



Aluminum Electrolytic Capacitors

LSG

Features

- Snap-in terminal type
- 105°C, 2,000 hours assured
- RoHS Compliance



Sleeve & Marking Color: Brown & White

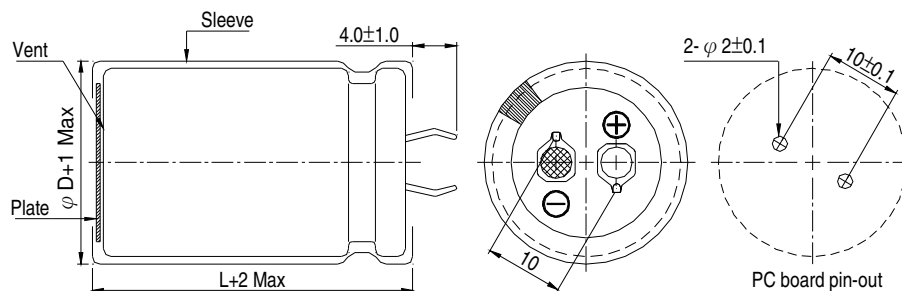
SPECIFICATIONS

Items	Performance																																																
Category Temperature Range	-40°C ~ +105°C																																																
Capacitance Tolerance	±20% (at 120Hz, 20°C)																																																
Leakage Current (at 20°C)	$I = 3\sqrt{CV}$ or 1.5 mA whichever is smaller (after 5 minutes) Where, C = rated capacitance in μF V = rated DC working voltage in V																																																
Dissipation Factor (Tan δ at 120Hz, 20°C)	<table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>420</th> <th>450</th> <th>500</th> </tr> </thead> <tbody> <tr> <td>Tan δ (max)</td> <td>0.50</td> <td>0.45</td> <td>0.40</td> <td>0.35</td> <td>0.30</td> <td>0.20</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> <td>0.15</td> </tr> </tbody> </table>	Rated Voltage	16	25	35	50	63	100	160	200	250	350	400	420	450	500	Tan δ (max)	0.50	0.45	0.40	0.35	0.30	0.20	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15																		
Rated Voltage	16	25	35	50	63	100	160	200	250	350	400	420	450	500																																			
Tan δ (max)	0.50	0.45	0.40	0.35	0.30	0.20	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15																																			
Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>420</th> <th>450</th> <th>500</th> </tr> </thead> <tbody> <tr> <td>Impedance</td> <td>$Z(-25^\circ\text{C})/Z(+20^\circ\text{C})$</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> <td>8</td> </tr> <tr> <td>Ratio</td> <td>$Z(-40^\circ\text{C})/Z(+20^\circ\text{C})$</td> <td>15</td> <td>10</td> <td>8</td> <td>6</td> <td>5</td> <td>4</td> <td>8</td> <td>10</td> <td>10</td> <td>16</td> <td>18</td> <td>18</td> <td>20</td> <td>20</td> </tr> </tbody> </table>	Rated Voltage		16	25	35	50	63	100	160	200	250	350	400	420	450	500	Impedance	$Z(-25^\circ\text{C})/Z(+20^\circ\text{C})$	4	3	3	2	2	4	4	4	4	8	8	8	8	8	Ratio	$Z(-40^\circ\text{C})/Z(+20^\circ\text{C})$	15	10	8	6	5	4	8	10	10	16	18	18	20	20
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Impedance	$Z(-25^\circ\text{C})/Z(+20^\circ\text{C})$	4	3	3	2	2	4	4	4	4	8	8	8	8	8																																		
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Endurance	<table border="1"> <thead> <tr> <th>Test Time</th> <th>2,000 Hrs</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>* The above specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied with rated ripple current for 2,000 hours at 105°C.</p>	Test Time	2,000 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 border="1"> <thead> <tr> <th rowspan="2">W. V.(V)</th> <th colspan="5">Freq.(Hz)</th> </tr> <tr> <th>50 / 60</th> <th>100 / 120</th> <th>500</th> <th>1k</th> <th>10k up</th> </tr> </thead> <tbody> <tr> <td>Under 100</td> <td>0.92</td> <td>1.00</td> <td>1.13</td> <td>1.19</td> <td>1.20</td> </tr> <tr> <td>160 ~ 250</td> <td>0.81</td> <td>1.00</td> <td>1.32</td> <td>1.45</td> <td>1.50</td> </tr> <tr> <td>350 to up</td> <td>0.77</td> <td>1.00</td> <td>1.30</td> <td>1.41</td> <td>1.43</td> </tr> </tbody> </table>	W. V.(V)	Freq.(Hz)					50 / 60	100 / 120	500	1k	10k up	Under 100	0.92	1.00	1.13	1.19	1.20	160 ~ 250	0.81	1.00	1.32	1.45	1.50	350 to up	0.77	1.00	1.30	1.41	1.43																			
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• 3000 Hrs specifications are available upon request.

