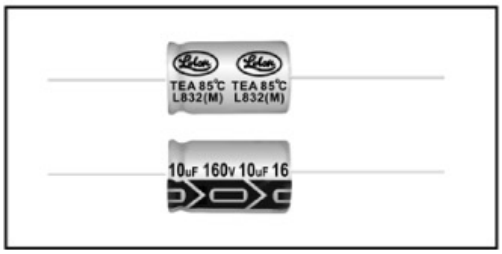
Features

- 85℃, 2,000 hours assured
- For general purpose application
- RoHS Compliance



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 = 0.02CV 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	0.17	0.15	0.12	0.10	0.09	0.08	0.12	0.14	0.17	0.20	0.24	0.24

When the capacitance exceeds 1,000 μF, 0.02 shall be added every 1,000 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	-	-	-
		φD≧16	18	16	12	10	8	8	6	6						

Load Life Test

Test Time	2,000 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 2,000 hrs at 85℃

Shelf Life Test

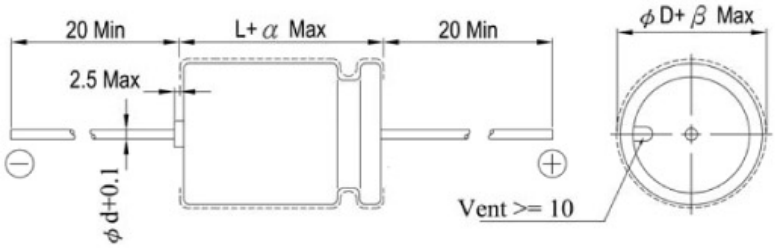
Test Time	1,000 hrs
Capacitance Change	Within ±20% of initial value
Dissipation Factor	Less than 200% of specified value
Leakage Current	Within specified value

* The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 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 5101-4 4.1).

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 ≦ 1,000	0.75	1.00	1.20	1.30	1.35
1,000 up above	0.80	1.00	1.10	1.12	1.15

DIAGRAM OF DIMENSIONS



LEAD SPACING AND DIAMETER Unit: mm

φD	5	6.3	8	10	12.5	16	18	22	25
φd	0.6					0.8			
α	1.5			2.0					
β	0.5								

DIMENSION & PERMISSIBLE RIPPLE CURRENT

Dimension: φD × L(mm)
Ripple Current: mA/rms at 120 Hz, 85°C

V. DC / μF	Contents	6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		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
0.10	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
1.0	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	40
4.7	4R7											5×12	42	5×12	44	6.3×13	41
10	100							5×12	40	5×12	55	5×12	50	6.3×13	55	6.3×13	72
22	220					5×12	71	5×12	76	6.3×13	70	6.3×13	85	6.3×13	109	8×16	133
33	330					5×12	85	5×12	80	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	88	6.3×13	100	6.3×13	138	8×13	174	8×16	214	10×21	237
100	101	6.3×13	121	6.3×13	145	6.3×13	160	8×13	215	8×16	232	10×17	296	10×17	326	13×22	377
220	221	6.3×13	215	8×13	231	8×13	298	8×16	319	10×17	401	10×21	459	13×22	527	16×28	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	10×21	524	13×22	613	13×22	731	13×27	780	16×36	942
1,000	102	10×17	662	10×17	671	10×21	775	13×22	873	13×27	955	16×33	1,111	16×36	1,249	18×42	1,359
2,200	222	13×22	929	13×22	1,051	13×24	1,125	16×28	1,344	16×33	1,421	18×36	1,699	22×43	1,744	25×52	2,430
3,300	332	13×27	1,150	13×27	1,288	16×28	1,454	16×33	1,611	18×36	1,640	22×43	2,027	25×52	2,309		
4,700	472	13×27	1,354	16×28	1,552	16×33	1,650	18×36	1,881	22×43	2,280	25×43	2,347	25×52	2,710		
6,800	682	16×28	1,762	16×33	1,930	18×36	2,040	18×42	2,170	22×43	2,470	25×52	2,650				
10,000	103	16×36	2,062	18×36	2,122	18×42	2,503	22×43	2,893	25×52	3,180						

V. DC / μF	Contents	160V (2C)		200V (2D)		250V (2E)		350V (2V)		400V (2G)		450V (2W)	
		φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA	φD×L	mA
1.0	010	6.3 × 13	7	6.3 × 13	9	6.3 × 13	12	8 × 16	13	8 × 16	14	8 × 16	15
2.2	2R2	6.3 × 13	15	8 × 13	16	8 × 16	17	8 × 20	19	10 × 17	21	10 × 21	23
3.3	3R3	8 × 13	21	8 × 16	26	8 × 21	31	8 × 21	33	10 × 17	34	10 × 21	36
4.7	4R7	8 × 16	31	10 × 17	33	10 × 17	38	10 × 21	44	10 × 26	45	10 × 26	46
10	100	10 × 17	60	10 × 21	66	10 × 21	72	13 × 22	72	13 × 22	80	13 × 27	82
22	220	10 × 21	121	13 × 22	121	13 × 27	126	13 × 27	132	16 × 33	137	16 × 36	143
33	330	13 × 22	154	13 × 27	167	16 × 28	178	16 × 33	186	16 × 36	192	16 × 42	201
47	470	13 × 27	198	16 × 33	214	16 × 33	241	16 × 42	253	18 × 42	339	18 × 42	339
100	101	16 × 33	345	16 × 36	368	16 × 42	391	22 × 43	402	25 × 43	424	25 × 52	448
220	221	18 × 42	586	22 × 43	609	22 × 43	632						
330	331	22 × 43	632										