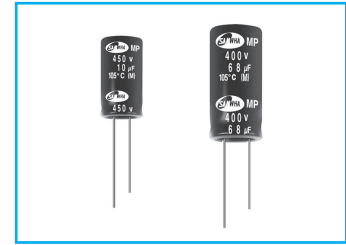


MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

MP For Display, 15000 hours at 105°C Series

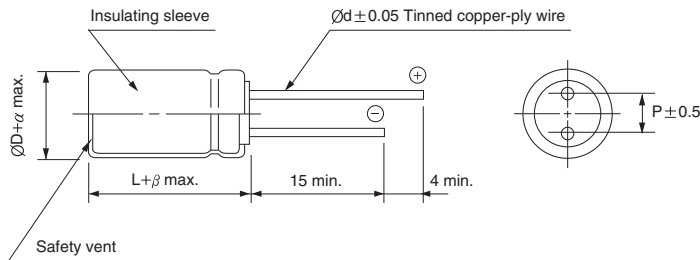
- High reliability withstanding 15000 hours load life at 105°C
- For power supply and adapter
- Complied to the RoHS directive



| Item | Characteristics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----------------------------------|-----|------|-----|-----|-----|-----|-----|-----|---------------|------|---|---|------|---|---|---|---|---------------|---|---|---|---|---|---|---|---|
| Operating temperature range | -40 ~ +105°C | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leakage current max. | I = 0.04CV+100µA (after 1 minutes) I = 0.02CV+25µA (after 5 minutes) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Capacitance tolerance | ±20% at 120Hz, 20°C | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dissipation factor max. (at 120Hz, 20°C) | <table border="1"> <tr> <td>WV</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>420</td> <td>450</td> <td>500</td> </tr> <tr> <td>tanδ</td> <td colspan="3">0.20</td> <td colspan="6">0.24</td> </tr> </table> | WV | 160 | 200 | 250 | 350 | 400 | 420 | 450 | 500 | tanδ | 0.20 | | | 0.24 | | | | | | | | | | | | | |
| | WV | 160 | 200 | 250 | 350 | 400 | 420 | 450 | 500 | | | | | | | | | | | | | | | | | | | |
| tanδ | 0.20 | | | 0.24 | | | | | | | | | | | | | | | | | | | | | | | | |
| Low temperature characteristics (Impedance ratio at 120Hz) | <table border="1"> <tr> <td>WV</td> <td>160</td> <td>200</td> <td>250</td> <td>350</td> <td>400</td> <td>420</td> <td>450</td> <td>500</td> </tr> <tr> <td>Z-25°C/Z+20°C</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> </tr> <tr> <td>Z-40°C/Z+20°C</td> <td>4</td> <td>4</td> <td>4</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> <td>6</td> </tr> </table> | WV | 160 | 200 | 250 | 350 | 400 | 420 | 450 | 500 | Z-25°C/Z+20°C | 3 | 3 | 3 | 3 | 6 | 6 | 6 | 6 | Z-40°C/Z+20°C | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 |
| WV | 160 | 200 | 250 | 350 | 400 | 420 | 450 | 500 | | | | | | | | | | | | | | | | | | | | |
| Z-25°C/Z+20°C | 3 | 3 | 3 | 3 | 6 | 6 | 6 | 6 | | | | | | | | | | | | | | | | | | | | |
| Z-40°C/Z+20°C | 4 | 4 | 4 | 6 | 6 | 6 | 6 | 6 | | | | | | | | | | | | | | | | | | | | |
| Load life | After an application of DC bias voltage plus the rated AC ripple current for 15000 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. (where 12000 hours for Ø10) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Leakage current | Less than specified value | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Capacitance change | Within ±20% of initial value | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | tanδ | Less than 200% of specified value | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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



| ØD | 10 | 12.5 | 16 | 18 | 20 |
|----|-----|------|-----|-----|------|
| P | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 |
| Ød | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| β | 2.0 | | 3.0 | | |
| α | 0.5 | | 1.0 | | |

● FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

| µF \ Frequency | 120Hz | 1kHz | 10kHz | 50kHz | 100kHz ≤ |
|----------------|-------|------|-------|-------|----------|
| 10 ~ 82 | 1.00 | 1.75 | 2.25 | 2.35 | 2.50 |
| 100 ~ 470 | 1.00 | 1.67 | 2.05 | 2.15 | 2.25 |