DIAGRAM OF DIMENSIONS

Unit: mm





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Dimension: $\phi D \times L$ (mm)

Ripple Current: A/rms at 120 Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V. DC μF	ϕD	16V (1C)								25V (1E)							
		22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
4,700										22x25	1.39						
5,600										22x25	1.52						
6,800	22x25	1.57								22x25	1.68	25x25	1.87				
										22x30	1.86						
8,200	22x25	1.61								22x30	1.93	25x25	1.92	30x25	2.15		
										22x35	2.11	25x30	2.12				
10,000	22x25	1.78	25x30	2.12						22x30	2.05	25x25	2.05				
	22x30	1.97								22x40	2.39	25x30	2.42				
12,000	22x25	1.92	25x25	1.87	30x25	2.45				22x40	2.48	25x30	2.36	30x25	2.45	35x25	2.74
	22x35	2.22	25x30	2.24						22x45	2.69	25x40	2.74	30x30	2.70		
15,000	22x30	2.20	25x25	2.19						22x45	2.86	25x35	2.75	30x25	2.66	35x25	2.97
	22x40	2.55	25x35	2.58								25x45	3.15	30x35	3.13	35x30	3.27
18,000	22x35	2.49	25x30	2.52	30x25	2.61	35x25	2.92	22x50	3.19	25x40	3.11	30x30	3.07			
	22x45	2.87	25x40	2.92	30x30	2.88					25x50	3.54	30x40	3.54			
22,000	22x40	2.90	25x30	2.77	30x25	2.79						3.71	30x35	3.53	35x30	3.34	
			25x45	3.32	30x35	3.29							30x45	4.04	35x35	3.64	

V. DC μF	ϕD	35V (1V)								50V (1H)							
		22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
1,800										22x25	1.33						
2,200										22x25	1.48						
2,700										22x25	1.53	25x25	1.57				
										22x30	1.69						
3,300										22x30	1.76	25x25	1.70				
										22x35	1.93	25x35	1.85				
3,900										22x35	1.97	25x30	1.99	30x25	1.95		
										22x40	2.16	25x35	2.18				
4,700	22x25	1.63	25x25	1.70						22x40	2.22	25x30	2.18	30x25	2.04	35x25	2.48
										22x45	2.43			30x30	2.25		
5,600	22x30	1.77	25x25	1.77	30x25	1.99				22x45	2.56	25x35	2.47	30x25	2.33		
	22x35	1.95	25x30	1.96						22x50	2.75	25x40	2.70	30x35	2.76		
6,800	22x35	2.02	25x30	2.04						22x50	3.00	25x40	2.92	30x30	2.84	35x25	2.91
	22x40	2.20	25x35	2.23								25x50	3.30	30x40	3.30		
8,200	22x40	2.25	25x35	2.60	30x25	2.49	35x25	2.69				25x45	3.13	30x35	3.13	35x30	3.23
	22x50	2.55	25x40	2.65	30x30	2.65								30x45	3.60	35x35	3.55
10,000			25x40	2.83	30x30	2.75								30x40	3.55	35x30	3.47
			25x45	2.87	30x35	2.90								30x50	4.04	35x40	4.03
12,000				3.00	30x35	2.96	35x25	2.75									
				3.24	30x40	3.23	35x30	2.99						30x45	4.04	35x35	3.98
15,000					30x35	3.24	35x25	3.12								35x45	4.55
					30x45	3.72	35x35	3.67									
18,000						30x45	4.07	35x35	4.02								
								35x40	4.37								
22,000						30x50	4.71	35x40	4.69								
								35x50	4.92								

