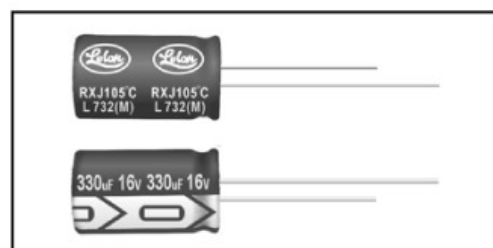


Features

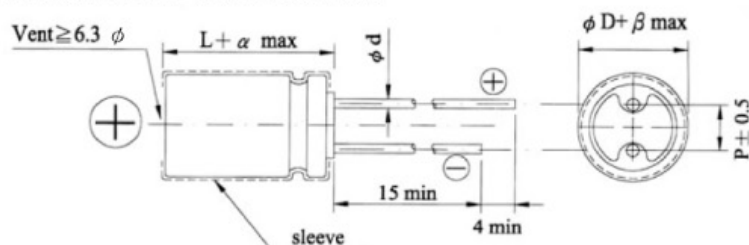
- 105°C, 2,000 ~ 5,000 hours assured
- Low ESR, suitable for switching power supplies
- Smaller size with large permissible ripple current
- RoHS Compliance



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																																			
Capacitance Change	Within ±20% of initial value																																			
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°C)	φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105°C)	φ D×L	Impedance (Ω, Max/100K Hz)		Ripple Current (mA/rms, 105°C)
			20°C	-10°C			20°C	-10°C			20°C	-10°C	
33										5×11	1.30	3.90	108
39										5×11	1.30	3.90	108
47						5×11	2.10	5.50	78	6.3×11	0.60	1.80	182
56						5×11	1.90	4.80	85	6.3×11	0.60	1.80	182
68						5×11	1.30	3.90	108	6.3×11	0.60	1.80	182
100		5×11	1.30	3.90	108	6.3×11	0.60	1.80	182	6.3×11	0.60	1.80	182
220		6.3×11	0.60	1.80	182	8×11.5	0.33	0.99	280	8×11.5	0.33	0.99	320
330		8×11.5	0.33	0.88	280	8×11.5	0.33	0.99	280	10×12.5	0.25	0.75	360
390		8×11.5	0.33	0.88	320	10×12.5	0.27	0.75	410	10×16	0.19	0.57	510
470		10×12.5	0.25	0.75	410	10×12.5	0.25	0.75	410	10×16	0.19	0.57	510
560		10×12.5	0.25	0.75	410	10×16	0.19	0.57	510	10×20	0.14	0.42	775
680		10×16	0.19	0.57	510	10×16	0.19	0.57	510	10×20	0.14	0.42	775
1,000		10×20	0.14	0.42	690	10×20	0.14	0.37	690	12.5×20	0.085	0.26	1,000
1,200		10×20	0.14	0.42	775	10×25	0.12	0.30	930	12.5×20	0.085	0.26	1,125
2,200		12.5×20	0.085	0.26	1,125	12.5×25	0.070	0.21	1,200	12.5×25	0.070	0.21	1,200
3,300		12.5×25	0.070	0.21	1,200	12.5×25	0.070	0.21	1,200	16×31.5	0.048	0.14	1,830
4,700		16×25	0.060	0.18	1,595	16×31.5	0.048	0.14	1,830	16×35.5	0.044	0.13	2,065

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

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					