



# ZLT series

- Low ESR
- Low Profile
- RoHS compliant
- Solvent Proof

- 105°C 2,000 ~ 5,000Hrs assured.
- Low impedance
- For SMPS, IP-Board, Adaptor
- RoHS compliant
- Halogen-free capacitors are also available.

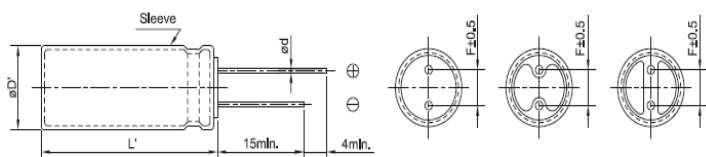


## Specifications

Item	Characteristics																					
Rated Voltage Range	6.3 ~ 50Vdc																					
Operating Temperature Range	-55 ~ +105°C																					
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)																					
Leakage Current	I=0.01CV(μA) or 3μA, whichever is greater. Where, I:Max. Leakage current(μA), C:Nominal capacitance(μF), V:Rated voltage(VDC) (at 20°C, 2 minutes)																					
Dissipation Factor(Tanδ)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>Rated Voltage(Vdc)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>Tanδ(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> </tr> </table> <p>If the capacitance exceeds 1,000uF, then Tanδ will be added 0.02 every 1000uF increase. (at 20°C, 120Hz)</p>	Rated Voltage(Vdc)	6.3	10	16	25	35	50	Tanδ(Max.)	0.22	0.19	0.16	0.14	0.12	0.10							
Rated Voltage(Vdc)	6.3	10	16	25	35	50																
Tanδ(Max.)	0.22	0.19	0.16	0.14	0.12	0.10																
Temperature characteristics (Max, impedance ratio)	<table border="1" style="width: 100%; text-align: center;"> <tr> <td>Rated Voltage(Vdc)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>ΔC(-55°C)/C(20°C)</td> <td colspan="6">30%</td> </tr> <tr> <td>Z(-55°C)/Z(20°C)</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table> <p style="text-align: right;">(at ,120Hz)</p>	Rated Voltage(Vdc)	6.3	10	16	25	35	50	ΔC(-55°C)/C(20°C)	30%						Z(-55°C)/Z(20°C)	4	3	3	3	3	3
Rated Voltage(Vdc)	6.3	10	16	25	35	50																
ΔC(-55°C)/C(20°C)	30%																					
Z(-55°C)/Z(20°C)	4	3	3	3	3	3																
Load life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for specified life times at 105°C.</p> <table style="width: 100%;"> <tr> <td style="width: 60%;">Capacitance change</td> <td>≤±20%of the initial value</td> <td style="width: 10%;"></td> <td style="width: 20%; text-align: center;">∅D</td> <td style="width: 10%; text-align: center;">Life time</td> </tr> <tr> <td>Tan δ</td> <td>≤200% of the initial specified value</td> <td></td> <td style="text-align: center;">∅5, ∅6.3</td> <td style="text-align: center;">2,000hrs</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> <td></td> <td style="text-align: center;">∅8</td> <td style="text-align: center;">3,000hrs</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">∅10~</td> <td style="text-align: center;">5,000hrs</td> </tr> </table>	Capacitance change	≤±20%of the initial value		∅D	Life time	Tan δ	≤200% of the initial specified value		∅5, ∅6.3	2,000hrs	Leakage current	≤The initial specified value		∅8	3,000hrs				∅10~	5,000hrs	
Capacitance change	≤±20%of the initial value		∅D	Life time																		
Tan δ	≤200% of the initial specified value		∅5, ∅6.3	2,000hrs																		
Leakage current	≤The initial specified value		∅8	3,000hrs																		
			∅10~	5,000hrs																		
Shelf life	<p>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors for a minimum of 30 minutes at least 24 hours and not more than 48 hours before the measurements.</p> <table style="width: 100%;"> <tr> <td style="width: 60%;">Capacitance change</td> <td>≤±20% of the initial value</td> <td style="width: 10%;"></td> <td style="width: 20%;"></td> </tr> <tr> <td>Tanδ</td> <td>≤200% of the initial specified value</td> <td></td> <td></td> </tr> <tr> <td>Leakage current</td> <td>≤200%The initial specified value</td> <td></td> <td></td> </tr> </table>	Capacitance change	≤±20% of the initial value			Tanδ	≤200% of the initial specified value			Leakage current	≤200%The initial specified value											
Capacitance change	≤±20% of the initial value																					
Tanδ	≤200% of the initial specified value																					
Leakage current	≤200%The initial specified value																					

