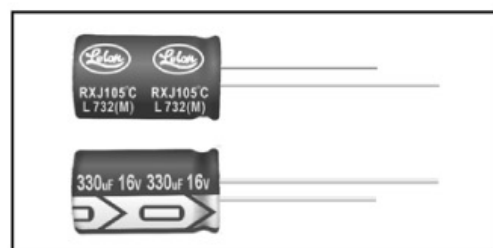


Features

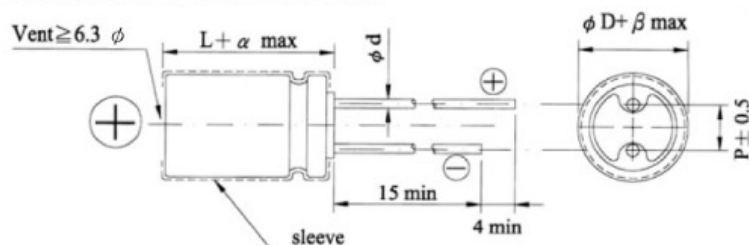
- 105°C, 2,000 ~ 5,000 hours assured
- Low ESR, suitable for switching power supplies
- Smaller size with large permissible ripple current
- RoHS Compliance



SPECIFICATIONS

Items	Performance																																			
Operating Temperature Range	-55℃ ~ +105℃																																			
Capacitance Tolerance	±20% (at 120Hz, 20℃)																																			
Leakage Current (at 20℃)	I = 0.01CV or 3 (μ A) whichever is greater (after 2 minutes) Where, C = rated capacitance in μ F V = rated DC working voltage in V																																			
Dissipation Factor (Tan δ at 120Hz, 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></tr><tr><td>Tan δ (max)</td><td>0.22</td><td>0.19</td><td>0.16</td><td>0.14</td><td>0.12</td><td>0.10</td><td>0.08</td><td>0.05</td></tr></table> When the capacitance exceeds 1,000 μ F, 0.02 shall be added every 1,000 μ F increase.	Rated Voltage	6.3	10	16	25	35	50	63	100	Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.05																	
Rated Voltage	6.3	10	16	25	35	50	63	100																												
Tan δ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.08	0.05																												
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">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></tr><tr><td>Impedance Ratio</td><td>Z(-55℃)/Z(+20℃)</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td></tr></table>	Rated Voltage		6.3	10	16	25	35	50	63	100	Impedance Ratio	Z(-55℃)/Z(+20℃)	4	4	3	3	3	3	3	3															
Rated Voltage		6.3	10	16	25	35	50	63	100																											
Impedance Ratio	Z(-55℃)/Z(+20℃)	4	4	3	3	3	3	3	3																											
Load Life Test	<table><tr><td>Test Time</td><td>2,000 hrs for φ D ≤ 8 mm 5,000 hrs for φ D ≥ 10 mm</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr><tr><td>Dissipation Factor</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied with rated ripple current for 2,000/5,000 hrs at 105℃ .	Test Time	2,000 hrs for φ D ≤ 8 mm 5,000 hrs for φ D ≥ 10 mm	Capacitance Change	Within ±20% of initial value	Dissipation Factor	Less than 200% of specified value	Leakage Current	Within specified value																											
Test Time	2,000 hrs for φ D ≤ 8 mm 5,000 hrs for φ D ≥ 10 mm																																			
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Dissipation Factor	Less than 200% of specified value																																			
Leakage Current	Within specified value																																			
Shelf Life Test	<table><tr><td>Test Time</td><td>1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr><tr><td>Dissipation Factor</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hrs at 105℃ without voltage applied.	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																											
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Ripple Current & Frequency Multipliers	<table><tr><th>Freq.(Hz) Cap.(μ F)</th><th>60 (50)</th><th>120</th><th>500</th><th>1K</th><th>10K</th><th>100K</th></tr><tr><td>Under 33</td><td>0.40</td><td>0.55</td><td>0.65</td><td>0.80</td><td>0.90</td><td>1.00</td></tr><tr><td>39 ~ 330</td><td>0.60</td><td>0.70</td><td>0.80</td><td>0.90</td><td>0.95</td><td>1.00</td></tr><tr><td>390 ~ 1,000</td><td>0.65</td><td>0.80</td><td>0.85</td><td>0.98</td><td>1.00</td><td>1.00</td></tr><tr><td>1,200 up above</td><td>0.80</td><td>0.90</td><td>0.95</td><td>0.98</td><td>1.00</td><td>1.00</td></tr></table>	Freq.(Hz) Cap.(μ F)	60 (50)	120	500	1K	10K	100K	Under 33	0.40	0.55	0.65	0.80	0.90	1.00	39 ~ 330	0.60	0.70	0.80	0.90	0.95	1.00	390 ~ 1,000	0.65	0.80	0.85	0.98	1.00	1.00	1,200 up above	0.80	0.90	0.95	0.98	1.00	1.00
Freq.(Hz) Cap.(μ F)	60 (50)	120	500	1K	10K	100K																														
Under 33	0.40	0.55	0.65	0.80	0.90	1.00																														
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1,200 up above	0.80	0.90	0.95	0.98	1.00	1.00																														

