

**ZL SERIES**

## ◆ FEATURES

- Low impedance at 100kHz.
- Enabled high ripple current by a reduction of impedance at high frequency range.
- Load Life : 105°C 2000~5000hours.

## ◆ SPECIFICATIONS

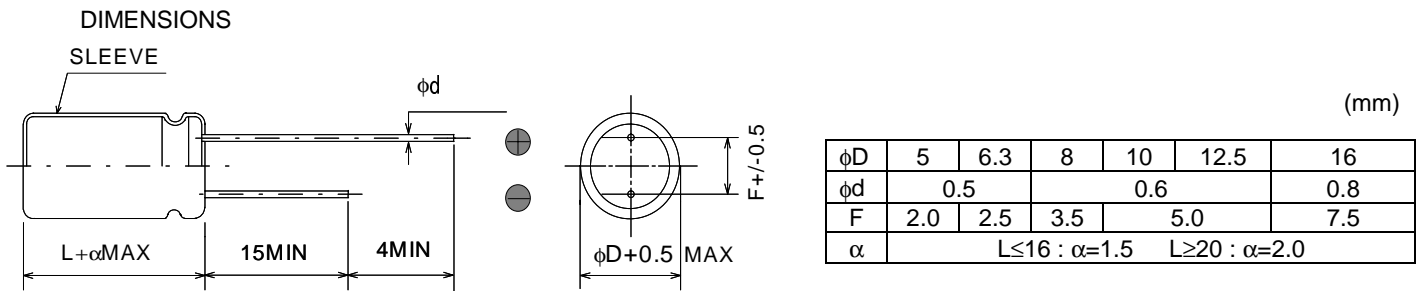
Item	Characteristics																					
Operating Temperature Range	-40 ~ +105°C																					
Rated voltage Range	6.3 ~ 50V. DC																					
Capacitance Tolerance	±20% (20°C, 120Hz)																					
Leakage Current	I=0.01CV or 3μA whichever is greater. (After 2minutes) I= Leakage Current( μA )      C= Nominal Capacitance( μF )      V= Rated Voltage( V )																					
Dissipation Factor (tanδ)	<table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tanδ</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> </tr> </tbody> </table> <p style="text-align: right;">MAX (20°C, 120Hz)</p> <p>When nominal capacitance is over 1000μF, tanδ shall be added 0.02 to the listed value with increase of every 1000μF.</p>	Rated Voltage (V)	6.3	10	16	25	35	50	tanδ	0.22	0.19	0.16	0.14	0.12	0.10							
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Load Life	<p>After life test at conditions stated in the table below, the capacitors shall meet the following requirement.</p> <table border="1"> <tbody> <tr> <td>Capacitance Change</td> <td>Within ±25% of the initial Value.</td> <td>Case Dia</td> <td>Life Time (Hrs)</td> </tr> <tr> <td>Dissipation Factor</td> <td>Not more than 200% of the specified value.</td> <td>φD≤6.3</td> <td>2000</td> </tr> <tr> <td>Leakage Current</td> <td>Not more than the specified value.</td> <td>φD=8</td> <td>3000</td> </tr> <tr> <td></td> <td></td> <td>φD=10</td> <td>4000</td> </tr> <tr> <td></td> <td></td> <td>φD≥12.5</td> <td>5000</td> </tr> </tbody> </table>	Capacitance Change	Within ±25% of the initial Value.	Case Dia	Life Time (Hrs)	Dissipation Factor	Not more than 200% of the specified value.	φD≤6.3	2000	Leakage Current	Not more than the specified value.	φD=8	3000			φD=10	4000			φD≥12.5	5000	
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Rated Voltage (V)	6.3	10	16	25	35	50																
Z(-25°C)/Z(+20°C)	2	2	2	2	2	2																
Z(-40°C)/Z(+20°C)	3	3	3	3	3	3																
Reference Standard	JIS C 5141, EIAJ RC-2372																					

## ◆ MULTIPLIER FOR RIPPLE CURRENT

Frequency coefficient

Freq(Hz) Cap(μF)	60(50)	120	1k	10k	≥100k
22 ~ 33	0.45	0.55	0.75	0.90	1.00
39 ~ 330	0.60	0.70	0.85	0.95	1.00
390 ~ 1000	0.65	0.75	0.90	0.98	1.00
1200 ~ 18000	0.75	0.80	0.95	1.00	1.00

\*Specifications subject to change without notice.

**Rubycon****MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS****ZL**

♦ Standard size, Maximum permissible ripple current

Ripple Current (mA r.m.s./105°C, 100kHz)

Rated voltage 6.3V (0J)				
Nominal capacitance ( $\mu\text{F}$ )	Size $\phi D \times L$ (mm)	Ripple Current	Impedance ( $\Omega \text{MAX}$ )	
			20°C, 100kHz	-10°C, 100kHz
150	5X11	250	0.30	1.0
330	6.3X11	405	0.13	0.41
560	8X11.5	760	0.072	0.22
820	8X16	995	0.056	0.17
1200	8X20	1250	0.041	0.13
1000	10X12.5	1030	0.053	0.16
1200	10X16	1430	0.038	0.12
1500	10X20	1820	0.023	0.069
2200	10X23	2150	0.022	0.066
3300	12.5X20	2360	0.021	0.053
3900	12.5X25	2770	0.018	0.045
4700	12.5X30	3290	0.016	0.041
5600	12.5X35	3400	0.015	0.039
5600	16X20	3140	0.018	0.045
6800	16X25	3460	0.016	0.043

