

LSP Series

Features

- Snap-in terminal type
- 105°C, 7,000 hours assured
- Suitable for high voltage circuits
- RoHS Compliance



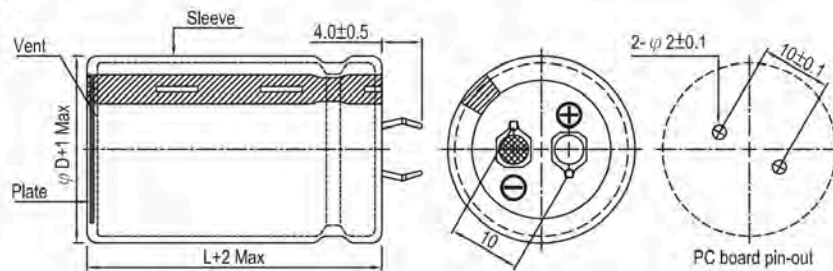
Sleeve & Marking Color: Black & White

Specifications

Items	Performance												
Category Temperature Range	-25°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												
Tan δ (at 120Hz, 20°C)	<table border="1"> <tr> <td>Rated Voltage</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Tanδ(max)</td> <td>0.105</td> <td>0.105</td> <td>0.105</td> </tr> </table>	Rated Voltage	350	400	450	Tan δ (max)	0.105	0.105	0.105				
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Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <tr> <td colspan="2">Rated Voltage</td> <td>350</td> <td>400</td> <td>450</td> </tr> <tr> <td>Impedance Ratio</td> <td>Z(-25°C)/Z(+20°C)</td> <td>4</td> <td>8</td> <td>8</td> </tr> </table>	Rated Voltage		350	400	450	Impedance Ratio	Z(-25°C)/Z(+20°C)	4	8	8		
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Endurance	<table border="1"> <tr> <td>Test Time</td> <td>7,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±20% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 250% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </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 7,000 hours at 105°C.</p>	Test Time	7,000 Hrs	Capacitance Change	Within ±20% of initial value	Tan δ	Less than 250% of specified value	Leakage Current	Within specified value				
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Shelf Life Test	<table border="1"> <tr> <td>Test Time</td> <td>1,000 Hrs</td> </tr> <tr> <td>Capacitance Change</td> <td>Within ±15% of initial value</td> </tr> <tr> <td>Tanδ</td> <td>Less than 150% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> <p>* The above 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 before the measurements (Refer to JIS C 5101-4 4.1).</p>	Test Time	1,000 Hrs	Capacitance Change	Within ±15% of initial value	Tan δ	Less than 150% of specified value	Leakage Current	Within specified value				
Test Time	1,000 Hrs												
Capacitance Change	Within ±15% of initial value												
Tan δ	Less than 150% of specified value												
Leakage Current	Within specified value												
Ripple Current and Frequency Multipliers	<table border="1"> <tr> <td>Frequency (Hz)</td> <td>50 / 60</td> <td>100 / 120</td> <td>300</td> <td>1k</td> <td>10k up</td> </tr> <tr> <td>Multiplier</td> <td>0.8</td> <td>1.0</td> <td>1.1</td> <td>1.3</td> <td>1.4</td> </tr> </table>	Frequency (Hz)	50 / 60	100 / 120	300	1k	10k up	Multiplier	0.8	1.0	1.1	1.3	1.4
Frequency (Hz)	50 / 60	100 / 120	300	1k	10k up								
Multiplier	0.8	1.0	1.1	1.3	1.4								
Failure percentage	≤ 3% (During useful life)												
Failure rate	≤ 70 fit ($70 \times 10^{-9}/\text{h}$)												

