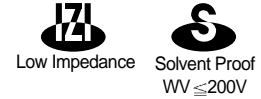
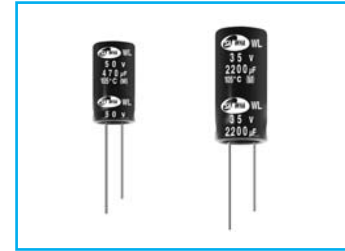


MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

WL Extremely Low Impedance Series

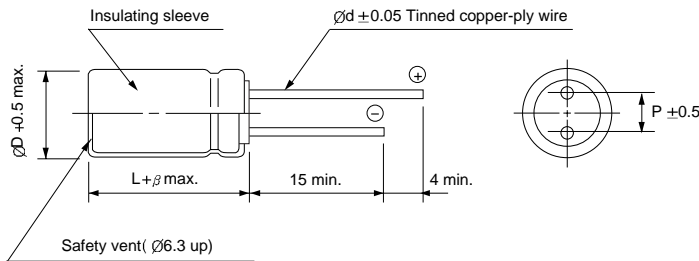
- Wide voltage compared with WD series
- Operating temperature range of -40 ~ +105°C
- Extremely low impedance at high frequency
- High reliability withstanding 5000 hours load life at 105°C (2000/3000 hours for smaller case size as specified below)



| Item | Characteristics | | | | | | | | | | | |
|--|--|-----------------------------------|------|------|--------------|------|----------------------------------|--------------|---------|---------|---------|--|
| Operating temperature range | WV | 6.3 ~ 100 | | | 160 ~ 350 | | | 400 ~ 450 | | | | |
| | Temperature range | -40 ~ +105°C | | | -40 ~ +105°C | | | -25 ~ +105°C | | | | |
| Leakage current max. | WV ≤ 100 | | | | | | WV > 100 | | | | | |
| | I = 0.01CV or 3μA whichever is greater (after 2 min.) I = 0.03CV or 4μA whichever is greater (after 1 min.) | | | | | | I = 0.02CV + 15μA (after 5 min.) | | | | | |
| Capacitance tolerance | ±20% at 120Hz, 20°C | | | | | | | | | | | |
| Dissipation factor max. (at 120Hz, 20°C) | Capacitance > 1000 μF : tanδ increases by 0.02 for each 1000 μF from below value. | | | | | | | | | | | |
| | WV | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 | 160~315 | 350~450 | |
| tanδ | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | 0.09 | 0.08 | 0.15 | 0.20 | | |
| Low temperature characteristics (Impedance ratio at 120Hz) | WV | 6.3 | 10 | 16 | 25~100 | | 160~250 | | 315~450 | | | |
| | Z-25°C/Z+20°C | 4 | 3 | 2 | 2 | 3 | 3 | 4 | 8 | - | | |
| | Z-40°C/Z+20°C | 8 | 6 | 4 | 3 | 4 | 4 | - | - | - | | |
| Load life (after application of the rated voltage for 5000 hours at 105°C) | Leakage current | Less than specified value | | | | | | | | | | |
| | Capacitance change | Within ±25% of initial value | | | | | | | | | | |
| | tanδ | Less than 200% of specified value | | | | | | | | | | |
| | Life time | ∅D = 5, 6.3 | | | ∅D = 8 | | | ∅D ≥ 10 | | | | |
| | WV ≤ 100 | 2000 hours | | | 3000 hours | | | 5000 hours | | | | |
| WV > 100 | 2000 hours | | | | | | | | | | | |
| Shelf life (at 105°C) | After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value. | | | | | | | | | | | |

● 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 | 1.0 | | | 2.0 | | | |

MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

WL series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

| WV Item μF | 160 | | | 200 | | | 250 | | |
|------------------|--------------|--|--|--------------|--|--|--------------|--|--|
| | ∅D×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ∅D×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ∅D×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz |
| 10 | | | | | | | 10 × 20 | 3.5 | 300 |
| 22 | 10 × 20 | 1.3 | 440 | 10 × 20 | 1.5 | 440 | 12.5 × 20 | 2.3 | 480 |
| 33 | 10 × 20 | 1.3 | 565 | 12.5 × 20 | 0.91 | 590 | 12.5 × 25 | 1.7 | 630 |
| 47 | 12.5 × 20 | 0.91 | 725 | 12.5 × 20 | 0.91 | 780 | 12.5 × 25 | 1.7 | 630 |
| 68 | 12.5 × 25 | 0.63 | 950 | 12.5 × 25 | 0.63 | 950 | 16 × 25 | 0.78 | 1000 |
| 100 | 16 × 25 | 0.27 | 1280 | 16 × 25 | 0.27 | 1280 | 16 × 31.5 | 0.63 | 1400 |
| 150 | 16 × 31.5 | 0.22 | 1300 | 18 × 25 | 0.27 | 1500 | 18 × 31.5 | 0.42 | 1450 |
| 220 | 16 × 31.5 | 0.22 | 1300 | 18 × 31.5 | 0.22 | 1700 | 18 × 40 | 0.35 | 1485 |
| 330 | 18 × 31.5 | 0.22 | 1700 | | | | | | |

| WV Item μF | 350 | | | 400 | | | 450 | | |
|------------------|--------------|--|--|--------------|--|--|--------------|--|--|
| | ∅D×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ∅D×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz | ∅D×L (mm) | Impedance (Ω)max. 20°C 100kHz | Ripple current (mA rms) 105°C 100kHz |
| 3.3 | | | | | | | 10 × 20 | 6.5 | 150 |
| 4.7 | | | | | | | 12.5 × 20 | 3.6 | 200 |
| 10 | 10 × 20 | 2.9 | 180 | 10 × 20 | 2.9 | 180 | 12.5 × 25 | 2.5 | 315 |
| 22 | 12.5 × 20 | 2.1 | 270 | 12.5 × 25 | 1.3 | 300 | 16 × 25 | 1.7 | 570 |
| 33 | 16 × 20 | 0.91 | 600 | 16 × 20 | 0.91 | 600 | 16 × 31.5 | 1.1 | 620 |
| 47 | 16 × 25 | 0.73 | 700 | 16 × 25 | 0.73 | 700 | 18 × 31.5 | 0.93 | 900 |
| 68 | 16 × 31.5 | 0.49 | 1100 | 16 × 31.5 | 0.49 | 1100 | 18 × 35.5 | 0.71 | 980 |
| 100 | 18 × 31.5 | 0.40 | 1170 | 18 × 40 | 0.34 | 1250 | | | |