**EN:** This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

# ALUMINUM ELECTROLYTIC CAPACITORS

## SY Low Impedance & Long Life Series

■ Features : Low Impedance , high permissible ripple current at high frequency and long life than SC

SY ↑ Long Life SC



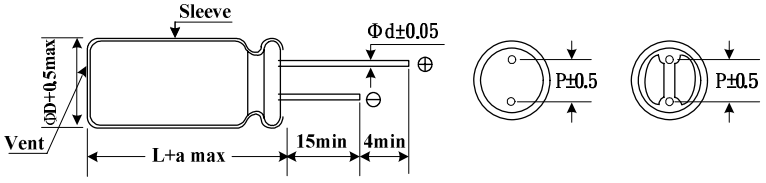
■ Recommended Applications:
Used switching requlator applications in computers. Especially for high frequency.

■ Corresponding product to RoHS

### ■ Specifications

| Item | Characteristics |
|---|---|
| Operating Temperature Range | -40 ~ +105℃ |
| Rated Voltage Range | 6.3 ~ 100VDC |
| Rated Capacitance Range | 2.2 ~ 15000 μF |
| Capacitance Tolerance | ±20% at 120Hz , 20℃ |
| Leakage Current (MAX) (20℃) | I=0.01CV or 3μA ,whichever is greater. (After rated voltage applied for 2 minutes)<br>I= Leakage Current (μA) C= Nominal Capacitance (μF) V= Rated Voltage (V) |
| Dissipation Factor (MAX) (tan δ) (120Hz ,20℃) | WV: 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 100<br>tan δ: 0.22 / 0.19 / 0.16 / 0.14 / 0.12 / 0.10 / 0.09 / 0.08<br>When nominal capacitance is over 1000 μF,<br>tan δ shall be added 0.02 to the listed value with increase of every 1000 μF. |
| Low Temperature Stability Impedance Ratio (MAX) | WV / Z(120Hz): 6.3 / 10 / 16 / 25 / 35 / 50 / 63 / 100<br>Z-25℃ / Z+20℃: 4 / 3 / 2 / 2 / 2 / 2 / 2 / 2<br>Z-40℃ / Z+20℃: 8 / 6 / 4 / 3 / 3 / 3 / 3 / 3 |
| Endurance | After applying rated voltage with rated ripple current for 6000 hours at 105℃,<br>the capacitors shall meet the following requirements.<br>Capacitance Change: Within ± 25% of initial value<br>Dissipation Factor: Not more than 200% of specified value<br>Leakage Current: Not more than the specified value<br>Dφ: 5φ~6.3φ / 8φ~10φx12.5 / 10φx15~12φ / 13φ~18φ<br>Life: 3000 hrs / 4000 hrs / 5000 hrs / 6000 hrs<br>*If dimension is down size,Endurance will be less 1000 hours than standard. |
| Shelf Life | After placed at 105℃ without voltage applied for 1000 hours,<br>the capacitors shall meet the same requirement as Endurance. |

### ■ Diagram of Dimensions




| φD | 5 | 6.3 | 8 | 10 | 13 | 16 | 18 |
|---|---|---|---|---|---|---|---|
| P | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | 7.5 | 7.5 |
| φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| a | 1.5 | 1.5 | 1.5 | 1.5 | 2.0 | 2.0 | 2.0 |

### ■ Multiplier for Ripple Current

Frequency coefficient

| Frequency (Hz) | 120 | 1 K | 10 K | 100 K |
|---|---|---|---|---|
| 22 ~ 180 μF | 0.40 | 0.75 | 0.90 | 1.00 |
| 220 ~ 560 μF | 0.50 | 0.85 | 0.94 | 1.00 |
| 680 ~1800 μF | 0.60 | 0.87 | 0.95 | 1.00 |
| 2200 ~ 3900 μF | 0.75 | 0.90 | 0.95 | 1.00 |
| 4700 μF Higher | 0.85 | 0.95 | 0.98 | 1.00 |