## Dimensions

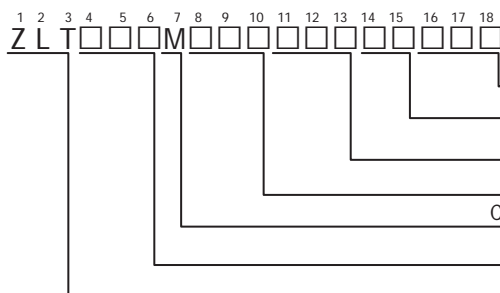
Unit(mm)



∅D	5	6.3	8	10	12.5	16	18
∅d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
∅D'	∅D+0.5 max.						
L'	L+1.5 max			L+2.0 max			

- Printed white color letter on PET brown sleeve

## Code numbering system



- Taping, Cutting
- Terminal type
- Size (5X11: D11)
- Capacitance
- Capacitance tolerance(M:±20%, K:±10%, V :-10~20%)
- Working voltage(ex. 6.3V→6R3, 10V→010,63V→063)
- Series name

∅5	D
∅6.3	E
∅8	F
∅10	G
∅12.5	X
∅16	J
∅18	K



ZLT series

Standard Ratings

Note1) Imp. =  $\Omega_{max}/20^{\circ}C, 100kHz$  2) Ripple current =  $mArms/105^{\circ}C, 100kHz$

