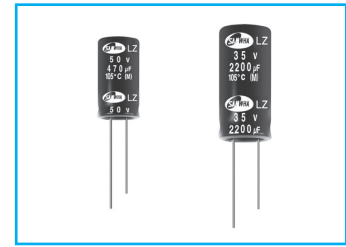


MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

LZ Low Impedance, Long Life Series

IZI Low Impedance **LL** Long Life **S** Solvent Proof



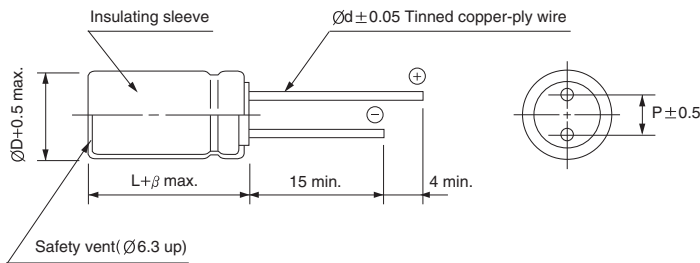
- Operating temperature range of -40 ~ +105°C
- Enabled high ripple current by a reduction of impedance at high frequency range
- High reliability withstanding 10000 hours load life at 105°C (6000 / 8000 hours for as specified below)
- Complied to the RoHS directive

MK → **LZ**
Long life

| Item | Characteristics | | | | | | | | | | | | | |
|---|--|------------------------------|---------------------------|--------------------|------------------------------|------------|-----------------------------------|-------------|------|------|------|------|------|------|
| Operating temperature range | -40 ~ +105°C | | | | | | | | | | | | | |
| Leakage current max. | I = 0.01CV or 3µA whichever is greater (after 2 minutes) I = 0.03CV or 4µA whichever is greater (after 1 minute) | | | | | | | | | | | | | |
| Capacitance tolerance | ±20% at 120Hz, 20°C | | | | | | | | | | | | | |
| Dissipation factor max. (at 120Hz, 20°C) | Capacitance > 1000µF : tanδ increases by 0.02 for each 1000µF from below value. | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td>Rated Voltage(V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <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> </table> | Rated Voltage(V) | 6.3 | 10 | 16 | 25 | 35 | 50 | tanδ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 |
| Rated Voltage(V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | |
| tanδ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | |
| Low temperature characteristics (Impedance ratio at 120Hz) | Z-40°C / Z+20°C | | | | | | | | | | | | | |
| | Z-25°C / Z+20°C | | | | | | | | | | | | | |
| Load life | After an application of DC bias voltage plus the rated AC ripple current for 10000 hours at 105°C. The measurement shall meet the following limits. The DC voltage plus the peak AC voltage combined must not exceed the rated voltage. | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td>Leakage current</td> <td>Less than specified value</td> </tr> <tr> <td>Capacitance change</td> <td>Within ±25% of initial value</td> </tr> <tr> <td>tanδ</td> <td>Less than 200% of specified value</td> </tr> </table> | Leakage current | Less than specified value | Capacitance change | Within ±25% of initial value | tanδ | Less than 200% of specified value | | | | | | | |
| | Leakage current | Less than specified value | | | | | | | | | | | | |
| | Capacitance change | Within ±25% of initial value | | | | | | | | | | | | |
| tanδ | Less than 200% of specified value | | | | | | | | | | | | | |
| <table border="1"> <tr> <td>∅D</td> <td>∅D = 5, 6.3</td> <td>∅D = 8</td> <td>∅D ≥ 10</td> </tr> <tr> <td>Life time</td> <td>6000 hours</td> <td>8000 hours</td> <td>10000 hours</td> </tr> </table> | ∅D | ∅D = 5, 6.3 | ∅D = 8 | ∅D ≥ 10 | Life time | 6000 hours | 8000 hours | 10000 hours | | | | | | |
| ∅D | ∅D = 5, 6.3 | ∅D = 8 | ∅D ≥ 10 | | | | | | | | | | | |
| Life time | 6000 hours | 8000 hours | 10000 hours | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Shelf life (at 105°C) | After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. The measurement shall be performed at 20°C by the KS C IEC 60384 - 4 | | | | | | | | | | | | | |

● DRAWING

Unit : mm



| ∅D | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 |
|----|-----|-----|-----|-----|------|-----|-----|
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| ∅d | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| β | 1.5 | | | 2.0 | | | |