# ALUMINUM ELECTROLYTIC CAPACITORS

**SY** **Low Impedance & Long Life Series**

## ■Dimensions,Rated Ripple Current,Max Impedance

| Capacitance ( $\mu$F) | Rated ( Surge) Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 6.3V ( 8 ) | | | 10V ( 13 ) | | | 16V ( 20 ) | | |
| | SIZE | Ripple | Z | SIZE | Ripple | Z | SIZE | Ripple | Z |
| 56 | | | | | | | 5x11 | 210 | 0.580 |
| 100 | | | | 5x11 | 210 | 0.580 | 6.3x11 | 250 | 0.230 |
| 120 | | | | | | | 6.3x11 | 340 | 0.220 |
| 150 | 5x11 | 210 | 0.580 | | | | | | |
| 220 | | | | | | | 6.3x11 | 469 | 0.185 |
| | | | | 6.3x11 | 340 | 0.220 | 8x11 | 582 | 0.150 |
| 330 | 6.3x11 | 340 | 0.220 | | | | 8x11 | 640 | 0.130 |
| 470 | 6.3x11 | 510 | 0.160 | 8x11 | 640 | 0.130 | *8x15 | 840 | 0.087 |
| | | | | | | | 8x20 | 950 | 0.078 |
| | | | | | | | *10x12.5 | 865 | 0.080 |
| | | | | | | | 10X16 | 1210 | 0.060 |
| 680 | 8x11 | 640 | 0.130 | 8x15 | 840 | 0.087 | 8x20 | 1050 | 0.069 |
| | | | | | | | 10X16 | 1210 | 0.060 |
| 820 | 10x12.5 | 865 | 0.080 | 10x12.5 | 865 | 0.080 | | | |
| 1000 | 8x15 | 840 | 0.087 | 8x20 | 1050 | 0.069 | 8x20 | 1050 | 0.069 |
| | | | | 10X16 | 1210 | 0.060 | *10X16 | 1210 | 0.060 |
| | | | | | | | 10x20 | 1400 | 0.046 |
| | | | | | | | 13x16 | 1450 | 0.049 |
| 1200 | 8x20 | 1050 | 0.069 | 10x20 | 1400 | 0.046 | 10x25 | 1650 | 0.042 |
| | 10X16 | 1210 | 0.060 | | | | | | |
| 1500 | 8x20 | 1050 | 0.069 | 10x25 | 1650 | 0.042 | 10x30 | 1910 | 0.031 |
| | *10X16 | 1210 | 0.060 | 13x16 | 1450 | 0.049 | 13x20 | 1900 | 0.035 |
| | 10x20 | 1400 | 0.046 | | | | 16x16 | 1940 | 0.042 |
| 1800 | 13x16 | 1450 | 0.049 | | | | | | |
| 2200 | *10x20 | 1400 | 0.046 | 10x30 | 1910 | 0.031 | 13x25 | 2230 | 0.027 |
| | 10x25 | 1650 | 0.042 | 13x20 | 1900 | 0.042 | 18x16 | 2210 | 0.043 |
| | | | | 16x16 | 1940 | 0.042 | | | |
| 2700 | 10x30 | 1910 | 0.031 | 18x16 | 2210 | 0.043 | 13x30 | 2650 | 0.024 |
| | 16x16 | 1940 | 0.042 | | | | 16x20 | 2530 | 0.027 |
| 3300 | 10x25 | 1650 | 0.042 | 10x30 | 1910 | 0.031 | | | |
| | 13x20 | 1900 | 0.035 | 13x25 | 2230 | 0.027 | 13X35 | 2880 | 0.020 |
| 3900 | 13x25 | 2230 | 0.027 | 13x30 | 2650 | 0.024 | 13x40 | 3350 | 0.017 |
| | 18x16 | 2210 | 0.043 | 16x20 | 2530 | 0.027 | 16x25 | 2930 | 0.021 |
| | | | | | | | 18x20 | 2860 | 0.026 |
| 4700 | 13x30 | 2650 | 0.024 | 13X35 | 2880 | 0.020 | 16x32 | 3450 | 0.017 |
| | | | | | | | 18x25 | 3140 | 0.019 |
| 5600 | 13X35 | 2880 | 0.020 | 13x40 | 3350 | 0.017 | 16X36 | 3610 | 0.015 |
| | 16x20 | 2530 | 0.027 | 16x25 | 2930 | 0.021 | 18x32 | 4170 | 0.015 |
| | | | | 18x20 | 2860 | 0.026 | | | |
| 6800 | 13x40 | 3350 | 0.017 | 16x32 | 3450 | 0.017 | 16x40 | 4080 | 0.013 |
| | 16x25 | 2930 | 0.021 | 18x25 | 3140 | 0.019 | | | |
| | 18x20 | 2860 | 0.026 | | | | | | |
| 8200 | 16x32 | 3450 | 0.017 | 16X36 | 3610 | 0.015 | 18x36 | 4220 | 0.014 |
| | | | | 18x32 | 4170 | 0.015 | | | |
| 10000 | 16X36 | 3610 | 0.015 | 16x40 | 4080 | 0.013 | 18x40 | 4280 | 0.012 |
| | 18x25 | 3140 | 0.017 | 18x36 | 4220 | 0.014 | | | |
| 12000 | 18x32 | 4170 | 0.015 | 18x40 | 4280 | 0.012 | | | |
| 15000 | 18x36 | 4220 | 0.014 | | | | | | |