DIAGRAM OF DIMENSIONS



LEAD SPACING AND DIAMETER

Unit: mm

ϕ D	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕ d	0.5		0.6			0.8	
α	1.0			1.5			
β	0.5						

Dimension: φ D × L(mm)

Ripple Current: mA/rms at 100K Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V DC μF	Item	6.3V (0J)				10V (1A)				16V (1C)						
		φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105℃)		φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105℃)		φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105℃)	
			20℃	-10℃	120 Hz	100K Hz		20℃	-10℃	120 Hz	100K Hz		20℃	-10℃	120 Hz	100K Hz
33											5×11	1.30	3.90	108	154	
39											5×11	1.30	3.90	108	154	
47						5×11	2.10	5.50	78	111	6.3×11	0.60	1.80	182	260	
56						5×11	1.90	4.80	85	121	6.3×11	0.60	1.80	182	260	
68						5×11	1.30	3.90	108	154	6.3×11	0.60	1.80	182	260	
100		5×11	1.30	3.90	108	154	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	182	260
220		6.3×11	0.60	1.80	182	260	8×11.5	0.33	0.99	280	400	8×11.5	0.33	0.99	320	400
330		8×11.5	0.33	0.88	280	400	8×11.5	0.33	0.99	280	400	10×12.5	0.25	0.75	360	510
390		8×11.5	0.33	0.88	320	400	10×12.5	0.27	0.75	410	510	10×16	0.19	0.57	510	635
470		10×12.5	0.25	0.75	410	510	10×12.5	0.25	0.75	410	510	10×16	0.19	0.57	510	635
560		10×12.5	0.25	0.75	410	510	10×16	0.19	0.57	510	635	10×20	0.14	0.42	775	860
680		10×16	0.19	0.57	510	635	10×16	0.19	0.57	510	635	10×20	0.14	0.42	775	860
1,000		10×20	0.14	0.42	690	860	10×20	0.14	0.37	690	860	12.5×20	0.085	0.26	1,000	1,250
1,200		10×20	0.14	0.42	775	860	10×25	0.12	0.30	930	1,030	12.5×20	0.085	0.26	1,125	1,250
2,200		12.5×20	0.085	0.26	1,125	1,250	12.5×25	0.070	0.21	1,200	1,355	12.5×25	0.070	0.21	1,200	1,355
3,300		12.5×25	0.070	0.21	1,200	1,355	12.5×25	0.070	0.21	1,200	1,355	16×31.5	0.048	0.14	1,830	2,030
4,700		16×25	0.060	0.18	1,595	1,770	16×31.5	0.048	0.14	1,830	2,030	16×35.5	0.044	0.13	2,065	2,295