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Imp. <sup>1)</sup>	Ripple <sup>2)</sup>	Code No
6.3	150	5 x 11	0.50	175	ZLT6R3□151D11CS□□□
	330	6.3 x 11	0.25	290	ZLT6R3□331E11CS□□□
	470	6.3 x 15	0.18	400	ZLT6R3□471E15CS□□□
	680	8 x 11.5	0.12	555	ZLT6R3□681F12CS□□□
	820	10 x 12.5	0.090	760	ZLT6R3□821G13CS□□□
	1,000	8 x 15	0.090	730	ZLT6R3□102F15CS□□□
		8 x 20	0.080	810	ZLT6R3□122F20CS□□□
	1,200	10 x 16	0.068	1,050	ZLT6R3□122G16CS□□□
		1,500	10 x 20	0.052	1,220
	2,200	10 x 25	0.045	1,440	ZLT6R3□222G25CS□□□
	2,700	10 x 30	0.037	1,690	ZLT6R3□272G30CS□□□
	3,300	12.5 x 20	0.038	1,660	ZLT6R3□332X20CS□□□
	3,900	12.5 x 25	0.030	1,950	ZLT6R3□392X25CS□□□
	4,700	12.5 x 30	0.025	2,310	ZLT6R3□472X30CS□□□
	5,600	12.5 x 35	0.022	2,510	ZLT6R3□562X35CS□□□
		16 x 20	0.031	2,210	ZLT6R3□562J20CS□□□
	6,800	12.5 x 42.5	0.019	2,870	ZLT6R3□682X43CS□□□
		16 x 25	0.024	2,560	ZLT6R3□682J25CS□□□
8,200	16 x 31.5	0.021	3,010	ZLT6R3□822J32CS□□□	
10,000	16 x 35.5	0.019	3,150	ZLT6R3□103J36CS□□□	
	18 x 25	0.023	2,740	ZLT6R3□103K25CS□□□	
12,000	18 x 31.5	0.021	3,330	ZLT6R3□123K32CS□□□	
15,000	18 x 35.5	0.019	3,680	ZLT6R3□153K36CS□□□	
18,000	18 x 40	0.018	3,880	ZLT6R3□183K40CS□□□	
10	100	5 x 11	0.50	175	ZLT010□101D11CS□□□
	220	6.3 x 11	0.25	290	ZLT010□221E11CS□□□
	330	6.3 x 15	0.18	400	ZLT010□331E15CS□□□
	470	8 x 11.5	0.12	555	ZLT010□471F12CS□□□
	680	8 x 15	0.090	730	ZLT010□681F15CS□□□
		10 x 12.5	0.088	760	ZLT010□681G13CS□□□
	1,000	8 x 20	0.080	810	ZLT010□102F20CS□□□
		10 x 16	0.068	1,050	ZLT010□102G16CS□□□
	1,200	10 x 20	0.052	1,220	ZLT010□122G20CS□□□
	1,500	10 x 25	0.045	1,440	ZLT010□152G25CS□□□
	1,800	10 x 30	0.037	1,690	ZLT010□182G30CS□□□
	2,200	12.5 x 20	0.038	1,660	ZLT010□222X20CS□□□
	3,300	12.5 x 25	0.030	1,950	ZLT010□332X25CS□□□
	3,900	12.5 x 30	0.025	2,310	ZLT010□392X30CS□□□
	4,700	16 x 20	0.031	2,210	ZLT010□392J20CS□□□
		12.5 x 35	0.022	2,510	ZLT010□472X35CS□□□
	5,600	12.5 x 42.5	0.019	2,870	ZLT010□562X43CS□□□
		16 x 25	0.024	2,560	ZLT010□562J25CS□□□
6,800	16 x 31.5	0.021	3,010	ZLT010□682J32CS□□□	
	18 x 25	0.023	2,740	ZLT010□682K25CS□□□	
8,200	16 x 35.5	0.019	3,150	ZLT010□822J36CS□□□	
10,000	18 x 31.5	0.021	3,330	ZLT010□822K32CS□□□	
	18 x 35.5	0.019	3,680	ZLT010□103K36CS□□□	
12,000	18 x 40	0.018	3,880	ZLT010□123K40CS□□□	
16	47	5 x 11	0.50	175	ZLT016□470D11CS□□□
	100	6.3 x 11	0.25	290	ZLT016□101E11CS□□□
	220	6.3 x 15	0.18	400	ZLT016□221E15CS□□□
	330	8 x 11.5	0.12	555	ZLT016□331F12CS□□□
	470	8 x 15	0.090	730	ZLT016□471F15CS□□□
		10 x 12.5	0.089	760	ZLT016□471G13CS□□□
	560	8 x 20	0.080	810	ZLT016□561F20CS□□□
	680	10 x 16	0.068	1,050	ZLT016□681G16CS□□□
	1,000	10 x 20	0.052	1,220	ZLT016□102G20CS□□□
	1,200	10 x 25	0.045	1,440	ZLT016□122G25CS□□□