☆ Size: D $\phi$ x L (mm) ☆ Ripple Current: (mA/rms), 105℃,100KHz ☆Impedance (Ω),20℃,100KHz

" * " is down size, Ripple life is less 1000 hrs than standard.

# ALUMINUM ELECTROLYTIC CAPACITORS

**SY** **Low Impedance & Long Life Series**

## ■Dimensions,Rated Ripple Current,Max Impedance

| Capacitance ( μF) | Rated ( Surge) Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 25V ( 32) | | | 35V ( 44 ) | | | 50V ( 63 ) | | |
| | SIZE | Ripple | Z | SIZE | Ripple | Z | SIZE | Ripple | Z |
| 2.2 | | | | | | | 5x11 | 85 | 2.280 |
| 4.7 | | | | 5x11 | 95 | 2.400 | 5x11 | 100 | 2.000 |
| 10 | | | | 5x11 | 130 | 1.600 | 5x11 | 135 | 1.200 |
| 22 | | | | | | | 5x11 | 180 | 0.700 |
| 33 | | | | 5x11 | 210 | 0.580 | 6.3x11 | 245 | 0.490 |
| 47 | 5x11 | 210 | 0.580 | 6.3x11 | 275 | 0.390 | 6.3x11 | 300 | 0.520 |
| 56 | | | | 6.3x11 | 340 | 0.220 | 6.3x11 | 295 | 0.300 |
| 68 | | | | 6.3x11 | 500 | 0.170 | | | |
| 82 | | | | 6.3x11 | 540 | 0.160 | | | |
| 100 | 6.3x11 | 340 | 0.220 | 8x11 | 580 | 0.150 | 8x11 | 555 | 0.170 |
| 120 | | | | | | | 8x15 | 730 | 0.120 |
| 150 | 8x11 | 640 | 0.160 | 8x11 | 640 | 0.130 | 10x12.5 | 760 | 0.120 |
| 180 | | | | | | | 8x20 | 910 | 0.091 |
| 220 | 8x11 | 640 | 0.130 | *8x15 | 840 | 0.087 | 10X16 | 1050 | 0.084 |
| | | | | 10x12.5 | 865 | 0.080 | | | |
| 270 | | | | 8x20 | 1050 | 0.069 | 10x20 | 1220 | 0.060 |
| | | | | | | | 13x16 | 1260 | 0.061 |
| 330 | 8x15 | 840 | 0.087 | *10X16 | 1210 | 0.060 | *10x20 | 1400 | 0.058 |
| | 10x12.5 | 865 | 0.080 | 10x20 | 1400 | 0.046 | 10x25 | 1440 | 0.055 |
| 470 | 8x20 | 1050 | 0.069 | 10x20 | 1400 | 0.046 | 10x30 | 1690 | 0.043 |
| | *10x12.5 | 1050 | 0.070 | 13x16 | 1450 | 0.049 | 13x20 | 1660 | 0.045 |
| | 10X16 | 1210 | 0.060 | | | | 16x16 | 1690 | 0.055 |
| 560 | | | | 10x25 | 1650 | 0.042 | 13x25 | 1950 | 0.034 |
| | | | | | | | 18x16 | 1930 | 0.054 |
| 680 | 10x20 | 1400 | 0.046 | 10x30 | 1910 | 0.031 | 13x30 | 2310 | 0.030 |
| | 13x16 | 1450 | 0.049 | 13x20 | 1900 | 0.035 | | | |
| | | | | 16x16 | 1940 | 0.042 | | | |