Diagram of Dimensions

Unit: mm



Snap-in

Dimension and Permissible Ripple Current

Working Voltage V DC	Capacitance 120Hz, 20°C µF	φ D×L mm	Ripple Current 120 Hz, 105°C A/rms	Tan δ at 120Hz, 20°C	ESR 120Hz, 20°C Ω	LC 5 minutes mA	Part Number
350V	100	22 × 25	0.67	0.105	1.474	0.56	LSP101M2V--A2225
	120	22 × 30	0.77	0.105	1.228	0.61	LSP121M2V--A2230
	120	25 × 25	0.76	0.105	1.228	0.61	LSP121M2V--A2525
	150	22 × 35	0.88	0.105	0.982	0.69	LSP151M2V--A2235
	150	25 × 30	0.88	0.105	0.982	0.69	LSP151M2V--A2530
	180	22 × 40	0.99	0.105	0.819	0.75	LSP181M2V--A2240
	180	25 × 30	0.96	0.105	0.819	0.75	LSP181M2V--A2530
	180	30 × 25	0.98	0.105	0.819	0.75	LSP181M2V--A3025
	220	22 × 45	1.12	0.105	0.737	0.83	LSP221M2V--A2245
	220	25 × 35	1.11	0.105	0.737	0.83	LSP221M2V--A2535
	220	30 × 30	1.11	0.105	0.737	0.83	LSP221M2V--A3030
	270	25 × 40	1.26	0.105	0.600	0.92	LSP271M2V--A2540
	270	30 × 35	1.28	0.105	0.600	0.92	LSP271M2V--A3035
	330	25 × 45	1.40	0.105	0.491	1.02	LSP331M2V--A2545
	330	30 × 35	1.42	0.105	0.491	1.02	LSP331M2V--A3035
	330	35 × 30	1.45	0.105	0.491	1.02	LSP331M2V--A3530
	390	30 × 40	1.60	0.105	0.453	1.11	LSP391M2V--A3040
	390	35 × 35	1.61	0.105	0.453	1.11	LSP391M2V--A3535
	470	30 × 50	1.86	0.105	0.376	1.22	LSP471M2V--A3050
	470	35 × 40	1.85	0.105	0.376	1.22	LSP471M2V--A3540
560	35 × 40	2.02	0.105	0.316	1.33	LSP561M2V--A3540	
680	35 × 50	2.36	0.105	0.260	1.39	LSP681M2V--A3550	
400V	68	22 × 25	0.55	0.105	2.167	0.49	LSP680M2G--A2225
	82	22 × 30	0.63	0.105	1.797	0.54	LSP820M2G--A2230
	100	22 × 30	0.70	0.105	1.474	0.60	LSP101M2G--A2230
	100	25 × 25	0.70	0.105	1.474	0.60	LSP101M2G--A2525
	120	22 × 35	0.79	0.105	1.228	0.66	LSP121M2G--A2235
	120	25 × 30	0.79	0.105	1.228	0.66	LSP121M2G--A2530
	150	22 × 40	0.90	0.105	0.982	0.73	LSP151M2G--A2240
	150	25 × 30	0.88	0.105	0.982	0.73	LSP151M2G--A2530
	150	30 × 25	0.90	0.105	0.982	0.73	LSP151M2G--A3025
	180	22 × 45	0.99	0.105	0.819	0.80	LSP181M2G--A2245
	180	25 × 35	1.01	0.105	0.819	0.80	LSP181M2G--A2535
	180	30 × 30	1.01	0.105	0.819	0.80	LSP181M2G--A3030
	220	25 × 40	1.14	0.105	0.670	0.89	LSP221M2G--A2540
	220	30 × 35	1.16	0.105	0.670	0.89	LSP221M2G--A3035
	270	25 × 50	1.32	0.105	0.546	0.99	LSP271M2G--A2550
	270	30 × 40	1.33	0.105	0.546	0.99	LSP271M2G--A3040
	270	35 × 30	1.31	0.105	0.546	0.99	LSP271M2G--A3530
	330	30 × 45	1.52	0.105	0.447	1.09	LSP331M2G--A3045
	330	35 × 35	1.48	0.105	0.447	1.09	LSP331M2G--A3535
	390	30 × 50	1.69	0.105	0.378	1.18	LSP391M2G--A3050
390	35 × 40	1.68	0.105	0.378	1.18	LSP391M2G--A3540	
470	35 × 45	1.91	0.105	0.314	1.30	LSP471M2G--A3545	
560	35 × 50	2.14	0.105	0.263	1.42	LSP561M2G--A3550	
450V	47	22 × 25	0.46	0.105	3.135	0.44	LSP470M2W--A2225
	56	22 × 30	0.52	0.105	2.843	0.48	LSP560M2W--A2230
	68	22 × 30	0.58	0.105	2.631	0.52	LSP680M2W--A2230
	68	25 × 25	0.58	0.105	2.631	0.52	LSP680M2W--A2525
	82	22 × 35	0.65	0.105	1.797	0.58	LSP820M2W--A2235
	82	25 × 30	0.65	0.105	1.797	0.58	LSP820M2W--A2530
	100	22 × 40	0.74	0.105	1.474	0.64	LSP101M2W--A2240
	100	25 × 30	0.72	0.105	1.474	0.64	LSP101M2W--A2530
	100	30 × 25	0.73	0.105	1.474	0.64	LSP101M2W--A3025
	120	22 × 45	0.83	0.105	1.228	0.70	LSP121M2W--A2245
	120	25 × 35	0.82	0.105	1.228	0.70	LSP121M2W--A2535
	120	30 × 30	0.82	0.105	1.228	0.70	LSP121M2W--A3030
	150	25 × 40	0.94	0.105	0.982	0.78	LSP151M2W--A2540
	150	30 × 35	0.96	0.105	0.982	0.78	LSP151M2W--A3035
	180	30 × 35	1.05	0.105	0.819	0.85	LSP181M2W--A3035
	180	35 × 30	1.07	0.105	0.819	0.85	LSP181M2W--A3530
	220	30 × 40	1.20	0.105	0.670	0.94	LSP221M2W--A3040
	220	35 × 35	1.21	0.105	0.670	0.94	LSP221M2W--A3535

