

## WB Ultra Low Impedance Series

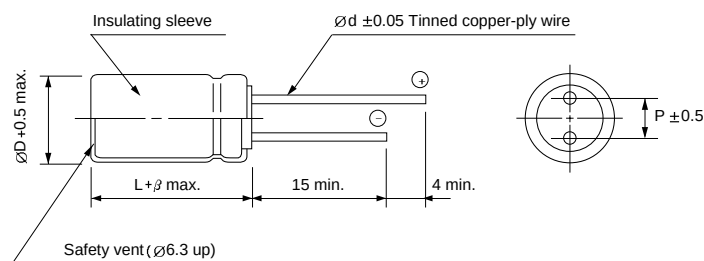
- Low impedance compared with WL series
- Enabled high ripple current by a reduction of impedance at high frequency
- High reliability withstanding 5000 hours load life at 105 °C  
(2000 ~ 4000 hours for smaller case sizes as specified below)
- For switching power supplies, noise filter, adaptor, charger



| Item                                                                          | Characteristics                                                                                                     |      |                 |      |                                   |      |      |      |      |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|------|-----------------|------|-----------------------------------|------|------|------|------|
| Operating temperature range                                                   | -40 ~ +105 ℃                                                                                                        |      |                 |      |                                   |      |      |      |      |
| Leakage current max.                                                          | I = 0.01CV or 3μA whichever is greater (after 2 minutes)<br>I = 0.03CV or 4μA whichever is greater (after 1 minute) |      |                 |      |                                   |      |      |      |      |
| Capacitance tolerance                                                         | ±20% at 120Hz, 20 ℃                                                                                                 |      |                 |      |                                   |      |      |      |      |
| Dissipation factor max.<br>(at 120Hz, 20 ℃)                                   | Capacitance > 1000μF : tanδ increases by 0.02 for each 1000μF from below value.                                     |      |                 |      |                                   |      |      |      |      |
|                                                                               | WV                                                                                                                  | 6.3  | 10              | 16   | 25                                | 35   | 50   | 63   | 100  |
|                                                                               | tanδ                                                                                                                | 0.22 | 0.19            | 0.16 | 0.14                              | 0.12 | 0.10 | 0.09 | 0.08 |
| Low temperature characteristics<br>(Impedance ratio at 120Hz)                 | Z-40 ℃ / Z+20 ℃                                                                                                     |      | Z-25 ℃ / Z+20 ℃ |      |                                   |      |      |      |      |
|                                                                               | 3                                                                                                                   |      | 2               |      |                                   |      |      |      |      |
| Load life<br>(after application of the rated voltage for 5000 hours at 105 ℃) | Leakage current                                                                                                     |      |                 |      | Less than specified value         |      |      |      |      |
|                                                                               | Capacitance change                                                                                                  |      |                 |      | Within ±25% of initial value      |      |      |      |      |
|                                                                               | tanδ                                                                                                                |      |                 |      | Less than 200% of specified value |      |      |      |      |
|                                                                               | ø5, 6.3 : 2000 hours, ø8 : 3000 hours, ø10 : 4000 hours                                                             |      |                 |      |                                   |      |      |      |      |
| Shelf life (at 105 ℃)                                                         | After 1000 hours no load test, leakage current, capacitance and tanδ are same as load life value.                   |      |                 |      |                                   |      |      |      |      |

### DRAWING

Unit : mm



| ØD | 5   | 6.3 | 8   | 10  | 12.5 | 16  | 18  |
|----|-----|-----|-----|-----|------|-----|-----|
| P  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 |
| Ød | 0.5 | 0.5 | 0.6 | 0.6 | 0.6  | 0.8 | 0.8 |
| β  | 1.0 |     |     | 2.0 |      |     |     |

