# ALUMINUM ELECTROLYTIC CAPACITORS

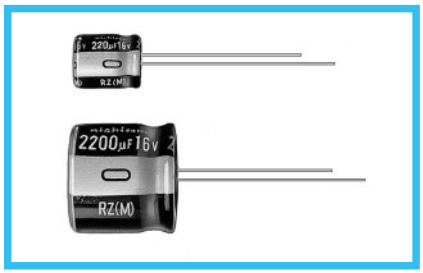
nichicon

## RZ series

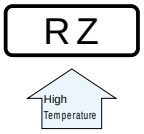
Compact & Low-Profile Sized, Wide Temperature Range

Smaller

Anti-Solvent Feature (Through 100V only)



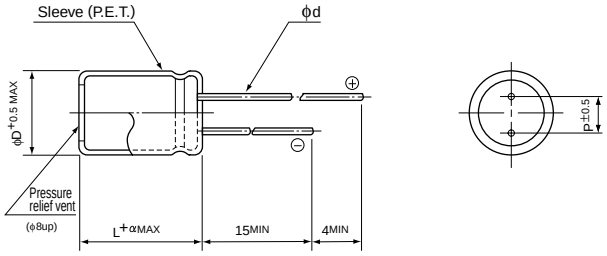

- Very small case sizes same as RS series, but operating over wide temperature range of –55 (–40) to +105˚C.
- Compliant to the RoHS directive (2002/95/EC).




## ■Specifications

| Item | Performance Characteristics |
|---|---|
| Category Temperature Range | –55 to +105˚C (6.3 to 100V) , –40 to +105˚C (160 to 400V) |
| Rated Voltage Range | 6.3 to 400V |
| Rated Capacitance Range | 0.1 to 10000μF |
| Capacitance Tolerance | ±20% at 120Hz, 20˚C |
| Leakage Current | Rated voltage (V) \| 6.3 to 100 \| 160 to 400<br>——— \| After 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4 (μA), whichever is greater.<br>After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 (μA), whichever is greater. \| After 1 minute's application of rated voltage, I = 0.04CV+100 (μA) or less |
| Tangent of loss angle (tan δ) | For capacitance of more than 1000μF, add 0.02 for every increase of 1000μF. Measurement frequency : 120Hz, Temperature : 20˚C<br>Rated voltage (V): 6.3 \| 10 \| 16 \| 25 \| 35 \| 50 \| 63 \| 100 \| 160 \| 200 \| 250 \| 400<br>tan δ (MAX.): 0.28 \| 0.24 \| 0.20 \| 0.16 \| 0.14 \| 0.12 \| 0.10 \| 0.08 \| 0.20 \| 0.20 \| 0.20 \| 0.25 |
| Stability at Low Temperature | Measurement frequency : 120Hz<br>Rated voltage (V): 6.3 \| 10 \| 16 \| 25 \| 35 \| 50 \| 63 \| 100 \| 160 \| 200 \| 250 \| 400<br>Impedance ratio ZT / Z20 (MAX.) Z–25˚C / Z+20˚C: 5 \| 4 \| 3 \| 2 \| 2 \| 2 \| 2 \| 2 \| 3 \| 3 \| 3 \| 6<br>Z–40˚C / Z+20˚C: 10 \| 8 \| 6 \| 4 \| 3 \| 3 \| 3 \| 3 \| 4 \| 4 \| 6 \| 10 |
| Endurance | The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 105°C.<br>Capacitance change: Within ±20% of the initial capacitance value<br>tan δ: 200% or less than the initial specified value<br>Leakage current: Less than or equal to the initial specified value |
| Shelf Life | After storing the capacitors under no load at 105˚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 white color letter on black sleeve. |

## ■Radial Lead Type




(mm)

| α | (φD < 20) 1.5 |
|---|---|
| | (φD ≥ 20) 2.0 |

| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 |
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 | 1.0 |

• Please refer to page 20 about the end seal configulation.

## Type numbering system (Example : 10V 330μF)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| U | R | Z | 1 | A | 3 | 3 | 1 | M | P | D | |

Size code
Configuration ※
Capacitance tolerance (±20%)
Rated capacitance (330μF)
Rated voltage (10V)
Series name
Type

※Configuration

| φ D | Pb-free leadwire Pb-free PET sleeve |
|---|---|
| 5 · 6.3 | DD |
| 8 · 10 | PD |
| 12.5 to 18 | HD |
| 20 | RD |

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

● Dimension table in next page.

