# ALUMINUM ELECTROLYTIC CAPACITORS

nichicon

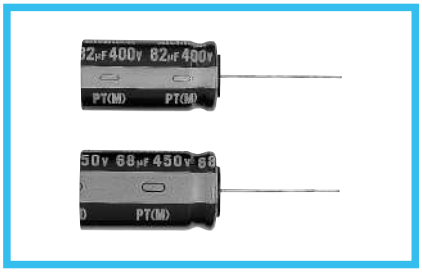
## PT

Miniature Sized, High Ripple Current, Long Life series

Smaller | Long Life | High Ripple Current

- High ripple current.
- Suited for ballast application.
- Compliant to the RoHS directive (2002/95/EC).

PB
Smaller
PT
Smaller
PZ



## ■Specifications

| Item | Performance Characteristics |
|---|---|
| Category Temperature Range | −25 to +105°C |
| Rated Voltage Range | 200 to 450V |
| Rated Capacitance Range | 15 to 820µF |
| Capacitance Tolerance | ±20% at 120Hz, 20°C |
| Leakage Current | After 2 minutes' application of rated voltage, leakage current is not more than 0.06CV+10 (µA) |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C |

| Rated voltage (V) | 200 | 220 | 250 | 400 | 420 | 450 |
|---|---|---|---|---|---|---|
| tan δ (MAX.) | 0.12 | 0.12 | 0.12 | 0.15 | 0.20 | 0.20 |

Stability at Low Temperature — Measurement frequency : 120Hz

| Rated voltage (V) | | 200 | 220 | 250 | 400 | 420 | 450 |
|---|---|---|---|---|---|---|---|
| Impedance ratio ZT / Z20 (MAX.) | Z−25°C / Z+20°C | 3 | 3 | 3 | 8 | 8 | 8 |

**Endurance**

The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 5000 hours at 105°C, the peak voltage shall not exceed the rated voltage.

| | |
|---|---|
| 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 |

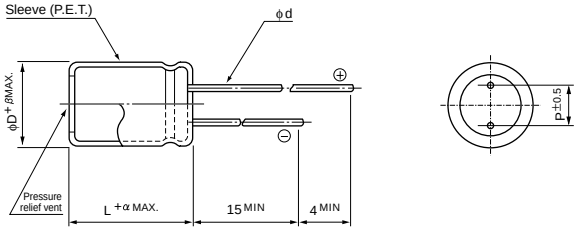
**Shelf Life**

After storing the capacitors under no load at 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 dark brown sleeve.

## ■Radial Lead Type




(mm)

| φD | 10 | 12.5 | 16 | 18 | 20 | 22 | 25 |
|---|---|---|---|---|---|---|---|
| P | 5.0 | 5.0 | 7.5 | 7.5 | 10.0 | 10.0 | 12.5 |
| φd | 0.6 | 0.6※ | 0.8 | 0.8 | 1.0 | 1.0 | 1.0 |
| β | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1.0 | 1.0 |

※In case L > 25 for the φ12.5 dia. unit, lead dia. φ d = 0.8mm.

| α | (φD < 20): 1.5 |
|---|---|
| | (φD ≧ 20): 2.0 |

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

### Type numbering system (Example : 250V 220µF)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| U | P | T | 2 | E | 2 | 2 | 1 | M | H | D | |

Size code
Configuration※
Capacitance tolerance (±20%)
Rated capacitance (220µF)
Rated voltage (250V)
Series name
Type

※ Configuration

| φ D | Pb-free leadwire Pb-free PET sleeve |
|---|---|
| 10 | PD |
| 12.5 to 18 | HD |
| 20 to 25 | 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.

