

# ALUMINUM ELECTROLYTIC CAPACITORS

# UKW

Standard, For Audio Equipment



- Realization of a harmonious balance of sound quality, made possible by the development of new electrolyte.
- Most suited for AV equipment like DVD, MD.
- Compliant to the RoHS directive (2011/65/EU).

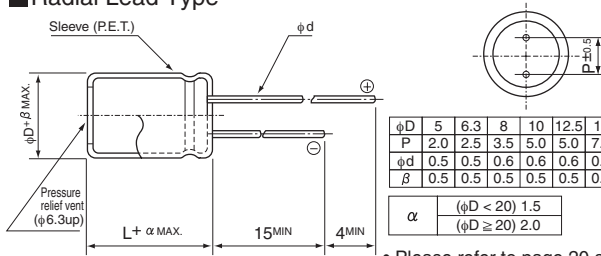
**UKW**



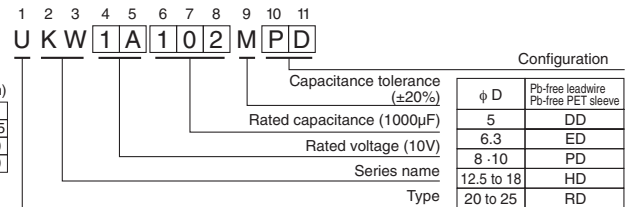
## Specifications

| Item  | Performance Characteristics  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
|---|--|-----------------|------|------|------|--|------|------|------|---------------------------------------|--------------------|--|-------|---|-----------------|---|
| Category Temperature Range  | -40 to +85°C   |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Rated Voltage Range   | 6.3 to 100V  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Rated Capacitance Range   | 2.2 to 33000μF   |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Capacitance Tolerance   | ±20% at 120Hz, 20°C  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Leakage Current   | After 1 minute's application of rated voltage at 20°C, leakage current is not more than 0.03 CV or 4 (μA), whichever is greater.<br>After 2 minutes' application of rated voltage at 20°C, leakage current is not more than 0.01 CV or 3 (μA), whichever is greater. |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Tangent of loss angle (tan δ)   | Rated voltage (V)  | 6.3             | 10   | 16   | 25   | 35   | 50   | 63   | 100  | Measurement frequency : 120Hz at 20°C |                    |  |       |   |                 |   |
|   | tan δ (MAX.)   | 0.28            | 0.24 | 0.20 | 0.16 | 0.14   | 0.12 | 0.10 | 0.08 |                                       |                    |  |       |   |                 |   |
| For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. |  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Stability at Low Temperature  | Measurement frequency : 120Hz  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
|   | Rated voltage (V)  |                 | 6.3  | 10   | 16   | 25   | 35   | 50   | 63   | 100                                   |                    |  |       |   |                 |   |
|   | Impedance ratio  | Z-25°C / Z+20°C | 5    | 4    | 3    | 2  | 2    | 2    | 2    | 2                                     |                    |  |       |   |                 |   |
|   | ZT / Z20 (MAX.)  | Z-40°C / Z+20°C | 12   | 10   | 8    | 5  | 4    | 3    | 3    | 3                                     |                    |  |       |   |                 |   |
| Endurance   | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C.  |                 |      |      |      | <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table> |      |      |      |                                       | Capacitance change | Within ±20% of the initial capacitance value | tan δ | 200% or less than the initial specified value | Leakage current | Less than or equal to the initial specified value |
| Capacitance change  | Within ±20% of the initial capacitance value   |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| tan δ   | 200% or less than the initial specified value  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Leakage current   | Less than or equal to the initial specified value  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Shelf Life  | After storing the capacitors under no load at 85°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.                               |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |
| Marking   | Printed with gold color letter on black sleeve.  |                 |      |      |      |  |      |      |      |                                       |                    |  |       |   |                 |   |