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Imp. <sup>1)</sup>	Ripple <sup>2)</sup>	Code No
16	1,500	10 x 30	0.037	1,690	ZLT016□152G30CS□□□
		12.5 x 20	0.038	1,660	ZLT016□152X20CS□□□
	2,200	12.5 x 25	0.030	1,950	ZLT016□222X25CS□□□
		12.5 x 30	0.025	2,310	ZLT016□272X30CS□□□
	2,700	16 x 20	0.031	2,210	ZLT016□272J20CS□□□
		12.5 x 35	0.022	2,510	ZLT016□332X35CS□□□
	3,300	12.5 x 42.5	0.019	2,870	ZLT016□392X43CS□□□
		16 x 25	0.024	2,560	ZLT016□392J25CS□□□
		18 x 20	0.031	2,490	ZLT016□392K20CS□□□
	4,700	16 x 31.5	0.021	3,010	ZLT016□472J32CS□□□
		18 x 25	0.023	2,740	ZLT016□472K25CS□□□
	5,600	16 x 35.5	0.019	3,150	ZLT016□562J36CS□□□
18 x 31.5		0.021	3,330	ZLT016□562K32CS□□□	
8,200	18 x 35.5	0.019	3,680	ZLT016□822K36CS□□□	
10,000	18 x 40	0.018	3,880	ZLT016□103K40CS□□□	
25	47	5 x 11	0.50	175	ZLT025□470D11CS□□□
	82	6.3 x 11	0.30	260	ZLT025□820E11CS□□□
	100	6.3 x 11	0.25	290	ZLT025□101E11CS□□□
	150	6.3 x 15	0.18	400	ZLT025□151E15CS□□□
	220	8 x 11.5	0.12	555	ZLT025□221F12CS□□□
	330	8 x 15	0.090	730	ZLT025□331F15CS□□□
		10 x 12.5	0.090	760	ZLT025□331G13CS□□□
	390	8 x 20	0.080	810	ZLT025□391F20CS□□□
	470	10 x 16	0.068	1,050	ZLT025□471G16CS□□□
	680	10 x 16	0.068	1,130	ZLT025□681G16CS□□□
		10 x 20	0.052	1,220	ZLT025□681G20CS□□□
	820	10 x 20	0.052	1,320	ZLT025□821G20CS□□□
		10 x 25	0.045	1,440	ZLT025□821G25CS□□□
	1,000	10 x 30	0.037	1,690	ZLT025□102G30CS□□□
		12.5 x 20	0.038	1,660	ZLT025□102X20CS□□□
	1,500	12.5 x 25	0.030	1,950	ZLT025□152X25CS□□□
		12.5 x 30	0.025	2,310	ZLT025□182X30CS□□□
	1,800	16 x 20	0.031	2,210	ZLT025□182J20CS□□□
12.5 x 35		0.022	2,510	ZLT025□222X35CS□□□	
2,200	18 x 20	0.031	2,490	ZLT025□222K25CS□□□	
	12.5 x 42.5	0.019	2,870	ZLT025□272X43CS□□□	
2,700	16 x 25	0.024	2,560	ZLT025□272J25CS□□□	
	16 x 31.5	0.021	3,010	ZLT025□332J32CS□□□	
3,300	18 x 25	0.023	2,740	ZLT025□332K25CS□□□	
	16 x 35.5	0.019	3,150	ZLT025□392J36CS□□□	
3,900	18 x 31.5	0.021	3,330	ZLT025□392K32CS□□□	
	18 x 35.5	0.019	3,680	ZLT025□472K36CS□□□	
5,600	18 x 40	0.018	3,880	ZLT025□562K40CS□□□	
35	33	5 x 11	0.50	175	ZLT035□330D11CS□□□
	47	6.3 x 11	0.25	265	ZLT035□470E11CS□□□
	56	6.3 x 11	0.25	290	ZLT035□560E11CS□□□
	100	6.3 x 15	0.18	400	ZLT035□101E15CS□□□
	150	8 x 11.5	0.12	555	ZLT035□151F12CS□□□
	220	8 x 15	0.090	730	ZLT035□221F15CS□□□
		10 x 12.5	0.090	760	ZLT035□221G13CS□□□
	270	8 x 20	0.080	810	ZLT035□271F20CS□□□
	330	10 x 16	0.068	1,050	ZLT035□331G16CS□□□
	470	10 x 20	0.052	1,220	ZLT035□471G20CS□□□
	560	10 x 25	0.045	1,440	ZLT035□561G25CS□□□
		10 x 30	0.037	1,690	ZLT035□681G30CS□□□
680	12.5 x 20	0.038	1,660	ZLT035□681X20CS□□□	
	12.5 x 25	0.030	1,950	ZLT035□102X25CS□□□	
1,000	12.5 x 30	0.025	2,310	ZLT035□122X30CS□□□	
	16 x 20	0.031	2,210	ZLT035□122J20CS□□□	



