



# RADIAL LEAD ALUMINUM ELECTROLYTIC CAPACITORS

# ZLJ

**ZLJ** SERIES

UPGRADE

105°C High Ripple Current, Long Life, Low Impedance

•Load Life : 105°C 6000~10000 hours.

RoHS Compliance



### ◆SPECIFICATIONS

Item	Characteristics																																																																			
Category Temperature Range	-40~+105°C																																																																			
Rated Voltage Range	6.3~100Vdc																																																																			
Capacitance Tolerance	±20% (20°C, 120Hz)																																																																			
Leakage Current (MAX)	I=0.01CV or 3 μ A whichever is greater. (After 2 minutes) I=Leakage Current (μ A) C=Capacitance (μ F) V=Rated Voltage (Vdc)																																																																			
Dissipation Factor (MAX)	<table border="1"> <thead> <tr> <th>(Vdc) Rated Voltage</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>(20°C, 120Hz)</th> </tr> </thead> <tbody> <tr> <td>tan δ</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>0.09</td> <td>0.08</td> <td>0.08</td> <td></td> </tr> </tbody> </table> <p>When capacitance is over 1000μF, tanδ shall be added 0.02 to the listed value with increase of every 1000μF.</p>	(Vdc) Rated Voltage	6.3	10	16	25	35	50	63	80	100	(20°C, 120Hz)	tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08																																														
(Vdc) Rated Voltage	6.3	10	16	25	35	50	63	80	100	(20°C, 120Hz)																																																										
tan δ	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08	0.08																																																											
Endurance	<p>After applying rated voltage with rated ripple current for specified time at 105°C, the capacitors shall meet the following requirements.</p> <table border="1"> <thead> <tr> <th rowspan="2">Capacitance Change</th> <th rowspan="2">Within ±25% of the initial value. (6.3Vdc, 10Vdc: ±30%)</th> <th rowspan="2">Dissipation Factor</th> <th rowspan="2">Not more than 200% of the specified value.</th> <th rowspan="2">Leakage Current</th> <th rowspan="2">Not more than the specified value.</th> <th colspan="3">Life Time (hrs)</th> </tr> <tr> <th>Case Size</th> <th>6.3Vdc</th> <th>10~50Vdc</th> <th>63~100Vdc</th> </tr> </thead> <tbody> <tr> <td>φD ≤ 6.3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>6000</td> <td>7000</td> <td>6000</td> </tr> <tr> <td>8X11.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>8000</td> <td>9000</td> <td>8000</td> </tr> <tr> <td>10X12.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9000</td> <td>9000</td> <td>9000</td> </tr> <tr> <td>8X16, 8X20</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9000</td> <td>10000</td> <td>9000</td> </tr> <tr> <td>10X16, 10X20, 10X25</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="3">10000</td> </tr> <tr> <td>φD ≥ 12.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="3"></td> </tr> </tbody> </table>	Capacitance Change	Within ±25% of the initial value. (6.3Vdc, 10Vdc: ±30%)	Dissipation Factor	Not more than 200% of the specified value.	Leakage Current	Not more than the specified value.	Life Time (hrs)			Case Size	6.3Vdc	10~50Vdc	63~100Vdc	φD ≤ 6.3						6000	7000	6000	8X11.5						8000	9000	8000	10X12.5						9000	9000	9000	8X16, 8X20						9000	10000	9000	10X16, 10X20, 10X25						10000			φD ≥ 12.5								
Capacitance Change	Within ±25% of the initial value. (6.3Vdc, 10Vdc: ±30%)							Dissipation Factor	Not more than 200% of the specified value.	Leakage Current	Not more than the specified value.	Life Time (hrs)																																																								
		Case Size	6.3Vdc	10~50Vdc	63~100Vdc																																																															
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Low Temperature Stability Impedance Ratio (MAX)	<table border="1"> <thead> <tr> <th>Rated Voltage (Vdc)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>(20°C, 120Hz)</th> </tr> </thead> <tbody> <tr> <td>Z(-25°C)/Z(20°C)</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td></td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td></td> </tr> </tbody> </table>	Rated Voltage (Vdc)	6.3	10	16	25	35	50	63	80	100	(20°C, 120Hz)	Z(-25°C)/Z(20°C)	2	2	2	2	2	2	2	2	2		Z(-40°C)/Z(20°C)	3	3	3	3	3	3	3	3	3																																			
Rated Voltage (Vdc)	6.3	10	16	25	35	50	63	80	100	(20°C, 120Hz)																																																										
Z(-25°C)/Z(20°C)	2	2	2	2	2	2	2	2	2																																																											
Z(-40°C)/Z(20°C)	3	3	3	3	3	3	3	3	3																																																											