## Radial Lead Type



## Type numbering system (Example : 10V 1000μF)



## Dimensions

| Cap. (μF) | V   | 6.3       | 10       | 16        | 25       | 35        | 50       | 63        | 100       |           |
|-----------|-----|-----------|----------|-----------|----------|-----------|----------|-----------|-----------|-----------|
| Code      |     | 0J        | 1A       | 1C        | 1E       | 1V        | 1H       | 1J        | 2A        |           |
| 2.2       | 2R2 |           |          |           |          |           | 5 × 11   | 23        | 5 × 11    | 30        |
| 3.3       | 3R3 |           |          |           |          |           | 5 × 11   | 35        | 5 × 11    | 40        |
| 4.7       | 4R7 |           |          |           |          |           | 5 × 11   | 40        | 5 × 11    | 45        |
| 10        | 100 |           |          |           |          |           | 5 × 11   | 65        | 5 × 11    | 70        |
| 22        | 220 |           |          |           |          |           | 5 × 11   | 95        | 5 × 11    | 100       |
| 33        | 330 |           |          |           |          |           | 5 × 11   | 105       | 5 × 11    | 120       |
| 47        | 470 |           |          |           |          |           | 5 × 11   | 120       | 6.3 × 11  | 140       |
| 100       | 101 |           | 5 × 11   | 145       | 5 × 11   | 115       | 5 × 11   | 120       | 6.3 × 11  | 150       |
| 220       | 221 |           | 6.3 × 11 | 230       | 6.3 × 11 | 250       | 8 × 11.5 | 320       | 10 × 12.5 | 370       |
| 330       | 331 | 6.3 × 11  | 265      | 6.3 × 11  | 270      | 8 × 11.5  | 360      | 10 × 12.5 | 420       | 10 × 12.5 |
| 470       | 471 | 6.3 × 11  | 310      | 6.3 × 11  | 330      | 8 × 11.5  | 420      | 10 × 12.5 | 530       | 10 × 16   |
| 1000      | 102 | 8 × 11.5  | 530      | 10 × 12.5 | 630      | 10 × 16   | 770      | 10 × 20   | 950       | 12.5 × 20 |
| 2200      | 222 | 10 × 20   | 980      | 10 × 20   | 1050     | 12.5 × 20 | 1250     | 12.5 × 25 | 1550      | 16 × 25   |
| 3300      | 332 | 10 × 20   | 1170     | 12.5 × 20 | 1420     | 12.5 × 25 | 1700     | 16 × 25   | 1950      | 16 × 35.5 |
| 4700      | 472 | 12.5 × 20 | 1350     | 12.5 × 25 | 1800     | 16 × 25   | 2100     | 16 × 31.5 | 2360      | 18 × 35.5 |
| 6800      | 682 | 12.5 × 25 | 1600     | 16 × 25   | 2150     | 16 × 35.5 | 2500     | 18 × 35.5 | 2590      | 20 × 40   |
| 10000     | 103 | 16 × 25   | 2000     | 16 × 35.5 | 2500     | 18 × 35.5 | 2640     | 20 × 40   | 3000      | 22 × 50   |
| 15000     | 153 | 16 × 35.5 | 2550     | 18 × 35.5 | 2720     | 20 × 40   | 3400     | 22 × 50   | 3800      | 25 × 50   |
| 22000     | 223 | 18 × 40   | 3200     | 20 × 40   | 3700     | 22 × 50   | 4200     | 25 × 50   | 4500      |           |
| 33000     | 333 | 22 × 50   | 3900     | 22 × 50   | 4500     | 25 × 50   | 4800     |           |           |           |

## Frequency coefficient of rated ripple current

| Cap. (μF)     | Frequency | 50Hz | 120Hz | 300Hz | 1kHz | 10kHz or more |
|---------------|-----------|------|-------|-------|------|---------------|
| 2.2 to 47     |           | 0.75 | 1.00  | 1.35  | 1.57 | 2.00          |
| 100 to 470    |           | 0.80 | 1.00  | 1.23  | 1.34 | 1.50          |
| 1000 to 33000 |           | 0.85 | 1.00  | 1.10  | 1.13 | 1.15          |

Rated ripple current (mArms) at 85°C 120Hz

Please refer to page 20, 21, 22 about the formed or taped product spec.  
Please refer to page 4 for the minimum order quantity.

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