# RZ series

## ■Dimensions

| Cap.(μF) \ V | Code | 6.3 | | 10 | | 16 | | 25 | | 35 | | 50 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0J | | 1A | | 1C | | 1E | | 1V | | 1H | |
| **0.1** | 0R1 | | | | | | | | | | | 5×9 | 1.1 |
| **0.22** | R22 | | | | | | | | | | | 5×9 | 2.3 |
| **0.33** | R33 | | | | | | | | | | | 5×9 | 3.5 |
| **0.47** | R47 | | | | | | | | | | | 5×9 | 5 |
| **1** | 010 | | | | | | | | | | | 5×9 | 12 |
| **2.2** | 2R2 | | | | | | | | | | | 5×9 | 18 |
| **3.3** | 3R3 | | | | | | | | | | | 5×9 | 25 |
| **4.7** | 4R7 | | | | | | | 5×9 | 20 | 5×9 | 25 | 5×9 | 30 |
| **10** | 100 | | | | | 5×9 | 30 | 5×9 | 35 | 5×9 | 40 | 5×9 | 46 |
| **22** | 220 | 5×9 | 25 | 5×9 | 40 | 5×9 | 50 | 5×9 | 55 | 5×9 | 60 | 5×9 | 65 |
| **33** | 330 | 5×9 | 40 | 5×9 | 55 | 5×9 | 60 | 5×9 | 70 | 5×9 | 75 | 6.3×9 | 85 |
| **47** | 470 | 5×9 | 55 | 5×9 | 65 | 5×9 | 70 | 5×9 | 80 | 6.3×9 | 95 | 6.3×9 | 100 |
| **100** | 101 | 5×9 | 90 | 5×9 | 95 | 6.3×9 | 115 | 6.3×9 | 130 | 8×9 | 155 | 10×9 | 170 |
| **220** | 221 | 6.3×9 | 145 | 6.3×9 | 155 | 8×9 | 205 | 10×9 | 220 | 10×9 | 235 | 10×12.5 | 290 |
| **330** | 331 | 6.3×9 | 180 | 8×9 | 210 | 10×9 | 240 | 10×9 | 270 | 10×12.5 | 340 | 12.5×12.5 | 370 |
| **470** | 471 | 8×9 | 235 | 8×9 | 275 | 10×9 | 290 | 10×12.5 | 370 | 12.5×12.5 | 420 | 16×15 | 540 |
| **1000** | 102 | 10×9 | 370 | 10×12.5 | 450 | 12.5×12.5 | 520 | 12.5×15 | 590 | 16×15 | 720 | 18×20 | 830 |
| **2200** | 222 | 12.5×15 | 635 | 12.5×15 | 690 | 16×15 | 830 | 18×15 | 970 | 18×20 | 1110 | 20×25 | 1250 |
| **3300** | 332 | 16×15 | 860 | 16×15 | 940 | 18×15 | 1050 | 18×20 | 1220 | 20×25 | 1430 | | |
| **4700** | 472 | 16×15 | 1010 | 18×15 | 1120 | 18×20 | 1260 | 18×25 | 1470 | | | | |
| **6800** | 682 | 18×15 | 1200 | 18×20 | 1330 | 18×25 | 1560 | | | | | Case size φD×L (mm) | Rated ripple |
| **10000** | 103 | 18×20 | 1450 | 18×25 | 1700 | | | | | | | | |

| Cap.(μF) \ V | Code | 63 | | 100 | | 160 | | 200 | | 250 | | 400 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1J | | 2A | | 2C | | 2D | | 2E | | 2G | |
| **0.1** | 0R1 | | | 5×9 | 1.2 | | | | | | | | |
| **0.22** | R22 | | | 5×9 | 3 | | | | | | | | |
| **0.33** | R33 | | | 5×9 | 4.5 | | | | | | | | |
| **0.47** | R47 | | | 5×9 | 6.5 | | | | | | | | |
| **1** | 010 | | | 5×9 | 12 | | | | | | | | |
| **2.2** | 2R2 | | | 5×9 | 17 | | | | | | | | |
| **3.3** | 3R3 | | | 5×9 | 25 | | | | | | | | |
| **4.7** | 4R7 | | | 6.3×9 | 32 | | | | | | | | |
| **10** | 100 | 5×9 | 42 | 6.3×9 | 50 | | | | | | | 16×15 | 100 |
| **22** | 220 | 6.3×9 | 71 | 8×9 | 93 | | | | | 16×15 | 200 | ●18×15 | 200 |
| **33** | 330 | 8×9 | 100 | 10×9 | 130 | | | 16×15 | 250 | ●18×15 | 250 | 18×20 | 250 |
| **47** | 470 | 8×9 | 120 | 10×12.5 | 165 | 16×15 | 300 | ●18×15 | 300 | Δ18×20 | 300 | ★18×25 | 300 |
| **68** | 680 | | | | | ●18×15 | 350 | Δ18×20 | 350 | 18×20 | 350 | 20×25 | 350 |
| **100** | 101 | 10×9 | 215 | 12.5×15 | 265 | Δ18×20 | 420 | ★18×25 | 420 | 18×25 | 420 | | |
| **150** | 151 | | | | | ★18×25 | 510 | 18×25 | 510 | | | | |
| **220** | 221 | 12.5×12.5 | 335 | 16×15 | 440 | 20×25 | 550 | | | | | | |
| **330** | 331 | 12.5×15 | 510 | 18×15 | 540 | | | | | | | Case size φD×L (mm) | Rated ripple |
| **470** | 471 | 16×15 | 640 | | | | | | | | | | |

Rated ripple current (mArms) at 105˚C 120Hz

Size φ16×20 is available for capacitors marked "●"
Size φ20×15 is available for capacitors marked "Δ"
Size φ20×20 is available for capacitors marked "★"

In this case, [6] will be put at 12th digit of type numbering system.

## ●Frequency coefficient of rated ripple current

| V | Cap.(μF) \ Frequency | 50Hz | 120Hz | 300Hz | 1 kHz | 10kHz or more |
|---|---|---|---|---|---|---|
| 6.3 to 100 | 0.1 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 10000 | 0.85 | 1.00 | 1.10 | 1.13 | 1.15 |
| 160 to 400 | 10 to 220 | 0.80 | 1.00 | 1.25 | 1.40 | 1.60 |