1000 I=0.02CV+25(μ A)																																	
			Where, C= rated capacitance in μ F. V = rated DC working voltage in V.																																										
Dissipation Factor (Tan δ at 120 Hz, 20℃)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td></tr><tr><td>Tan δ (max)</td><td>0.23</td><td>0.20</td><td>0.17</td><td>0.15</td><td>0.12</td><td>0.10</td><td>0.09</td><td>0.08</td><td>0.12</td><td>0.14</td><td>0.17</td><td>0.20</td><td>0.25</td><td>0.25</td></tr></table>															Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Tan δ (max)	0.23	0.20	0.17	0.15	0.12	0.10	0.09	0.08	0.12	0.14	0.17	0.20	0.25	0.25
	Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450																														
Tan δ (max)	0.23	0.20	0.17	0.15	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 μ F, 0.02 shall be added every 1000 μ F 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℃)	φ D ≤ 16	6	4	3	3	2	2	2	2	3	6	8	12	14	16																												
		Z(-40℃) /Z(+20℃)	φ D ≤ 16	10	8	6	6	4	3	3	3	4	8	10	-	-	-																												
		φ D ≥ 16	18	16	12	10	8	8	6	6																																			
Load Life Test	Test Time		2000 hrs																																										
	Capacitance Change		Within ±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 for 2000 hrs at 85℃																																													
Shelf Life Test	Test Time		1000 hrs																																										
	Capacitance Change		Within ±20%of initial value																																										
	Dissipation Factor		Less than 200% of specified value																																										
	Leakage Current	6.3 ~ 100V	Within specified value																																										
160 ~ 450V		Less than 200% of 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.																																													
Ripple Current & Frequency Multipliers	Freq.(Hz)		60	120	500	1K	10K up																																						
	Cap.(μ F)		Under 100	0.70	1.00	1.30	1.40	1.50																																					
			100 to 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																																												

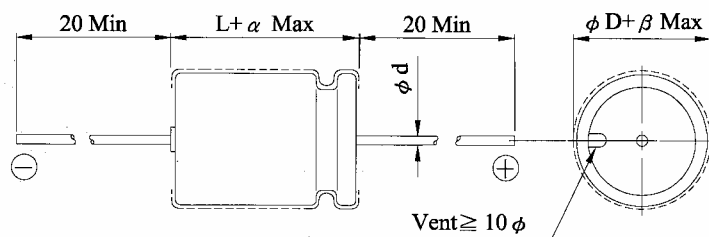
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DIAGRAM OF DIMENSIONS

Unit: mm



LEAD DIAMETER

φ D	5	6.3	8	10	13	16	18	22	25
φ d	0.6				0.8			1.0	
α	1.5				2.0				
β	0.5				1.0				

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: φ D × L(mm)

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

V.DC μ F Contents	6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA
0.1 0R1											5 × 12	1.5	5 × 12	3	5 × 12	3
0.22 R22											5 × 12	3.5	5 × 12	4.5	5 × 12	5
0.33 R33											5 × 12	5	5 × 12	7.5	5 × 12	8
0.47 R47											5 × 12	6	5 × 12	9	5 × 12	9
1 010											5 × 12	10	5 × 12	15	5 × 12	15
2.2 2R2											5 × 12	20	5 × 12	30	5 × 12	30
3.3 3R3											5 × 12	30	5 × 12	36	5 × 12	41
4.7 4R7											5 × 12	42	5 × 12	44	6.3 × 13	50
10 100									5 × 12	55	6.3 × 13	65	6.3 × 13	68	6.3 × 13	72
22 220					5 × 12	71	5 × 12	76	6.3 × 13	88	6.3 × 13	96	6.3 × 13	109	8 × 16	133
33 330			5 × 12	78	5 × 12	88	6.3 × 13	100	6.3 × 13	115	6.3 × 13	126	8 × 13	154	10 × 17	190
47 470	5 × 12	87	5 × 12	94	6.3 × 13	111	6.3 × 13	119	6.3 × 13	138	8 × 13	174	8 × 16	214	10 × 21	237
100 101	6.3 × 13	136	6.3 × 13	145	6.3 × 13	174	8 × 13	215	8 × 16	232	10 × 17	296	10 × 17	326	13 × 22	377
220 221	6.3 × 13	215	6.3 × 13	231	8 × 13	298	8 × 16	319	10 × 17	401	10 × 21	459	13 × 22	527	16 × 27	625
330 331	8 × 16	305	8 × 16	327	8 × 16	365	10 × 17	454	10 × 21	514	13 × 22	613	13 × 22	675	16 × 33	793
470 471	8 × 16	364	8 × 16	390	8 × 16	460	10 × 17	524	10 × 21	613	13 × 22	731	13 × 27	780	16 × 37	942
1000 102	10 × 17	662	10 × 17	671	10 × 21	775	13 × 22	873	13 × 27	955	16 × 33	1111	18 × 37	1249	22 × 43	1359
2200 222	13 × 22	929	13 × 22	1051	13 × 22	1125	16 × 27	1344	16 × 33	1421	18 × 36	1699	22 × 43	1744		
3300 332	13 × 27	1150	13 × 27	1288	16 × 27	1454	16 × 33	1611	16 × 37	1640	22 × 43	2027	25 × 52	2309		
4700 472	13 × 27	1354	16 × 27	1552	16 × 33	1650	18 × 37	1881	22 × 43	2208	25 × 43	2347				
10000 103	16 × 37	2062	18 × 42	2122	22 × 43	2503	22 × 52	2893								
22000 223	22 × 43	3097														

V.DC μ F Contents	160V (2C)		200V (2D)		250V (2E)		350V (2V)		400V (2G)		450V (2W)	
	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA	φ D×L	mA
1 010	6.3 × 13	7	6.3 × 16	9	6.3 × 16	12	8 × 16	13	8 × 16	14	8 × 16	15
2.2 2R2	6.3 × 13	15	8 × 16	16	8 × 16	17	8 × 20	19	10 × 17	21	10 × 21	23
3.3 3R3	8 × 16	21	8 × 16	26	8 × 20	31	8 × 20	33	10 × 17	34	10 × 21	36
4.7 4R7	8 × 16	31	8 × 16	33	10 × 17	38	10 × 21	44	13 × 22	45	13 × 22	46
10 100	10 × 17	60	10 × 21	66	10 × 21	72	13 × 22	77	13 × 22	80	13 × 27	82
22 220	13 × 22	121	13 × 22	121	13 × 27	126	13 × 27	132	16 × 33	137	16 × 37	143
33 330	13 × 22	154	13 × 27	167	16 × 27	178	16 × 33	186	16 × 37	192	16 × 42	201
47 470	13 × 27	198	16 × 32	214	16 × 33	241	16 × 42	253	18 × 43	339	22 × 43	402
100 101	16 × 33	345	16 × 37	368	18 × 43	391	22 × 43	402	25 × 52	424	25 × 52	448
220 221	18 × 42	586	22 × 43	609	22 × 43	632						
330 331	22 × 43	632										