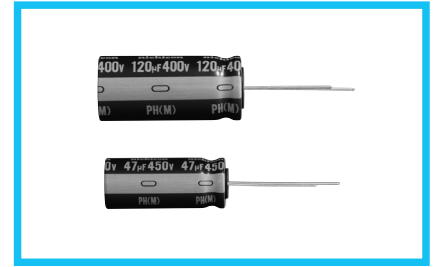
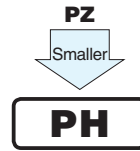


ALUMINUM ELECTROLYTIC CAPACITORS

PH series High Voltage, Miniature-sized



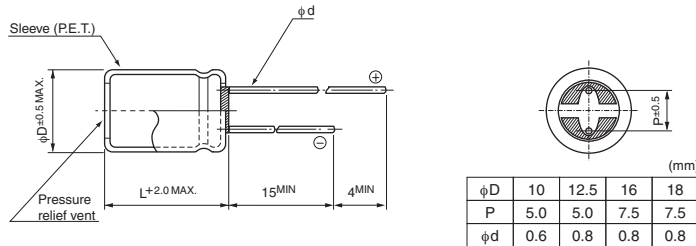
- High ripple current.
- Load life of 2000 hours at 105°C.
- Suited for ballast applications.
- Compliant to the RoHS directive (2011/65/EU).



Specifications

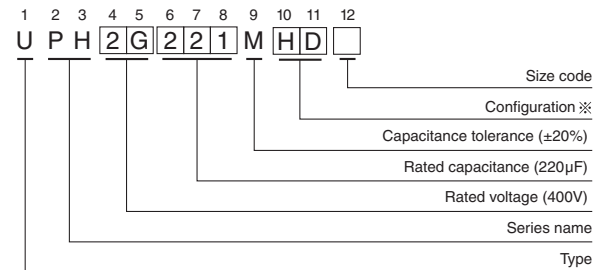
| Item | Performance Characteristics | | | | | | | | |
|---------------------------------|---|--------------------|--|-------|---|---------------------------------|---|------|------|
| Category Temperature Range | -25 to +105°C | | | | | | | | |
| Rated Voltage Range | 400 to 450V | | | | | | | | |
| Rated Capacitance Range | 27 to 220µF | | | | | | | | |
| 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 0.04CV+100 (µA). | | | | | | | | |
| Tangent of loss angle (tan δ) | Measurement frequency : 120Hz at 20°C | | | | | | | | |
| | <table border="1"> <tr> <td>Rated voltage (V)</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> </tr> </table> | Rated voltage (V) | 400 | 420 | 450 | tan δ (MAX.) | 0.15 | 0.20 | 0.20 |
| Rated voltage (V) | 400 | 420 | 450 | | | | | | |
| tan δ (MAX.) | 0.15 | 0.20 | 0.20 | | | | | | |
| Stability at Low Temperature | Measurement frequency : 120Hz | | | | | | | | |
| | <table border="1"> <tr> <td>Rated voltage (V)</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>8</td> <td>8</td> <td>8</td> </tr> </table> | Rated voltage (V) | 400 | 420 | 450 | Impedance ratio ZT / Z20 (MAX.) | Z-25°C / Z+20°C | 8 | 8 |
| Rated voltage (V) | 400 | 420 | 450 | | | | | | |
| Impedance ratio ZT / Z20 (MAX.) | Z-25°C / Z+20°C | 8 | 8 | 8 | | | | | |
| Endurance | <p>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 2000 hours at 105°C, the peak voltage shall not exceed the rated voltage.</p> <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 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



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

Type numbering system (Example : 400V 220µF)



※ Configuration

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

Dimensions

| Cap | Code | 400 | | 420 | | 450 | |
|-----|------|-----------|------|-----------|------|-----------------------|--------------|
| | | 2G | 330 | W6 | 320 | 2W | 300 |
| 27 | 270 | | | | | 10×31.5 | 300 |
| 33 | 330 | 10×31.5 | 330 | 10×31.5 | 320 | | |
| 47 | 470 | | | | | 12.5×31.5 | 430 |
| 56 | 560 | 12.5×31.5 | 470 | 12.5×31.5 | 460 | 12.5×35.5 | 490 |
| 68 | 680 | 12.5×33.5 | 540 | | | 12.5×40 | 560 |
| 82 | 820 | 12.5×40 | 620 | | | 16×31.5 | 640 |
| 100 | 101 | 16×31.5 | 710 | 16×31.5 | 690 | 16×35.5 | 730 |
| | | | | 16×35.5 | 780 | 16×40 | 820 |
| 120 | 121 | 16×35.5 | 800 | ▲18×31.5 | 800 | ▲18×31.5 | 800 |
| | | | | 16×40 | 920 | 18×40 | 970 |
| 150 | 151 | ▲18×31.5 | 890 | 18×35.5 | 920 | 18×40 | 970 |
| | | | | 18×40 | 1060 | 18×40 | 1040 |
| 220 | 221 | 18×46 | 1200 | | | Case size φD × L (mm) | Rated ripple |

Rated ripple current (mA rms) at 105°C 120Hz

▲: In this case, ① will be put at 12th digit of type numbering system.

Frequency coefficient of rated ripple current

| Frequency | 60Hz | 120Hz | 500Hz | 1kHz | 10kHz or more |
|-------------|------|-------|-------|------|---------------|
| Coefficient | 0.80 | 1.00 | 1.25 | 1.40 | 1.50 |

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