

Features

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

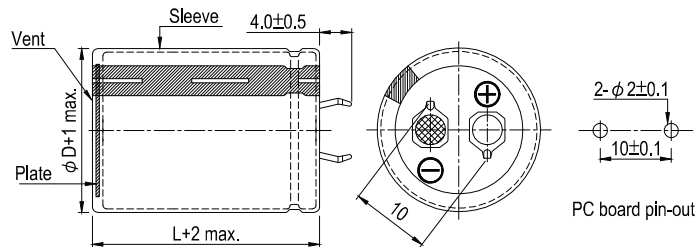


Specifications

| Items | Performance | | | | | | | | | | | | |
|---|--|----------------|-----------|--------------------|------------------------------|-----------|-----------------------------------|---------------------|------------------------|-----|-----|-----|-----|
| Category Temperature Range | -25°C ~ +105°C | | | | | | | | | | | | |
| Capacitance Tolerance | ±20% (at 120 Hz, 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 Rated Voltage in V | | | | | | | | | | | | |
| Tanδ (at 120 Hz, 20°C) | <table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Tanδ(max)</td> <td>0.105</td> <td>0.105</td> <td>0.105</td> </tr> </tbody> </table> | Rated Voltage | 350 | 400 | 450 | Tanδ(max) | 0.105 | 0.105 | 0.105 | | | | |
| Rated Voltage | 350 | 400 | 450 | | | | | | | | | | |
| Tanδ(max) | 0.105 | 0.105 | 0.105 | | | | | | | | | | |
| Low Temperature Characteristics (at 120 Hz) | <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>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>Impedance Ratio</td> <td>$Z(-25°C)/Z(+20°C)$</td> <td>4</td> <td>8</td> <td>8</td> </tr> </tbody> </table> | Rated Voltage | | 350 | 400 | 450 | Impedance Ratio | $Z(-25°C)/Z(+20°C)$ | 4 | 8 | 8 | | |
| Rated Voltage | | 350 | 400 | 450 | | | | | | | | | |
| Impedance Ratio | $Z(-25°C)/Z(+20°C)$ | 4 | 8 | 8 | | | | | | | | | |
| Endurance | <table border="1"> <tbody> <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> </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 7,000 hours at 105°C.</p> | Test Time | 7,000 Hrs | Capacitance Change | Within ±20% of initial value | Tanδ | Less than 250% of specified value | Leakage Current | Within specified value | | | | |
| Test Time | 7,000 Hrs | | | | | | | | | | | | |
| Capacitance Change | Within ±20% of initial value | | | | | | | | | | | | |
| Tanδ | Less than 250% of specified value | | | | | | | | | | | | |
| Leakage Current | Within specified value | | | | | | | | | | | | |
| Shelf Life Test | <table border="1"> <tbody> <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> </tbody> </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 | Tanδ | Less than 150% of specified value | Leakage Current | Within specified value | | | | |
| Test Time | 1,000 Hrs | | | | | | | | | | | | |
| Capacitance Change | Within ±15% of initial value | | | | | | | | | | | | |
| Tanδ | Less than 150% of specified value | | | | | | | | | | | | |
| Leakage Current | Within specified value | | | | | | | | | | | | |
| Ripple Current and Frequency Multipliers | <table border="1"> <thead> <tr> <th>Frequency (Hz)</th> <th>50 / 60</th> <th>100 / 120</th> <th>300</th> <th>1k</th> <th>10k up</th> </tr> </thead> <tbody> <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> </tbody> </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 Failure rate | When the failure percentage / failure rate is required, please contact with us for further discussion. | | | | | | | | | | | | |

Diagram of Dimensions

Unit: mm



Dimension and Permissible Ripple Current

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

Dimension and Permissible Ripple Current

| Rated Voltage V _{DC} | Capacitance 120 Hz, 20°C μF | φ D×L mm | Ripple Current 120 Hz, 105°C A/rms | Tan δ at 120 Hz, 20°C | ESR 120 Hz, 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