All product specifications in the catalog are subject to change without notice. (CAT. 2017E1)

Dimension and Permissible Ripple Current

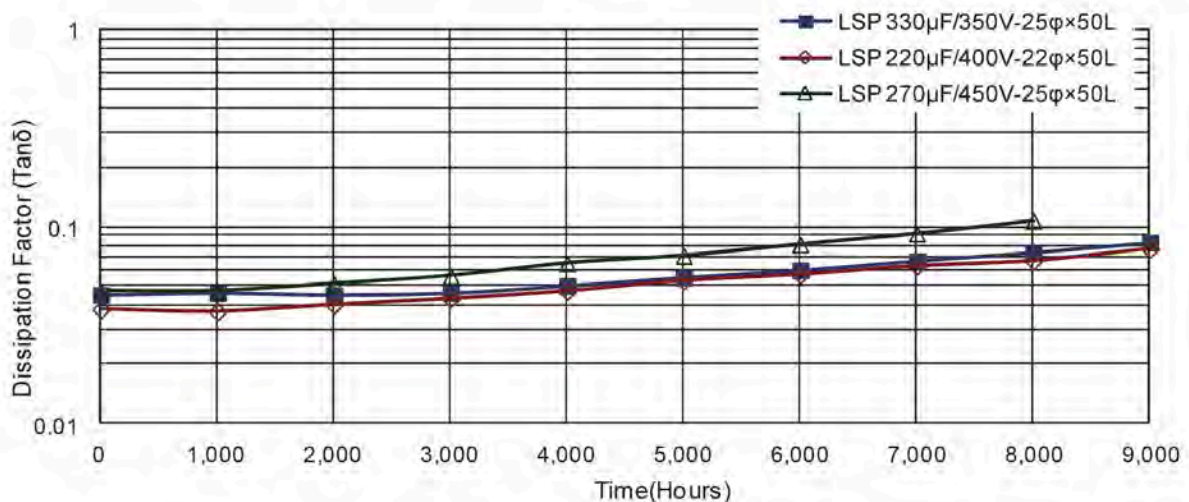
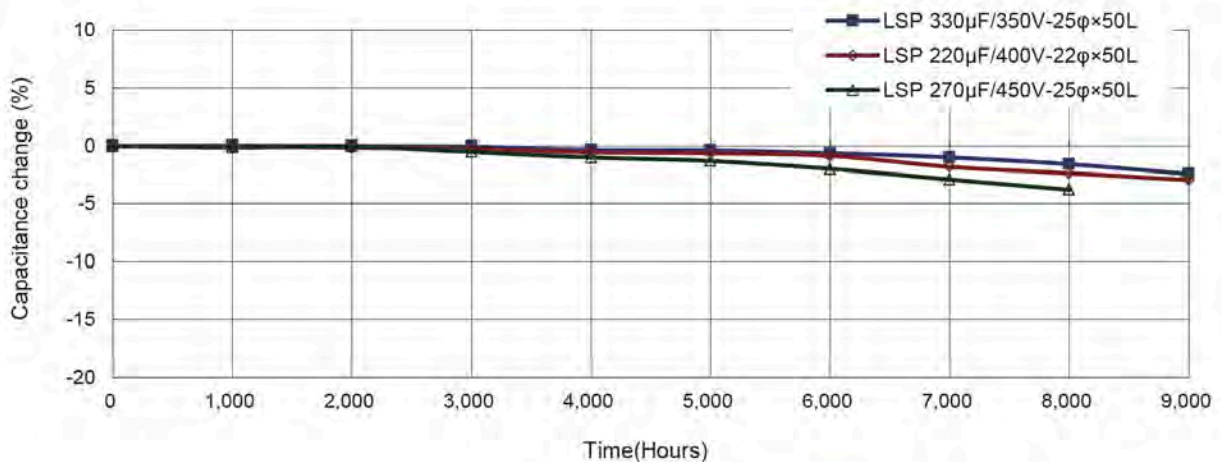
Working Voltage V DC	Capacitance 120Hz, 20°C μF	φ D×L mm	Ripple Current 120 Hz, 105°C A/rms	Tan δ at 120Hz, 20°C	ESR 120Hz, 20°C Ω	LC 5 minutes mA	Part Number
450V	270	30 × 50	1.41	0.105	0.546	1.05	LSP271M2W-A3050
	270	35 × 40	1.40	0.105	0.546	1.05	LSP271M2W-A3540
	330	35 × 45	1.60	0.105	0.447	1.16	LSP331M2W-A3545
	390	35 × 50	1.79	0.105	0.378	1.26	LSP391M2W-A3550