### ◆MULTIPLIER FOR RIPPLE CURRENT

Frequency (Hz)		120	1k	10k	100k ≤
Coefficient	8.2~39 μ F	0.42	0.70	0.90	1.00
	47~270 μ F	0.50	0.73	0.92	1.00
	330~680 μ F	0.55	0.77	0.94	1.00
	820~1800 μ F	0.60	0.80	0.96	1.00
	2200~8200 μ F	0.70	0.85	0.98	1.00

### ◆DIMENSIONS (mm)



φD	5	6.3	8	10	12.5	16	18
φd	0.5		0.6			0.8	
F	2.0	2.5	3.5	5.0		7.5	
α	L ≤ 16: α = 1.5						L ≥ 20: α = 2.0

### ◆PART NUMBER

□□□	ZLJ	□□□□□	M	□□□	□□□	D X L
Rated Voltage	Series	Capacitance	Capacitance Tolerance	Option	Lead Forming	Case Size

\*Specifications subject to change without notice.



# RADIAL LEAD ALUMINUM ELECTROLYTIC CAPACITORS

ZLJ

◆STANDARD SIZE

Rated Voltage (Vdc)	Capacitance (μF)	Size φDXL(mm)	Rated ripple current (mAr.m.s./105°C, 100kHz)	Impedance (Ω MAX)	
				20°C,100kHz	-10°C,100kHz
6.3	220	5X11	345	0.4	1.2
	470	6.3X11	540	0.17	0.51
	820	8X11.5	945	0.075	0.23
	1000	8X16	1250	0.059	0.18
	1200	10X12.5	1330	0.053	0.16
	1500	8X20	1500	0.041	0.13
	1800	10X16	1760	0.038	0.12
	2700	10X20	1960	0.028	0.084
	3300	10X25	2250	0.024	0.072
	3900	12.5X20	2480	0.025	0.075
	4700	12.5X25	2900	0.019	0.057
	5600	12.5X30	3450	0.018	0.054
	6800	12.5X35	3570	0.016	0.048
	6800	16X20	3250	0.021	0.063
8200	16X25	3630	0.017	0.051	
10	150	5X11	450	0.4	1.2
	330	6.3X11	700	0.17	0.51
	560	8X11.5	1200	0.075	0.23
	680	8X16	1600	0.059	0.18
	820	10X12.5	1700	0.053	0.16
	1000	8X20	1960	0.041	0.13
	1200	10X16	2000	0.038	0.12
	1800	10X20	2500	0.028	0.084
	2200	10X25	2900	0.024	0.072
	2700	12.5X20	2600	0.025	0.075
	3300	12.5X25	3200	0.019	0.057
	4700	12.5X30	3660	0.018	0.054
	4700	16X20	3330	0.021	0.063
	5600	12.5X35	4120	0.016	0.048
5600	16X25	3810	0.017	0.051	
16	120	5X11	450	0.4	1.2
	270	6.3X11	700	0.17	0.51
	470	8X11.5	1200	0.075	0.23
	560	8X16	1600	0.059	0.18
	680	8X16	1600	0.059	0.18
	680	10X12.5	1700	0.053	0.16
	820	8X20	1960	0.041	0.13
	1000	8X20	1960	0.041	0.13
	1000	10X16	2000	0.038	0.12
	1500	10X20	2500	0.028	0.084
	1800	10X25	2900	0.024	0.072
	2200	12.5X20	2600	0.025	0.075
	2700	12.5X25	3200	0.019	0.057
	3300	12.5X30	3660	0.018	0.054
3300	16X20	3330	0.021	0.063	
3900	12.5X35	4120	0.016	0.048	
4700	16X25	3810	0.017	0.051	
25	68	5X11	450	0.4	1.2
	150	6.3X11	700	0.17	0.51
	330	8X11.5	1200	0.075	0.23
	390	8X16	1600	0.059	0.18
	470	10X12.5	1700	0.053	0.16
	560	8X20	1960	0.041	0.13
	680	10X16	2000	0.038	0.12
	1000	10X20	2500	0.028	0.084
	1200	10X25	2900	0.024	0.072
	1500	12.5X20	2600	0.025	0.075
	1800	12.5X25	3200	0.019	0.057
	2200	12.5X30	3660	0.018	0.054
	2200	16X20	3330	0.021	0.063
	2700	12.5X35	4120	0.016	0.048
3300	16X25	3810	0.017	0.051	
35	47	5X11	450	0.4	1.2
	100	6.3X11	700	0.17	0.51
	180	8X11.5	1200	0.075	0.23
	220	8X16	1600	0.059	0.18
	220	10X16	1760	0.038	0.12