LSP

221

M

2G

--

A

3035

XX

Series Name Capacitance

Capacitance tolerance

Rated voltage

Terminal type

Terminal length

Case size

S = Standard
KS = AEC-Q200 Qualified,
Safety Critical Application
LS = AEC-Q200 Qualified,
Non-Safety Critical
Application

Example:

| Cap. | Symbol |
|------|--------|
| 56 | 560 |
| 220 | 221 |
| 470 | 471 |

Example:

| V | Symbol |
|-----|--------|
| 400 | 2G |
| 450 | 2W |

Example:

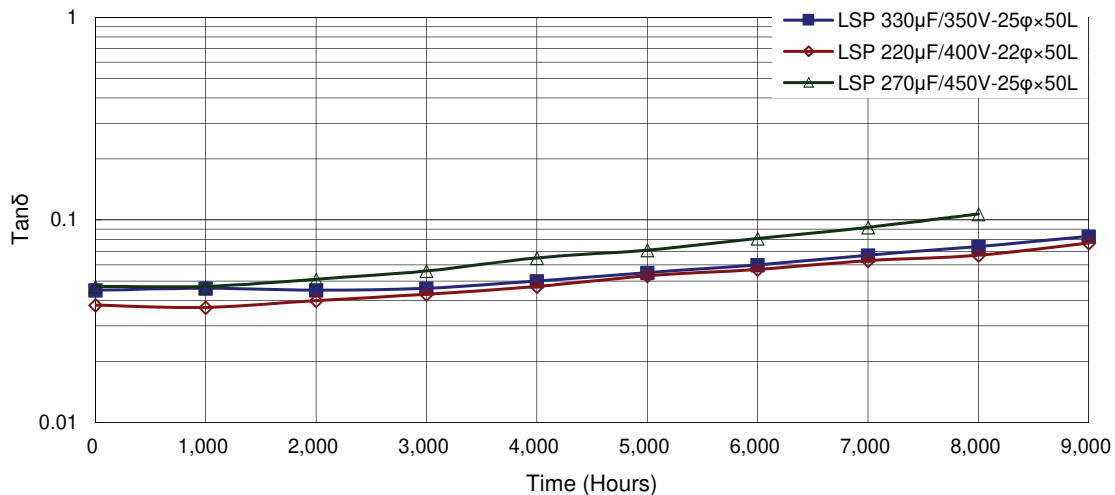
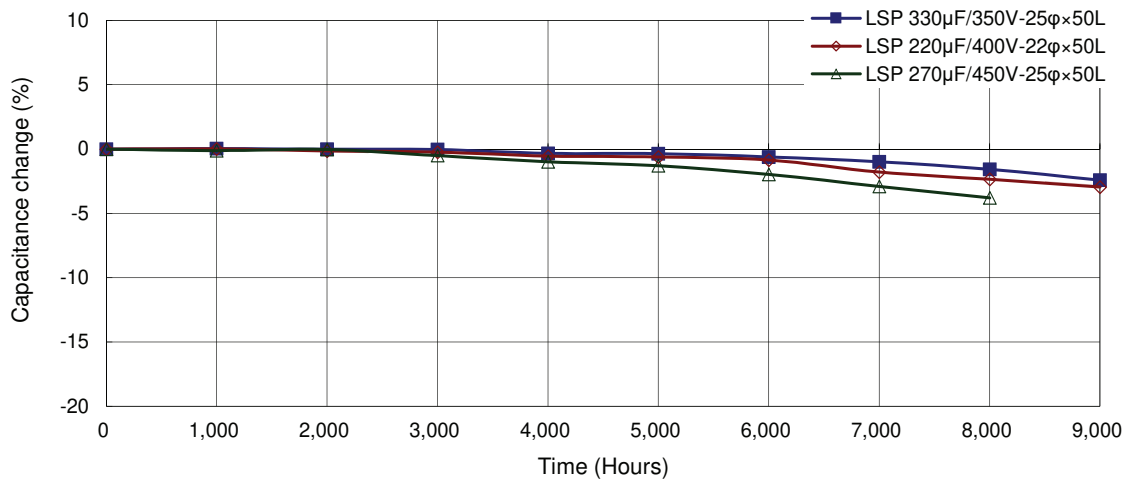
| Type | Symbol |
|--------|--------|
| 2 pins | -- |
| 5 pins | L5 |