ZLT series

Standard Ratings

Note1) Imp. =  $\Omega_{max}/20^{\circ}C, 100kHz$  2) Ripple current =  $mArms/105^{\circ}C, 100kHz$

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Imp. <sup>1)</sup>	Ripple <sup>2)</sup>	Code No
35	1,500	12.5 x 25	0.030	2,200	ZLT035□152X25CS□□□
		12.5 x 35	0.022	2,510	ZLT035□152X35CS□□□
	1,800	12.5 x 42.5	0.019	2,870	ZLT035□182X43CS□□□
		16 x 25	0.024	2,560	ZLT035□182J25CS□□□
		18 x 20	0.031	2,490	ZLT035□182K20CS□□□
	2,200	16 x 31.5	0.021	3,010	ZLT035□222J32CS□□□
		18 x 25	0.023	2,740	ZLT035□222K25CS□□□
	2,700	16 x 35.5	0.019	3,150	ZLT035□272J36CS□□□
		18 x 31.5	0.021	3,330	ZLT035□272K32CS□□□
	3,300	18 x 35.5	0.019	3,680	ZLT035□332K36CS□□□
3,900	18 x 40	0.018	3,800	ZLT035□392K40CS□□□	
50	22	5 x 11	0.70	155	ZLT050□220D11CS□□□
	33	6.3 x 11	0.45	170	ZLT050□330E11CS□□□
	47	6.3 x 11	0.45	180	ZLT050□470E11CS□□□
	68	6.3 x 15	0.31	360	ZLT050□680E15CS□□□
	100	8 x 11.5	0.18	485	ZLT050□101F12CS□□□
		8 x 15	0.16	635	ZLT050□121F15CS□□□
	120	10 x 12.5	0.16	620	ZLT050□121G13CS□□□
		8 x 20	0.12	730	ZLT050□181F20CS□□□
	180	10 x 16	0.13	850	ZLT050□181G16CS□□□

WV (Vdc)	Cap (uF)	Size ØxL(mm)	Imp. <sup>1)</sup>	Ripple <sup>2)</sup>	Code No
50	220	10 x 20	0.088	1,050	ZLT050□221G20CS□□□
	330	10 x 25	0.073	1,250	ZLT050□331G25CS□□□
	390	10 x 30	0.054	1,500	ZLT050□391G30CS□□□
		12.5 x 20	0.059	1,480	ZLT050□391J20CS□□□
	560	12.5 x 25	0.044	1,840	ZLT063□561X25CS□□□
	680	12.5 x 30	0.039	2,220	ZLT063□681X30CS□□□
		16 x 20	0.048	1,840	ZLT063□681J20CS□□□
	820	12.5 x 35	0.033	2,290	ZLT063□821X35CS□□□
		18 x 20	0.042	1,980	ZLT063□821J20CS□□□
	1,000	12.5 x 42.5	0.029	2,500	ZLT063□102X43CS□□□
		16 x 25	0.034	2,240	ZLT063□102J25CS□□□
	1,200	16 x 31.5	0.028	2,700	ZLT063□122J32CS□□□
		18 x 25	0.029	2,610	ZLT063□122K25CS□□□
	1,500	16 x 35.5	0.026	2,800	ZLT063□152J36CS□□□
	1,800	18 x 31.5	0.027	2,750	ZLT063□182K32CS□□□
	2,200	18 x 35.5	0.025	2,900	ZLT063□222K36CS□□□
2,700	18 x 40	0.022	3,200	ZLT063□272K40CS□□□	

Rated ripple current multipliers

Rated voltage (Vdc)	Frequency (Hz)				
	120	1K	10K	50K	100K
22~180	0.40	0.75	0.90	0.93	1.00
220~560	0.50	0.85	0.94	0.96	1.00
680~1,800	0.60	0.87	0.95	0.97	1.00
2,200~3,900	0.75	0.90	0.95	0.97	1.00
4,700~18,000	0.85	0.95	0.98	0.99	1.00