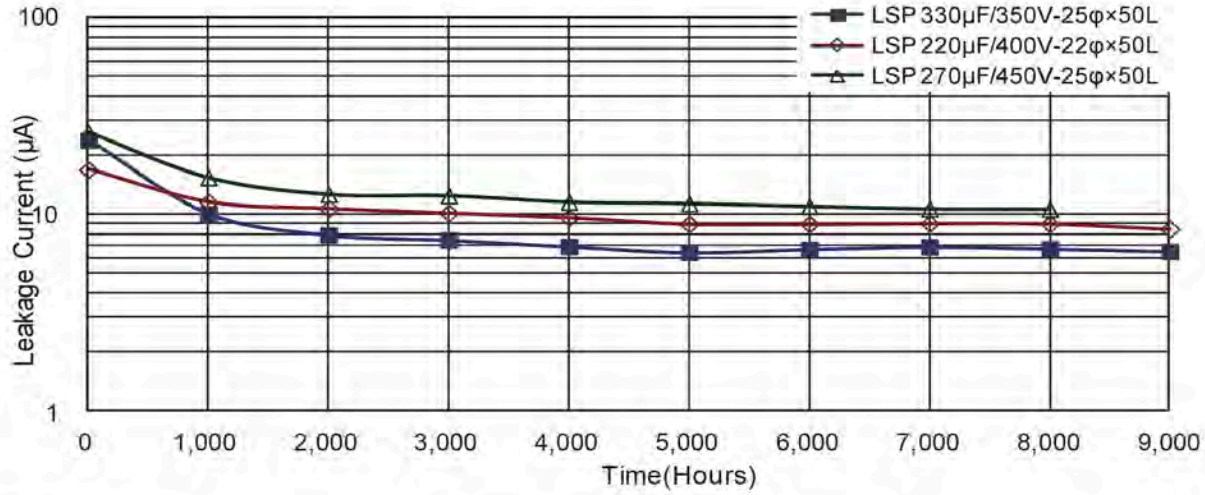
Part Numbering System

LSP Series	100μF	±20%	400V	4.0±0.5mm	30 φ × 35L	Pb-free Terminal + PET Sleeve		
LSP	221	M	2G	--	A	3035		
Series Name	Capacitance	Capacitance tolerance	Rated voltage	Terminal type	Terminal length	Case size	Terminal and Sleeve Type	
Example:		M = ±20% K = ±10%	Example:	Example:	Example:	Example:	Example:	
Cap.	Symbol		WV	Symbol	Type	Symbol	φ D×L	Code
56	560		400	2G	2 pins	--	22×30	2230
220	221		450	2W	5 pins	L5	25×25	2525
470	471						30×40	3040

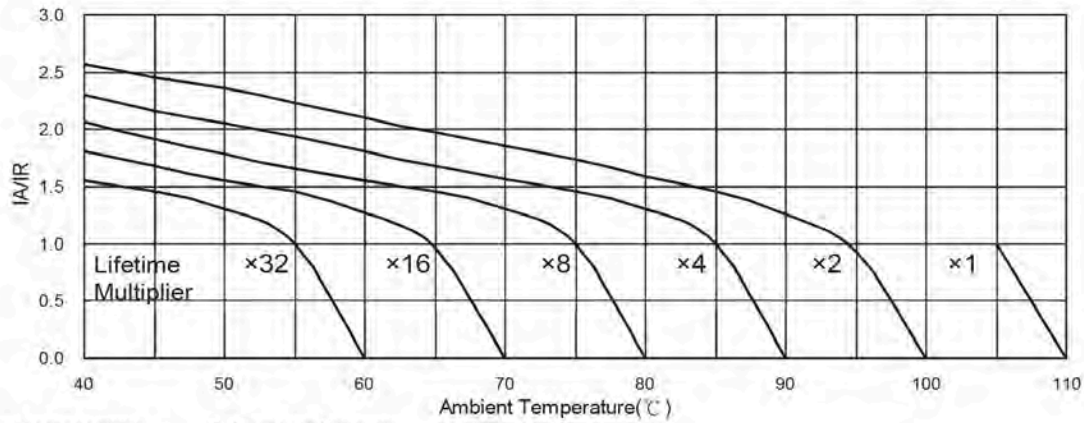
Note: For more details, please refer to "Part Numbering System (Snap-in Type)"

Typical Endurance Curves





Useful Life Chart



IA: Actual ripple current IR: Rated ripple current