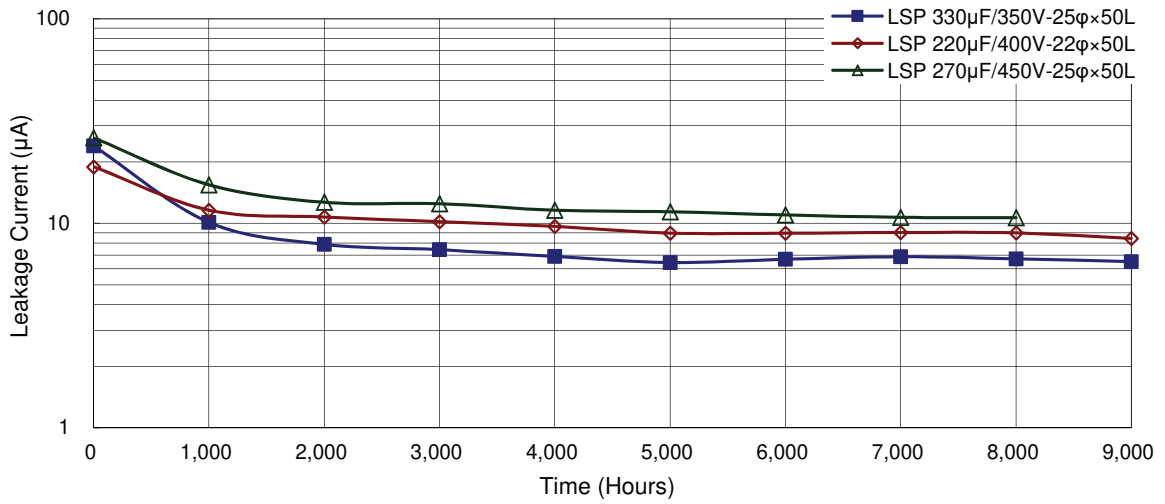
Example:
6.3±1.0 mm

Example:

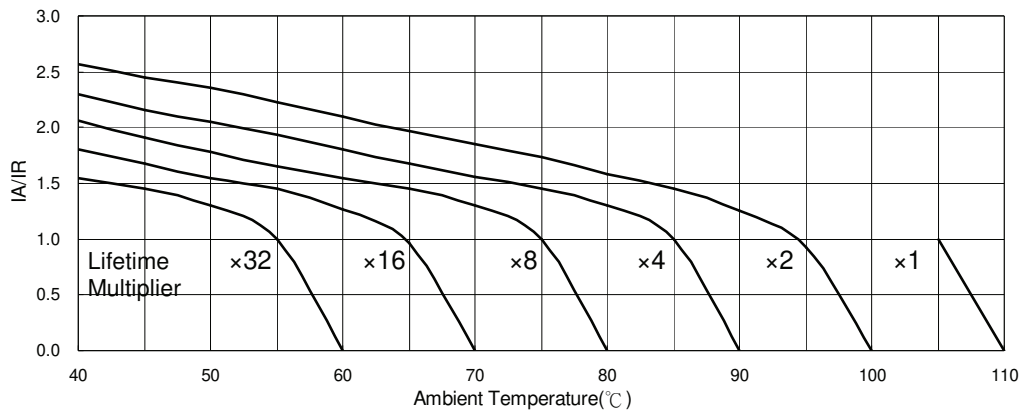
| φ D×L | Code |
|-------|------|
| 22×30 | 2230 |
| 25×25 | 2525 |
| 30×40 | 3040 |

Typical Endurance Curves





Useful Life Chart



IA: Actual ripple current IR: Rated ripple current