Rated Voltage (Vdc)	Capacitance (μF)	Size φDXL(mm)	Rated ripple current (mAr.m.s./105°C, 100kHz)	Impedance (Ω MAX)		
				20°C,100kHz	-10°C,100kHz	
35	270	8X16	1600	0.059	0.18	
	270	10X12.5	1700	0.053	0.16	
	330	8X20	1960	0.041	0.13	
	330	10X12.5	1700	0.053	0.16	
	390	8X20	1960	0.041	0.13	
	390	10X16	2000	0.038	0.12	
	470	10X16	2000	0.038	0.12	
	560	10X20	2500	0.028	0.084	
	680	10X25	2900	0.024	0.072	
	820	12.5X20	2600	0.025	0.075	
	1000	12.5X20	2600	0.025	0.075	
	1200	12.5X25	3200	0.019	0.057	
	1500	12.5X30	3660	0.018	0.054	
	1500	16X20	3330	0.021	0.063	
	1800	12.5X35	4120	0.016	0.048	
	1800	16X25	3810	0.017	0.051	
	50	27	5X11	310	0.48	1.5
		56	6.3X11	500	0.22	0.66
100		8X11.5	950	0.12	0.36	
120		8X11.5	1300	0.11	0.33	
120		8X16	1230	0.082	0.25	
150		10X12.5	1280	0.073	0.22	
180		8X16	1700	0.081	0.24	
180		8X20	1580	0.058	0.18	
220		10X12.5	1700	0.071	0.21	
220		10X16	1650	0.053	0.16	
270		8X20	2100	0.058	0.17	
330		10X16	2100	0.052	0.16	
330		10X20	2060	0.038	0.12	
390		10X25	2420	0.032	0.1	
470		10X20	2500	0.037	0.11	
470		12.5X16	2200	0.04	0.12	
470		12.5X20	2300	0.03	0.1	
560		10X25	2900	0.031	0.093	
680		12.5X20	2700	0.029	0.087	
680		12.5X25	2800	0.025	0.08	
820		12.5X30	3370	0.023	0.074	
820		16X20	3070	0.026	0.084	
1000		12.5X25	3000	0.022	0.066	
1000		12.5X30	3500	0.02	0.06	
1000	12.5X35	3810	0.021	0.067		
1000	16X25	3510	0.022	0.07		
1200	12.5X35	4000	0.017	0.051		
1200	16X20	3100	0.023	0.069		
1500	12.5X40	4500	0.019	0.057		
1500	16X25	3600	0.018	0.054		
1500	18X20	3200	0.029	0.087		
2200	16X31.5	4100	0.018	0.054		
2200	18X25	3700	0.022	0.066		
2700	16X35.5	4400	0.016	0.048		
2700	16X40	4800	0.014	0.042		
2700	18X31.5	4200	0.019	0.057		
3300	18X35.5	4600	0.016	0.048		
3900	18X40	5000	0.014	0.042		
63	18	5X11	240	0.71	3.2	
	47	6.3X11	420	0.28	1.3	
	82	8X11.5	720	0.18	0.79	
	100	8X11.5	1000	0.13	0.39	
	100	8X16	990	0.13	0.58	
	120	8X16	1300	0.095	0.29	
	120	10X12.5	990	0.11	0.44	
	150	8X20	1200	0.096	0.43	
	150	10X12.5	1300	0.08	0.24	
	180	8X20	1600	0.069	0.21	
180	10X16	1200	0.076	0.31		
220	10X16	1700	0.058	0.17		