Ripple Current (mA r.m.s./105°C, 100kHz)

Rated voltage 10V (1A)				
Nominal capacitance ( $\mu\text{F}$ )	Size $\phi D \times L$ (mm)	Ripple Current	Impedance ( $\Omega \text{MAX}$ )	
			20°C, 100kHz	-10°C, 100kHz
100	5X11	250	0.30	1.0
220	6.3X11	405	0.13	0.41
470	8X11.5	760	0.072	0.22
680	8X16	995	0.056	0.17
1000	8X20	1250	0.041	0.13
680	10X12.5	1030	0.053	0.16
1000	10X16	1430	0.038	0.12
1200	10X20	1820	0.023	0.069
1500	10X23	2150	0.022	0.066
2200	12.5X20	2360	0.021	0.053
3300	12.5X25	2770	0.018	0.045
3900	12.5X30	3290	0.016	0.041
4700	12.5X35	3400	0.015	0.039
3900	16X20	3140	0.018	0.045
5600	16X25	3460	0.016	0.043

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Ripple Current(mA r.m.s./105°C,100kHz)

Rated voltage 16V (1C)				
Nominal capacitance ( $\mu$ F)	Size $\phi$ DxL(mm)	Ripple Current	Impedance ( $\Omega$ MAX)	
			20°C,100kHz	-10°C,100kHz
56	5X11	250	0.30	1.0
120	6.3X11	405	0.13	0.41
330	8X11.5	760	0.072	0.22
470	8X16	995	0.056	0.17
680	8X20	1250	0.041	0.13
470	10X12.5	1030	0.053	0.16
680	10X16	1430	0.038	0.12
1000	10X20	1820	0.023	0.069
1200	10X23	2150	0.022	0.066
1500	12.5X20	2360	0.021	0.053
2200	12.5X25	2770	0.018	0.045
2700	12.5X30	3290	0.016	0.041
3300	12.5X35	3400	0.015	0.039
2700	16X20	3140	0.018	0.045
3900	16X25	3460	0.016	0.043

Ripple Current(mA r.m.s./105°C,100kHz)

Rated voltage 25V (1E)				
Nominal capacitance ( $\mu$ F)	Size $\phi$ DxL(mm)	Ripple Current	Impedance ( $\Omega$ MAX)	
			20°C,100kHz	-10°C,100kHz
47	5X11	250	0.30	1.0
100	6.3X11	405	0.13	0.41
220	8X11.5	760	0.072	0.22
330	8X16	995	0.056	0.17
470	8X20	1250	0.041	0.13
330	10X12.5	1030	0.053	0.16
470	10X16	1430	0.038	0.12
680	10X20	1820	0.023	0.069
820	10X23	2150	0.022	0.066
1000	12.5X20	2360	0.021	0.053
1500	12.5X25	2770	0.018	0.045
1800	12.5X30	3290	0.016	0.041
2200	12.5X35	3400	0.015	0.039
1800	16X20	3140	0.018	0.045
2700	16X25	3460	0.016	0.043

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Ripple Current(mA r.m.s./105°C,100kHz)

Rated voltage 35V (1V)				
Nominal capacitance ( $\mu$ F)	Size $\phi$ DxL(mm)	Ripple Current	Impedance ( $\Omega$ MAX)	
			20°C,100kHz	-10°C,100kHz
33	5X11	250	0.30	1.0
56	6.3X11	405	0.13	0.41
150	8X11.5	760	0.072	0.22
220	8X16	995	0.056	0.17
270	8X20	1250	0.041	0.13
220	10X12.5	1030	0.053	0.16
330	10X16	1430	0.038	0.12
470	10X20	1820	0.023	0.069
560	10X23	2150	0.022	0.066
680	12.5X20	2360	0.021	0.053
1000	12.5X25	2770	0.018	0.045
1200	12.5X30	3290	0.016	0.041
1500	12.5X35	3400	0.015	0.039
1200	16X20	3140	0.018	0.045
1800	16X25	3460	0.016	0.043

Ripple Current(mA r.m.s./105°C,100kHz)

Rated voltage 50V (1H)				
Nominal capacitance ( $\mu$ F)	Size $\phi$ DxL(mm)	Ripple Current	Impedance ( $\Omega$ MAX)	
			20°C,100kHz	-10°C,100kHz
22	5X11	238	0.34	1.18
56	6.3X11	385	0.14	0.50
100	8X11.5	724	0.074	0.22
120	8X16	950	0.061	0.18
180	8X20	1190	0.046	0.14
150	10X12.5	979	0.061	0.18
220	10X16	1370	0.042	0.12
270	10X20	1580	0.030	0.090
330	10X23	1870	0.028	0.085
470	12.5X20	2050	0.027	0.068
560	12.5X25	2410	0.023	0.059
680	12.5X30	2860	0.021	0.052
820	12.5X35	2960	0.019	0.051
820	16X20	2730	0.023	0.059
1000	16X25	3010	0.021	0.056

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