# MINIATURE ALUMINUM ELECTROLYTIC CAPACITORS

**WB** series

## ● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

| WV<br>Item<br>μF | 6.3            |                                         |                                                   | 10             |                                         |                                                   | 16             |                                         |                                                   | 25             |                                         |                                                   |
|------------------|----------------|-----------------------------------------|---------------------------------------------------|----------------|-----------------------------------------|---------------------------------------------------|----------------|-----------------------------------------|---------------------------------------------------|----------------|-----------------------------------------|---------------------------------------------------|
|                  | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz |
| 4.7              |                |                                         |                                                   |                |                                         |                                                   |                |                                         |                                                   | 5 × 11         | 0.35                                    | 250                                               |
| 10               |                |                                         |                                                   |                |                                         |                                                   | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               |
| 22               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               |
| 33               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.35                                    | 250                                               |
| 47               | 5 × 11         | 0.30                                    | 250                                               | 5 × 11         | 0.30                                    | 250                                               | 5 × 11         | 0.30                                    | 250                                               | 5 × 11         | 0.30                                    | 250                                               |
| 100              | 5 × 11         | 0.30                                    | 250                                               | 5 × 11         | 0.30                                    | 250                                               | 6.3 × 11       | 0.15                                    | 405                                               | 6.3 × 11       | 0.15                                    | 405                                               |
| 150              | 6.3 × 11       | 0.15                                    | 405                                               | 6.3 × 11       | 0.15                                    | 405                                               | 6.3 × 11       | 0.15                                    | 405                                               | 8 × 11.5       | 0.072                                   | 760                                               |
| 220              | 6.3 × 11       | 0.15                                    | 405                                               | 6.3 × 11       | 0.15                                    | 405                                               | 8 × 11.5       | 0.072                                   | 760                                               | 8 × 11.5       | 0.072                                   | 760                                               |
| 330              | 6.3 × 11       | 0.15                                    | 405                                               | 8 × 11.5       | 0.072                                   | 760                                               | 8 × 11.5       | 0.072                                   | 760                                               | 10 × 12.5      | 0.053                                   | 1030                                              |
| 470              | 8 × 11.5       | 0.072                                   | 760                                               | 8 × 11.5       | 0.072                                   | 760                                               | 10 × 12.5      | 0.053                                   | 1030                                              | 10 × 16        | 0.038                                   | 1430                                              |
| 680              | 10 × 12.5      | 0.053                                   | 1030                                              | 10 × 12.5      | 0.053                                   | 1030                                              | 10 × 16        | 0.038                                   | 1430                                              | 10 × 20        | 0.027                                   | 1820                                              |
| 1000             | 10 × 12.5      | 0.053                                   | 1030                                              | 10 × 16        | 0.038                                   | 1430                                              | 10 × 20        | 0.027                                   | 1820                                              | 12.5 × 20      | 0.025                                   | 2360                                              |
| 1500             | 10 × 20        | 0.027                                   | 1820                                              | 10 × 20        | 0.027                                   | 1820                                              | 12.5 × 20      | 0.025                                   | 2360                                              | 16 × 20        | 0.015                                   | 3460                                              |
| 2200             | 12.5 × 20      | 0.025                                   | 2360                                              | 12.5 × 20      | 0.025                                   | 2360                                              | 12.5 × 25      | 0.018                                   | 2770                                              | 16 × 25        | 0.015                                   | 3460                                              |
| 3300             | 12.5 × 20      | 0.025                                   | 2360                                              | 12.5 × 25      | 0.018                                   | 2770                                              | 16 × 25        | 0.015                                   | 3460                                              | 16 × 31.5      | 0.015                                   | 3680                                              |
| 4700             | 16 × 25        | 0.015                                   | 3460                                              | 16 × 25        | 0.015                                   | 3460                                              | 16 × 31.5      | 0.015                                   | 3680                                              | 18 × 35.5      | 0.014                                   | 3800                                              |
| 6800             | 16 × 25        | 0.015                                   | 3460                                              | 16 × 31.5      | 0.015                                   | 3680                                              | 18 × 35.5      | 0.014                                   | 3800                                              |                |                                         |                                                   |
| 10000            | 16 × 31.5      | 0.015                                   | 3680                                              | 18 × 35.5      | 0.014                                   | 3800                                              |                |                                         |                                                   |                |                                         |                                                   |
| 15000            | 18 × 35.5      | 0.014                                   | 3800                                              |                |                                         |                                                   |                |                                         |                                                   |                |                                         |                                                   |