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# RADIAL LEAD ALUMINUM ELECTROLYTIC CAPACITORS

# ZLJ

## ◆STANDARD SIZE

Rated Voltage (Vdc)	Capacitance (μF)	Size φDXL(mm)	Rated ripple current (mAr.m.s./105°C, 100kHz)	Impedance (Ω MAX)	
				20°C,100kHz	-10°C,100kHz
63	270	10X20	1570	0.056	0.23
	270	12.5X16	1570	0.072	0.27
	330	10X20	2000	0.042	0.13
	330	10X25	1990	0.046	0.19
	330	12.5X16	1900	0.045	0.14
	390	10X25	2400	0.035	0.11
	390	12.5X20	1990	0.041	0.13
	470	12.5X20	2400	0.033	0.099
	470	12.5X25	2460	0.031	0.093
	560	12.5X30	2760	0.028	0.084
	560	16X20	2380	0.032	0.096
	680	12.5X25	2800	0.025	0.075
	680	12.5X35	3040	0.024	0.072
	820	12.5X30	3200	0.022	0.066
	820	16X20	2900	0.025	0.075
	820	16X25	2890	0.025	0.075
	1000	12.5X35	3500	0.018	0.054
	1000	16X25	3200	0.02	0.06
	1200	12.5X40	3800	0.021	0.063
	1200	18X20	3000	0.032	0.096
	1500	16X31.5	3500	0.02	0.06
	1500	18X25	3200	0.024	0.072
1800	16X35.5	3800	0.017	0.051	
1800	18X31.5	3700	0.02	0.06	
2200	16X40	4100	0.015	0.045	
2200	18X35.5	3900	0.017	0.051	
2700	18X40	4300	0.015	0.045	
80	●12	5X11	235	0.72	3.2
	12	5X11	220	1.2	5.4
	●27	6.3X11	390	0.34	1.5
	27	6.3X11	370	0.46	2.1
	●47	8X11.5	650	0.2	0.9
	47	8X11.5	620	0.29	1.3
	56	8X16	780	0.2	0.9
	68	10X12.5	780	0.17	0.66
	82	8X16	820	0.14	0.63
	82	8X20	1040	0.16	0.66
	100	10X12.5	860	0.14	0.56
	100	10X16	1040	0.11	0.47
	120	8X20	1090	0.12	0.54
	150	10X16	1150	0.09	0.36
	150	10X20	1430	0.084	0.34
	150	12.5X16	1430	0.11	0.34
	180	10X25	1620	0.069	0.28
	220	10X20	1570	0.068	0.28
	220	12.5X16	1430	0.09	0.27
	220	12.5X20	1750	0.062	0.18
	270	10X25	1780	0.055	0.22
	270	12.5X25	2210	0.047	0.14
	330	12.5X20	1800	0.048	0.15
	330	12.5X30	2400	0.042	0.13
	330	16X20	1950	0.048	0.15
	390	12.5X25	2210	0.038	0.12
	390	12.5X35	2600	0.036	0.11
	470	12.5X30	2520	0.033	0.11
	470	12.5X40	2860	0.032	0.095
	470	16X20	2150	0.036	0.12
	470	16X25	2430	0.038	0.12
	470	18X20	2270	0.045	0.14
560	12.5X35	2860	0.026	0.078	
560	16X31.5	2640	0.032	0.095	
680	12.5X40	3150	0.026	0.078	
680	16X25	2620	0.028	0.084	
680	18X20	2280	0.032	0.096	
680	18X20	2280	0.032	0.096	
680	16X35.5	2860	0.029	0.086	
680	18X25	2500	0.036	0.11	