# PT series

## ■Dimensions

| Cap \ V | Code | 200 | | 220 | | 250 | | 400 | | 420 | | 450 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2D | | 2P | | 2E | | 2G | | W6 | | 2W | |
| **15** | 150 | | | | | | | | | | | 10 × 31.5 | 0.15 |
| **18** | 180 | | | | | | | | | 10 × 31.5 | 0.17 | 12.5 × 25 | 0.18 |
| **22** | 220 | | | | | | | 10 × 31.5 | 0.21 | 12.5 × 25 | 0.20 | 12.5 × 31.5 | 0.22 |
| **27** | 270 | | | | | | | 12.5 × 25 | 0.24 | 12.5 × 31.5 | 0.24 | 12.5 × 31.5 | 0.25 |
| **33** | 330 | | | | | | | 12.5 × 31.5 | 0.29 | 12.5 × 31.5 | 0.27 | 12.5 × 35.5 | 0.28 |
| **39** | 390 | | | | | | | 12.5 × 31.5 | 0.32 | 12.5 × 35.5 | 0.31 | 12.5 × 40 | 0.32 |
| **47** | 470 | | | | | 10 × 31.5 | 0.27 | 12.5 × 35.5 | 0.37 | 12.5 × 40 | 0.36 | 16 × 31.5 | 0.38 |
| **56** | 560 | | | 10 × 31.5 | 0.29 | 12.5 × 25 | 0.31 | 12.5 × 40 | 0.42 | 16 × 31.5 | 0.43 | 16 × 35.5 | 0.44 |
| **68** | 680 | 10 × 31.5 | 0.35 | 12.5 × 25 | 0.34 | 12.5 × 31.5 | 0.36 | 16 × 31.5 | 0.46 | 16 × 35.5<br>▲18 × 31.5 | 0.51<br>0.51 | 16 × 40<br>▲18 × 31.5 | 0.49<br>0.48 |
| **82** | 820 | 12.5 × 25 | 0.41 | 12.5 × 31.5 | 0.39 | 12.5 × 31.5 | 0.40 | 16 × 31.5 | 0.50 | 16 × 40<br>▲18 × 31.5 | 0.57<br>0.57 | 18 × 35.5 | 0.55 |
| **100** | 101 | 12.5 × 31.5 | 0.48 | 12.5 × 31.5 | 0.43 | 12.5 × 35.5 | 0.46 | 16 × 35.5<br>▲18 × 31.5 | 0.58<br>0.58 | 18 × 35.5 | 0.61 | 18 × 40 | 0.65 |
| **120** | 121 | 12.5 × 31.5 | 0.53 | 12.5 × 35.5 | 0.49 | 12.5 × 40 | 0.53 | 16 × 40<br>▲18 × 35.5 | 0.66<br>0.67 | 18 × 40 | 0.66 | 22 × 40 | 0.77 |
| **150** | 151 | 12.5 × 35.5 | 0.62 | 12.5 × 40 | 0.58 | 16 × 31.5 | 0.62 | 18 × 40 | 0.77 | 22 × 40 | 0.80 | 22 × 50<br>▲25 × 40 | 0.92<br>0.92 |
| **180** | 181 | 12.5 × 40 | 0.70 | 16 × 31.5 | 0.67 | 16 × 35.5<br>▲18 × 31.5 | 0.72<br>0.72 | 22 × 40 | 0.85 | 22 × 50<br>▲25 × 40 | 0.95<br>0.95 | 25 × 50 | 1.10 |
| **220** | 221 | 16 × 31.5<br>▲18 × 31.5 | 0.76<br>0.81 | 16 × 35.5<br>▲18 × 31.5 | 0.77<br>0.77 | 16 × 40<br>▲18 × 35.5 | 0.83<br>0.83 | | | | | | |
| **270** | 271 | 16 × 35.5<br>▲18 × 31.5 | 0.88<br>0.87 | 16 × 40<br>▲18 × 35.5 | 0.88<br>0.88 | 18 × 40 | 0.95 | 22 × 50<br>▲25 × 40 | 1.30<br>1.30 | 25 × 50 | 1.20 | | |
| **330** | 331 | 18 × 35.5 | 1.01 | 18 × 40 | 1.01 | 22 × 40 | 1.05 | 25 × 50 | 1.40 | | | | |
| **390** | 391 | 18 × 40 | 1.13 | 22 × 40 | 1.15 | | | | | | | | |
| **470** | 471 | 22 × 40 | 1.20 | | | 22 × 50<br>▲25 × 40 | 1.45<br>1.45 | | | | | | |
| **560** | 561 | | | 22 × 50<br>▲25 × 40 | 1.50<br>1.50 | 25 × 50 | 1.55 | | | | | | |
| **680** | 681 | 22 × 50<br>▲25 × 40 | 1.50<br>1.50 | 25 × 50 | 1.60 | | | | | | | | |
| **820** | 821 | 25 × 50 | 1.60 | | | | | | | | | Case size<br>φD × L (mm) | ※ |

※: Rated ripple current (Arms) at 105°C 120Hz

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

• Frequency coefficient of rated ripple current

| Frequency | 50Hz | 120Hz | 300Hz | 1kHz | 10kHz or more |
|---|---|---|---|---|---|
| Coefficient | 0.80 | 1.00 | 1.25 | 1.40 | 1.60 |