V. DC μF	ϕD	63V (1J)								100V (2A)							
		22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
1,200	22x25	1.19								22x35	1.55	25x30	1.56	30x25	1.68		
										22x40	1.69	25x35	1.71				
1,500	22x25	1.30								22x40	1.78	25x35	1.80	30x25	1.76	35x25	1.98
										22x45	1.94	25x40	1.98	30x30	1.95		
1,800	22x25	1.36	25x25	1.52						22x45	1.99	25x40	2.03	30x30	2.29	35x25	2.34
	22x30	1.51										25x45	2.25	30x35	2.50		
2,200	22x30	1.55	25x25	1.55								25x45	2.30	30x35	2.43	35x25	2.27
	22x35	1.73	25x30	1.74								25x50	2.53	30x40	2.70	35x30	2.50
2,700	22x35	1.80	25x30	1.81	30x25	1.76						25x50	2.59	30x40	2.61	35x30	2.62
	22x40	1.97	25x35	1.99										30x45	2.88	35x35	2.86
3,300	22x40	1.99	25x35	2.06	30x25	2.00	35x25	2.06						30x45	3.03	35x35	2.99
	22x50	2.29	25x40	2.27	30x30	2.24								30x50	3.28	35x40	3.27
3,900	22x45	2.28	25x35	2.20	30x25	2.18	35x25	2.40						30x50	3.36	35x40	3.35
			25x45	2.54	30x35	2.55										35x45	3.38
4,700	22x50	2.58	25x40	2.51	30x30	2.48	35x25	2.54								35x45	3.67
			25x50	2.86	30x40	2.86	35x30	2.79								35x50	3.70
5,600					30x35	2.78	35x30	2.92									
					30x45	3.22	35x35	3.19									
6,800					30x40	3.18	35x30	3.16									
					30x50	3.65	35x40	3.64									
8,200						30x45	3.46	35x35	3.41								
								35x45	3.90								
10,000								35x40	3.90								
								35x50	4.40								
12,000								35x45	4.50								



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Dimension: $\phi D \times L$ (mm)
Ripple Current: A/rms at 120 Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V.DC μF	ϕD	160V (2C)								200V (2D)							
		22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
180										22x25	0.80						
220										22x25	0.89						
270		22x25	0.86							22x25	0.87	25x25	1.00				
330		22x25	1.10							22x30	1.13	25x25	1.13				
		22x30	1.20							22x35	1.20	25x30	1.17				
390		22x30	1.22	25x25	1.15					22x35	1.25	25x30	1.21	30x25	1.20		
		22x35	1.30							22x40	1.31						
470		22x35	1.35	25x25	1.33					22x40	1.32	25x30	1.32	30x25	1.50		
		22x40	1.40	25x30	1.41					22x45	1.40	25x35	1.41				
560		22x40	1.50	25x30	1.45	30x25	1.40			22x45	1.53	25x35	1.50	30x30	1.52	35x25	1.49
				25x35	1.51					22x50	1.56	25x40	1.53				
680		22x45	1.65	25x35	1.65	30x25	1.65			22x50	1.74	25x40	1.70	30x35	1.73	35x25	1.72
		22x50	1.71	25x40	1.70	30x30	1.72					25x45	1.74			35x30	1.73
820				25x40	1.85	30x30	1.76	35x25	1.91							35x30	1.76
		22x50	1.93	25x45	2.01	30x35	2.00	35x30	2.00			25x50	2.04	30x40	1.93	35x35	1.93
1,000				25x45	2.20	30x35	2.02	35x30	2.44					30x45	2.20	35x35	2.20
						30x40	2.22	35x35	2.20					30x50	2.30	35x40	2.30
1,200				25x50	2.45	30x40	2.35	35x35	2.50								
						30x45	2.44										
1,500						30x45	2.82	35x40	2.70							35x45	2.58
																35x50	2.80
1,800						30x50	3.31	35x45	2.85							35x50	3.47
								35x50	3.10								

V.DC μF	ϕD	250V (2E)								350V (2V)							
		22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ	
68										22x25	0.51						
82										22x25	0.56						
100										22x30	0.66	25x25	0.66				
120										22x30	0.69	25x25	0.69				
										22x35	0.75						
150										22x35	0.80	25x30	0.83	30x25	0.83		
										22x40	0.82						
180		22x25	0.78	25x25	0.85					22x40	0.84	25x35	0.92	30x25	0.85		
		22x30	0.82	25x30	1.00	30x25	1.00			22x45	0.92	25x40	1.04	30x30	0.92		
220		22x30	0.85	25x25	0.90					22x50	1.05	25x40	1.04	30x30	1.02	35x25	1.04
		22x35	0.90	25x30	1.00												
270		22x30	0.91	25x25	0.91	30x25	1.01					25x45	1.17	30x35	1.17	35x25	1.12
		22x35	1.00									25x50	1.18			35x30	1.15
330		22x40	1.14														
		22x40	1.10	25x30	1.13	30x25	1.05					25x50	1.20	30x40	1.25	35x30	1.21
390		22x45	1.26	25x35	1.20	30x30	1.13							30x45	1.31	35x35	1.29
		22x50	1.25	25x40	1.27									30x45	1.42	35x35	1.40
470				25x40	1.38	30x30	1.24							30x50	1.49	35x40	1.48
		22x50	1.57	25x40	1.49	30x30	1.37	35x25	1.17							35x40	1.63
560				25x45	1.57	30x35	1.57	35x30	1.30							35x45	1.71
						30x35	1.58	35x25	1.61							35x45	1.87
680				25x50	1.79	30x40	1.79	35x30	1.79							35x50	1.95
								35x35	1.95								
820						30x40	2.00	35x35	2.07								
						30x45	2.30	35x35	2.27								
1,000						30x50	2.41	35x40	2.40								
							2.65										
1,200						35x40	2.78										
						35x45											
1,500								35x45	3.05								