MP series

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

| μF \diagdown WV | 160 | | 200 | | 250 | | 350 | |
|----------------------------|-----------|------|-----------|------|-----------|------|-----------|------|
| 10 | 10 × 12.5 | 110 | 10 × 12.5 | 110 | 10 × 12.5 | 160 | 10 × 16 | 149 |
| 15 | 10 × 12.5 | 150 | 10 × 12.5 | 150 | 10 × 16 | 220 | 10 × 20 | 197 |
| 22 | 10 × 12.5 | 243 | 10 × 16 | 243 | 10 × 20 | 240 | 12.5 × 20 | 297 |
| 27 | 10 × 16 | 264 | 10 × 20 | 280 | 10 × 20 | 270 | 12.5 × 20 | 314 |
| 33 | 10 × 16 | 270 | 10 × 20 | 308 | 12.5 × 20 | 323 | 12.5 × 25 | 325 |
| 39 | 10 × 20 | 320 | 10 × 25 | 350 | 12.5 × 20 | 354 | 12.5 × 30 | 352 |
| 47 | 10 × 20 | 369 | 12.5 × 20 | 440 | 12.5 × 25 | 460 | 16 × 20 | 451 |
| 68 | 12.5 × 20 | 480 | 12.5 × 25 | 594 | 12.5 × 30 | 610 | 16 × 31.5 | 623 |
| 82 | 12.5 × 25 | 525 | 16 × 20 | 616 | 16 × 25 | 680 | 18 × 25 | 688 |
| 100 | 12.5 × 25 | 575 | 16 × 25 | 717 | 16 × 31.5 | 717 | 18 × 31.5 | 817 |
| 120 | 12.5 × 30 | 670 | 16 × 25 | 785 | 16 × 31.5 | 804 | 18 × 35.5 | 924 |
| | 16 × 25 | 670 | | | | | | |
| 150 | 16 × 25 | 825 | 16 × 31.5 | 813 | 16 × 35.5 | 902 | 18 × 40 | 1083 |
| 180 | 16 × 25 | 591 | 16 × 35.5 | 951 | 18 × 35.5 | 1012 | 18 × 45 | 1230 |
| 220 | 16 × 31.5 | 968 | 18 × 31.5 | 1100 | 18 × 40 | 1121 | | |
| | 18 × 25 | 968 | | | | | | |
| 270 | 16 × 35.5 | 1100 | 18 × 40 | 1290 | | | | |
| 330 | 16 × 40 | 1231 | 18 × 45 | 1390 | | | | |
| | 18 × 31.5 | 1231 | | | | | | |
| 470 | 18 × 45 | 1626 | | | | | | |

| μF \diagdown WV | 400 | | 420 | | 450 | | 500 | |
|----------------------------|-----------|------|-----------|-----|-----------|-----|-----------|-----|
| 10 | 10 × 16 | 145 | 10 × 20 | 135 | 10 × 20 | 135 | 12.5 × 20 | 165 |
| 22 | 12.5 × 20 | 297 | 12.5 × 25 | 250 | 12.5 × 25 | 296 | 16 × 20 | 260 |
| 27 | 12.5 × 25 | 330 | 12.5 × 25 | 265 | 12.5 × 25 | 305 | 16 × 25 | 329 |
| 33 | 12.5 × 30 | 355 | 16 × 20 | 345 | 16 × 20 | 364 | 16 × 31.5 | 380 |
| 39 | 16 × 25 | 400 | 16 × 25 | 400 | 16 × 31.5 | 423 | 16 × 35.5 | 434 |
| 47 | 16 × 25 | 480 | 16 × 25 | 450 | 16 × 31.5 | 478 | 18 × 31.5 | 468 |
| 68 | 16 × 35.5 | 627 | 18 × 31.5 | 580 | 18 × 31.5 | 590 | 18 × 40 | 630 |
| 82 | 16 × 40 | 770 | 18 × 31.5 | 650 | 18 × 31.5 | 670 | 18 × 40 | 670 |
| 100 | 18 × 35.5 | 875 | 18 × 35.5 | 770 | 18 × 40 | 794 | 18 × 45 | 800 |
| 120 | 18 × 40 | 1000 | 18 × 45 | 900 | 18 × 45 | 940 | 18 × 50 | 920 |
| 150 | 18 × 45 | 1150 | | | | | | |

Ripple current (mA rms) at 105°C, 120Hz
 Case size $\varnothing D \times L$ (mm)