Rated Voltage (Vdc)	Capacitance (μF)	Size φDXL(mm)	Rated ripple current (mAr.m.s./105°C, 100kHz)	Impedance (Ω MAX)	
				20°C,100kHz	-10°C,100kHz
80	820	16X31.5	2900	0.022	0.066
	820	16X40	3510	0.027	0.081
	820	18X31.5	2860	0.03	0.09
	1000	16X35.5	3150	0.02	0.06
	1000	18X25	2750	0.027	0.081
	1000	18X35.5	3510	0.027	0.081
	1200	16X40	3710	0.018	0.054
	1200	18X31.5	3150	0.02	0.06
	1200	18X40	3860	0.026	0.076
	1500	18X35.5	3710	0.018	0.054
	1800	18X40	4060	0.017	0.051
	●8.2	5X11	235	0.72	3.2
	8.2	5X11	220	1.2	5.4
	●18	6.3X11	390	0.34	1.5
	18	6.3X11	370	0.46	2.1
	●33	8X11.5	650	0.2	0.9
	33	8X11.5	620	0.29	1.3
	●47	8X16	820	0.14	0.63
	47	8X16	780	0.2	0.9
	●56	10X12.5	860	0.14	0.56
	56	10X12.5	780	0.17	0.66
	●68	8X20	1090	0.12	0.54
68	8X20	1040	0.16	0.66	
●82	10X16	1150	0.09	0.36	
82	10X16	1040	0.11	0.47	
100	10X20	1430	0.084	0.34	
100	12.5X16	1430	0.11	0.34	
120	10X20	1570	0.068	0.28	
120	10X25	1620	0.069	0.28	
120	12.5X16	1430	0.09	0.27	
150	10X25	1780	0.055	0.22	
150	12.5X20	1750	0.062	0.18	
180	12.5X20	1800	0.048	0.15	
●220	12.5X25	2210	0.038	0.12	
220	12.5X25	2210	0.047	0.14	
●270	12.5X30	2520	0.033	0.11	
270	12.5X30	2400	0.042	0.13	
270	16X20	1950	0.048	0.15	
330	12.5X35	2600	0.036	0.11	
330	16X20	2150	0.036	0.12	
390	12.5X35	2860	0.026	0.078	
390	12.5X40	2860	0.032	0.095	
●390	16X25	2620	0.028	0.084	
390	16X25	2430	0.038	0.12	
●390	18X20	2280	0.032	0.096	
390	18X20	2270	0.045	0.14	
470	12.5X40	3150	0.026	0.078	
470	16X31.5	2640	0.032	0.095	
470	18X25	2500	0.036	0.11	
560	16X31.5	2900	0.022	0.066	
560	16X35.5	2860	0.029	0.086	
560	18X25	2750	0.027	0.081	
560	18X31.5	2860	0.03	0.09	
680	16X35.5	3150	0.02	0.06	
680	16X40	3510	0.027	0.081	
680	18X31.5	3150	0.02	0.06	
680	18X35.5	3510	0.027	0.081	
820	16X40	3710	0.018	0.054	
820	18X35.5	3710	0.018	0.054	
820	18X40	3860	0.026	0.076	
1000	18X40	4060	0.017	0.051	

● : OPTION has EFU.

\*Specifications subject to change without notice.