| WV<br>Item<br>μF | 35             |                                         |                                                   | 50             |                                         |                                                   | 63             |                                         |                                                   | 100            |                                         |                                                   |
|------------------|----------------|-----------------------------------------|---------------------------------------------------|----------------|-----------------------------------------|---------------------------------------------------|----------------|-----------------------------------------|---------------------------------------------------|----------------|-----------------------------------------|---------------------------------------------------|
|                  | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz | ØD x L<br>(mm) | Impedance<br>(Ω)max.<br>20 °C<br>100kHz | Ripple<br>current<br>(mA rms)<br>105 °C<br>100kHz |
| 0.47             |                |                                         |                                                   | 5 × 11         | 2.0                                     | 250                                               |                |                                         |                                                   |                |                                         |                                                   |
| 1.0              |                |                                         |                                                   | 5 × 11         | 2.0                                     | 250                                               |                |                                         |                                                   |                |                                         |                                                   |
| 2.2              |                |                                         |                                                   | 5 × 11         | 2.0                                     | 250                                               |                |                                         |                                                   | 5 × 11         | 2.0                                     | 125                                               |
| 3.3              |                |                                         |                                                   | 5 × 11         | 1.0                                     | 250                                               | 5 × 11         | 2.0                                     | 165                                               | 5 × 11         | 2.0                                     | 125                                               |
| 4.7              | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 1.0                                     | 250                                               | 5 × 11         | 2.0                                     | 165                                               | 5 × 11         | 2.0                                     | 125                                               |
| 10               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.50                                    | 250                                               | 5 × 11         | 0.45                                    | 165                                               | 6.3 × 11       | 0.50                                    | 205                                               |
| 22               | 5 × 11         | 0.35                                    | 250                                               | 5 × 11         | 0.26                                    | 250                                               | 6.3 × 11       | 0.30                                    | 265                                               | 8 × 11.5       | 0.30                                    | 355                                               |
| 33               | 5 × 11         | 0.30                                    | 250                                               | 6.3 × 11       | 0.17                                    | 405                                               | 6.3 × 11       | 0.30                                    | 265                                               | 10 × 12.5      | 0.25                                    | 450                                               |
| 47               | 6.3 × 11       | 0.15                                    | 405                                               | 6.3 × 11       | 0.14                                    | 405                                               | 8 × 11.5       | 0.20                                    | 500                                               | 10 × 16        | 0.20                                    | 580                                               |
| 100              | 8 × 11.5       | 0.072                                   | 760                                               | 8 × 11.5       | 0.072                                   | 760                                               | 10 × 16        | 0.10                                    | 945                                               | 12.5 × 20      | 0.10                                    | 1045                                              |
| 150              | 8 × 11.5       | 0.072                                   | 760                                               | 10 × 12.5      | 0.061                                   | 1030                                              | 10 × 20        | 0.08                                    | 1100                                              | 12.5 × 25      | 0.070                                   | 1195                                              |
| 220              | 10 × 12.5      | 0.053                                   | 1030                                              | 10 × 16        | 0.038                                   | 1430                                              | 10 × 25        | 0.07                                    | 1300                                              | 16 × 25        | 0.060                                   | 1600                                              |
| 330              | 10 × 16        | 0.038                                   | 1430                                              | 10 × 20        | 0.027                                   | 1820                                              | 12.5 × 20      | 0.04                                    | 1495                                              | 16 × 31.5      | 0.040                                   | 1750                                              |
| 470              | 10 × 20        | 0.027                                   | 1820                                              | 12.5 × 20      | 0.025                                   | 2360                                              | 16 × 20        | 0.035                                   | 1990                                              | 18 × 40        | 0.030                                   | 2060                                              |
| 680              | 12.5 × 20      | 0.025                                   | 2360                                              | 12.5 × 25      | 0.020                                   | 2770                                              | 16 × 25        | 0.030                                   | 2780                                              |                |                                         |                                                   |
| 1000             | 12.5 × 25      | 0.018                                   | 2770                                              | 16 × 25        | 0.018                                   | 3460                                              | 16 × 35.5      | 0.020                                   | 2835                                              |                |                                         |                                                   |
| 1500             | 16 × 25        | 0.015                                   | 3460                                              | 16 × 31.5      | 0.015                                   | 3680                                              |                |                                         |                                                   |                |                                         |                                                   |
| 2200             | 16 × 31.5      | 0.015                                   | 3680                                              | 18 × 35.5      | 0.014                                   | 3800                                              |                |                                         |                                                   |                |                                         |                                                   |
| 3300             | 18 × 35.5      | 0.014                                   | 3800                                              |                |                                         |                                                   |                |                                         |                                                   |                |                                         |                                                   |