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

| µF \ Frequency | 120Hz | 1kHz | 10kHz | 50kHz | 100kHz |
|----------------|-------|------|-------|-------|--------|
| ~ 33 | 0.32 | 0.60 | 0.80 | 0.90 | 1.00 |
| 39 ~ 270 | 0.40 | 0.63 | 0.82 | 0.91 | 1.00 |
| 330 ~ 680 | 0.45 | 0.67 | 0.84 | 0.92 | 1.00 |
| 820 ~ 1800 | 0.50 | 0.70 | 0.86 | 0.93 | 1.00 |
| 2200 ~ | 0.60 | 0.75 | 0.88 | 0.94 | 1.00 |

LZ series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

| WV Item μF | 6.3 | | | 10 | | | 16 | | |
|------------------|--------------|--|--|--------------|--|--|--------------|--|--|
| | ØD×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ØD×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ØD×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz |
| 47 | 5 × 11 | 0.600 | 300 | 5 × 11 | 0.600 | 300 | 5 × 11 | 0.600 | 300 |
| 100 | 5 × 11 | 0.600 | 345 | 5 × 11 | 0.600 | 345 | 6.3 × 11 | 0.300 | 345 |
| 150 | 6.3 × 11 | 0.300 | 345 | 6.3 × 11 | 0.300 | 345 | 6.3 × 11 | 0.300 | 540 |
| 220 | 6.3 × 11 | 0.300 | 345 | 6.3 × 11 | 0.300 | 345 | 8 × 11.5 | 0.200 | 540 |
| 330 | 6.3 × 11 | 0.300 | 540 | 8 × 11.5 | 0.250 | 608 | 8 × 11.5 | 0.200 | 945 |
| 470 | 8 × 11.5 | 0.140 | 540 | 8 × 11.5 | 0.200 | 630 | 10 × 12.5 | 0.105 | 945 |
| 680 | 10 × 12.5 | 0.105 | 945 | 10 × 12.5 | 0.105 | 945 | 8 × 20 | 0.105 | 945 |
| 820 | 10 × 12.5 | 0.105 | 945 | 10 × 16 | 0.075 | 945 | 10 × 16 | 0.075 | 1250 |
| | | | | 10 × 20 | 0.054 | 1760 | 10 × 20 | 0.054 | 1760 |
| 1000 | 10 × 16 | 0.075 | 1250 | 8 × 20 | 0.105 | 945 | 8 × 20 | 0.075 | 1250 |
| | | | | 10 × 12.5 | 0.105 | 945 | | | |
| | | | | 10 × 16 | 0.075 | 1250 | 10 × 20 | 0.054 | 1760 |
| | | | | 10 × 20 | 0.054 | 1650 | | | |
| 1200 | 10 × 16 | 0.075 | 1500 | 10 × 16 | 0.075 | 1760 | 10 × 20 | 0.054 | 1960 |
| 1500 | 10 × 20 | 0.054 | 1760 | 10 × 20 | 0.054 | 1760 | 12.5 × 20 | 0.050 | 1960 |
| 1800 | 10 × 20 | 0.054 | 1760 | 10 × 20 | 0.054 | 1760 | 12.5 × 20 | 0.050 | 2250 |
| 2200 | 12.5 × 20 | 0.050 | 1960 | 12.5 × 20 | 0.050 | 1960 | 12.5 × 25 | 0.040 | 2480 |
| 2700 | 12.5 × 20 | 0.050 | 2250 | 12.5 × 25 | 0.040 | 2250 | 12.5 × 25 | 0.040 | 2900 |
| 3300 | 12.5 × 20 | 0.050 | 2480 | 12.5 × 25 | 0.040 | 2480 | 16 × 25 | 0.030 | 3250 |
| 3900 | 12.5 × 25 | 0.040 | 2480 | 16 × 25 | 0.030 | 2480 | 16 × 25 | 0.030 | 3570 |
| 4700 | 16 × 25 | 0.030 | 3250 | 16 × 25 | 0.030 | 3250 | 16 × 31.5 | 0.027 | 3630 |
| 5600 | 16 × 25 | 0.030 | 3570 | 16 × 25 | 0.030 | 3570 | | | |
| 6800 | 16 × 25 | 0.030 | 3630 | 16 × 31.5 | 0.027 | 3630 | | | |
| 8200 | 16 × 31.5 | 0.027 | 3700 | 18 × 35.5 | 0.025 | 3700 | | | |