V. DC μF	Item	25V (1E)				35V (1V)				50V (1H)						
		φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105℃)		φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105℃)		φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105℃)	
			20℃	-10℃	120 Hz	100K Hz		20℃	-10℃	120 Hz	100K Hz		20℃	-10℃	120 Hz	100K Hz
1												5×11	5.0	15.0	43	78
2.2												5×11	4.0	12.0	48	88
3.3												5×11	3.50	11.0	52	94
4.7												5×11	3.00	9.00	55	100
6.8												5×11	3.00	9.00	55	100
10												5×11	2.00	6.00	68	124
22						5×11	1.30	3.90	108	154	6.3×11	0.60	1.80	143	260	
33	5×11	1.30	3.90	108	154	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	143	260	
39	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	182	260	
47	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	182	260	8×11.5	0.33	0.99	320	400	
56	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	182	260	8×11.5	0.33	0.99	320	400	
68	6.3×11	0.60	1.80	182	260	6.3×11	0.60	1.80	182	260	8×11.5	0.33	0.99	320	400	
100	8×11.5	0.33	0.99	320	400	8×11.5	0.33	0.99	320	400	10×16	0.19	0.57	445	635	
220	10×12.5	0.25	0.75	360	510	10×16	0.19	0.57	445	635	10×25	0.12	0.30	825	1,030	
330	10×16	0.19	0.57	445	635	10×20	0.12	0.42	600	860	12.5×20	0.085	0.26	875	1,250	
390	10×20	0.14	0.42	775	965	10×25	0.12	0.30	930	1,030	12.5×25	0.070	0.21	1,085	1,355	
470	10×20	0.14	0.42	775	965	12.5×20	0.085	0.26	1,000	1,250	12.5×25	0.070	0.21	1,085	1,355	
560	10×25	0.12	0.30	930	1,030	12.5×20	0.085	0.26	1,000	1,250	12.5×25	0.070	0.21	1,085	1,355	
680	12.5×20	0.085	0.26	1,000	1,250	12.5×25	0.070	0.21	1,085	1,355	16×25	0.060	0.18	1,415	1,770	
1,000	12.5×25	0.070	0.23	1,080	1,355	12.5×25	0.070	0.21	1,085	1,355	16×25	0.060	0.18	1,595	1,770	
1,200	12.5×25	0.070	0.21	1,200	1,355	12.5×25	0.070	0.21	1,200	1,355	16×31.5	0.048	0.14	1,830	2,030	
2,200	16×25	0.060	0.18	1,595	1,770	16×35.5	0.044	0.13	2,065	2,295	18×40	0.037	0.10	2,465	2,740	
3,300	16×35.5	0.044	0.13	2,065	2,295	18×40	0.037	0.10	2,465	2,740						
4,700	18×40	0.037	0.10	2,465	2,740											

Dimension: $\phi D \times L(\text{mm})$

Ripple Current: mA/rms at 100K Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V. DC Item μF	63V (1J)					100V (2A)				
	$\phi D \times L$	Impedance (Ω , Max/100K Hz)		Ripple Current (mA/rms, 105°C)		$\phi D \times L$	Impedance (Ω , Max/100K Hz)		Ripple Current (mA/rms, 105°C)	
		20°C	-10°C	120 Hz	100K Hz		20°C	-10°C	120 Hz	100K Hz
1						5×11	7.0	25.0	36	66
2.2						5×11	6.00	21.0	40	72
3.3						5×11	5.00	18.0	43	78
4.7						6.3×11	1.20	4.20	100	180
6.8						6.3×11	1.20	4.20	100	180
10	6.3×11	1.20	4.20	100	180	8×11.5	0.56	2.00	168	305
22	6.3×11	1.20	4.20	100	180	8×11.5	0.56	2.00	168	308
33	8×11.5	0.56	2.00	170	305	10×12.5	0.50	1.80	210	380
39	8×11.5	0.56	2.00	170	305	10×16	0.32	1.10	350	500
47	8×11.5	0.56	2.00	170	305	10×20	0.27	0.95	435	620
56	10×12.5	0.50	1.80	265	380	10×20	0.27	0.95	435	620
68	10×12.5	0.50	1.80	265	380	10×25	0.21	0.63	530	760
100	10×20	0.27	0.95	435	620	12.5×20	0.16	0.56	625	890
220	12.5×20	0.094	0.24	570	820	16×25	0.090	0.32	1,010	1,440
330	12.5×25	0.073	0.21	770	1,100	16×31.5	0.060	0.17	1,255	1,790
390	12.5×25	0.073	0.21	770	1,100	16×35.5	0.056	0.14	1,650	2,065
470	16×25	0.060	0.18	1,420	1,770					
560	16×31.5	0.048	0.14	1,625	2,030					
680	16×31.5	0.048	0.14	1,625	2,030					
1,000	18×35.5	0.041	0.11	1,790	2,240					