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Dimension: $\phi D \times L$ (mm)
Ripple Current: A/rms at 120 Hz, 105°C

DIMENSION & PERMISSIBLE RIPPLE CURRENT

V. DC μF / ϕD	400V (2G)								450V (2W)								
	22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ		
56										22x25	0.40						
68	22x25	0.50								22x25	0.42	25x25	0.45				
	22x30	0.51							22x30	0.45							
82	22x25	0.51	25x25	0.54						22x30	0.50	25x25	0.50				
	22x30	0.55								22x35	0.56						
100	22x30	0.58	25x25	0.58						22x35	0.59	25x25	0.51	30x25	0.64		
	22x35	0.61	25x30	0.64					22x40	0.64	25x30	0.57					
120	22x35	0.67	25x25	0.61	30x25	0.68				22x35	0.62	25x30	0.65	30x25	0.67		
	22x40	0.72	25x30	0.69						22x45	0.72	25x35	0.71				
150	22x40	0.77	25x30	0.70	30x25	0.76				22x45	0.80	25x35	0.77	30x25	0.75	35x25	
	22x50	0.82	25x35	0.78			30x30	0.81		22x50	0.84	25x40	0.82				30x30
180	22x45	0.88	25x35	0.85	30x25	0.83	35x25	0.91									
	22x50	0.95	25x40	0.90	30x30	0.89			35x30	0.98	22x50	0.92	25x40	0.90	30x30	0.88	
220			25x40	1.00	30x30	0.99	35x25	1.01				25x45	1.04	30x35	1.04	35x25	
			25x45	1.05	30x35	1.05			35x30	1.08	25x50						1.09
270			25x45	1.17	30x35	1.16	35x30	1.20				25x50	1.21	30x40	1.22	35x30	
			25x50	1.22	30x40	1.23			35x35	1.28	30x45						1.29
330					30x40	1.36	35x30	1.33						30x45	1.42	35x35	
					30x45	1.43			35x40	1.49							
390					30x45	1.56	35x30	1.44						30x50	1.62	35x40	
					30x50	1.63			35x45	1.70							
470							35x40	1.78								35x45	
									35x50	1.95					35x50		1.94
560							35x45	2.04								35x50	2.12

V. DC μF / ϕD	420V (2P)								500V (2H)								
	22 ϕ		25 ϕ		30 ϕ		35 ϕ		22 ϕ		25 ϕ		30 ϕ		35 ϕ		
82	22x25	0.45								22x30	0.75	25x30	0.81				
100	22x30	0.53								22x40	0.94	25x40	1.00				
120	22x35	0.62	25x25	0.58						22x50	1.14	25x50	1.22				
150	22x40	0.74	25x35	0.75						22x50	1.27	25x55	1.42				
180	22x45	0.85	25x30	0.77	30x30	0.86								30x35	1.42		
220	22x50	1.00	25x40	0.96	30x30	0.95								30x35	1.57	35x40	1.74
270	22x60	1.20	25x50	1.10	30x30	1.05	35x35	1.23								35x45	2.02
330			25x55	1.36			35x35	1.35								35x50	2.45
470																35x60	2.62
680								35x50	2.12							35x70	3.38
820								35x70	2.70							40x70	4.00
1,000								35x70	3.08							40x80	4.68

↑ Ripple current: A/rms
↑ Case size: $\phi D \times L$ (mm)

Part numbering system

LSG series	100 μF	$\pm 20\%$	400V	4.0 ± 0.5 mm	22 ϕ \times 30L	Pb-free Terminal + PVC Sleeve
LSG	101	M	2G	=	A	2230
Series name	Capacitance	Capacitance tolerance	Rated voltage	Terminal type	Terminal length	Case size
Example:	Example:	Example:	Example:	Example:	Example:	Example:
Cap. Symbol	Symbol	M = $\pm 20\%$ K = $\pm 10\%$	WV Symbol	Type Symbol	“—”: 6.3 ± 1.0 mm	$\phi D \times L$ Code
56 560	220 221		400 2G 450 2W	2 pins -- 5 pins L5		22x30 2230 25x25 2525 30x40 3040

Note: For more details, please refer to “Product Code Guide– Snap-in Type” on page 15.

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[450MXK330MA2RFC22X50](#) [63ZLH560MEFCG412.5X30](#) [ELH2DM331O25KT](#) [ELH2DM471P30KT](#)