| WV Item μF | 25 | | | 35 | | | 50 | | |
|------------------|--------------|--|--|--------------|--|--|--------------|--|--|
| | ØD×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ØD×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ØD×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz |
| 10 | | | | | | | 5 × 11 | 3.000 | 160 |
| 22 | | | | | | | 5 × 11 | 1.800 | 240 |
| 33 | | | | | | | 5 × 11 | 1.800 | 292 |
| 47 | | | | 6.3 × 11 | 0.450 | 345 | 6.3 × 11 | 1.000 | 450 |
| 56 | | | | 6.3 × 11 | 0.450 | 345 | 6.3 × 11 | 0.700 | 450 |
| 68 | 6.3 × 11 | 0.300 | 345 | 6.3 × 11 | 0.450 | 345 | 8 × 11.5 | 0.500 | 490 |
| 100 | 6.3 × 11 | 0.300 | 345 | 6.3 × 11 | 0.350 | 500 | 8 × 11.5 | 0.300 | 724 |
| | | | | 8 × 11.5 | 0.300 | 540 | | | |
| 120 | 6.3 × 11 | 0.300 | 345 | 8 × 11.5 | 0.250 | 540 | 8 × 11.5 | 0.200 | 950 |
| 150 | 8 × 11.5 | 0.250 | 345 | 8 × 11.5 | 0.250 | 945 | 10 × 12.5 | 0.120 | 979 |
| 180 | 8 × 11.5 | 0.200 | 345 | 8 × 11.5 | 0.190 | 945 | 8 × 20 | 0.120 | 1200 |
| | | | | | | | 10 × 12.5 | 0.120 | 1190 |
| 220 | 8 × 11.5 | 0.180 | 345 | 8 × 11.5 | 0.190 | 945 | 8 × 20 | 0.120 | 1370 |
| | | | | 10 × 12.5 | 0.105 | 945 | 10 × 16 | 0.075 | 1370 |
| 270 | 10 × 12.5 | 0.105 | 945 | 8 × 15 | 0.120 | 945 | 10 × 20 | 0.064 | 1580 |
| | | | | 10 × 16 | 0.085 | 1250 | | | |
| 330 | 10 × 12.5 | 0.105 | 945 | 10 × 16 | 0.085 | 1330 | 10 × 20 | 0.064 | 1870 |
| 390 | 8 × 15 | 0.135 | 1250 | 10 × 20 | 0.054 | 1500 | 10 × 20 | 0.064 | 2050 |
| | 10 × 12.5 | 0.105 | 1250 | | | | | | |
| 470 | 10 × 16 | 0.075 | 1330 | 8 × 20 | 0.095 | 1430 | 12.5 × 20 | 0.050 | 2050 |
| | | | | 10 × 16 | 0.085 | 1600 | | | |
| | | | | 10 × 20 | 0.054 | 1760 | | | |
| 560 | 8 × 20 | 0.075 | 1700 | 12.5 × 20 | 0.050 | 1960 | 12.5 × 25 | 0.040 | 2410 |
| | 10 × 20 | 0.054 | | | | | | | |
| | 10 × 16 | 0.075 | | 10 × 20 | 0.054 | 1850 | | | |
| 680 | 10 × 20 | 0.054 | 1760 | 12.5 × 20 | 0.050 | 2250 | 12.5 × 25 | 0.040 | 2410 |
| | | | | 10 × 25 | | | | | |
| 820 | 10 × 20 | 0.054 | 2300 | 12.5 × 25 | 0.040 | 2350 | 16 × 20 | 0.040 | 2730 |
| | 12.5 × 20 | 0.050 | | | | | | | |
| 1000 | 12.5 × 20 | 0.050 | 2350 | 12.5 × 25 | 0.040 | 2480 | 16 × 25 | 0.036 | 3010 |
| 1200 | 12.5 × 20 | 0.050 | 2480 | 16 × 20 | 0.040 | 2900 | | | |
| 1500 | 16 × 20 | 0.040 | 2480 | 16 × 25 | 0.030 | 3250 | | | |
| 1800 | 16 × 20 | 0.040 | 2900 | 16 × 25 | 0.030 | 3570 | | | |
| 2200 | 12.5 × 30 | 0.040 | 2900 | 16 × 31.5 | 0.027 | 3630 | | | |
| | 16 × 25 | 0.030 | 3250 | | | | | | |
| 2700 | 16 × 25 | 0.030 | 3570 | | | | | | |
| 3300 | 16 × 31.5 | 0.027 | 3630 | | | | | | |

MINIATURE TYPES