| 820 | 10x25 | 1650 | 0.042 | 13x20 | 1900 | 0.035 | 13X35 | 2510 | 0.025 |
| | | | | | | | 16x20 | 2210 | 0.034 |
| 1000 | | | | 13x25 | 2230 | 0.027 | 13x40 | 2920 | 0.021 |
| | 10x30 | 1910 | 0.031 | 18x16 | 2210 | 0.043 | 16x25 | 2555 | 0.025 |
| | 13x20 | 1900 | 0.035 | | | | 18x20 | 2490 | 0.036 |
| | 16x16 | 1940 | 0.042 | | | | | | |
| 1200 | 18x16 | 2210 | 0.043 | 13x30 | 2650 | 0.024 | 16x32 | 3010 | 0.022 |
| | | | | 16x20 | 2530 | 0.027 | 18x25 | 2740 | 0.026 |
| 1500 | *13x20 | 1900 | 0.035 | 13X35 | 2880 | 0.020 | 16X36 | 3150 | 0.019 |
| | 13x25 | 2230 | 0.027 | | | | | | |
| 1800 | 13x30 | 2650 | 0.024 | 13x40 | 3350 | 0.017 | 16x40 | 3710 | 0.016 |
| | 16x20 | 2530 | 0.027 | 16x25 | 2930 | 0.021 | 18x32 | 3635 | 0.021 |
| | | | | 18x20 | 2860 | 0.026 | | | |
| 2200 | 13X35 | 2880 | 0.020 | 16x32 | 3450 | 0.017 | 18x36 | 3680 | 0.017 |
| | 18x20 | 2860 | 0.026 | 18x25 | 3140 | 0.019 | | | |
| 2700 | 13x40 | 3350 | 0.017 | 16X36 | 3610 | 0.015 | 18x40 | 3800 | 0.014 |
| | 16x25 | 2930 | 0.021 | 18x32 | 4170 | 0.015 | | | |
| 3300 | 16x32 | 3450 | 0.017 | 16x40 | 4080 | 0.013 | | | |
| | 18x25 | 3140 | 0.019 | 18x36 | 4220 | 0.014 | | | |
| 3900 | 18x32 | 4170 | 0.015 | 18x40 | 4280 | 0.012 | | | |
| 4700 | 18x36 | 4220 | 0.014 | | | | | | |
| 5600 | 18x40 | 4280 | 0.012 | | | | | | |

☆ Size: D φ x L (mm) ☆ Ripple Current: (mA/rms), 105℃,100KHz ☆Impedance (Ω),20℃,100KHz

" * " is down size, Ripple life is less 1000 hrs than standard.

# ALUMINUM ELECTROLYTIC CAPACITORS

**SY** **Low Impedance & Long Life Series**

## ■Dimensions,Rated Ripple Current,Max Impedance

| Capacitance (μF) | Rated ( Surge) Voltage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 63V ( 79) | | | 100V (125 ) | | | | | |
| | SIZE | Ripple | Z | SIZE | Ripple | Z | | | |
| 6.8 | | | | 5×11 | 55 | 2.3 | | | |
| 15 | 5×11 | 55 | 2.3 | 6.3×11 | 115 | 1.2 | | | |
| 27 | | | | 8×12 | 232 | 0.63 | | | |
| 33 | 6.3×11 | 115 | 1.2 | | | | | | |
| 39 | | | | 8×15 | 300 | 0.45 | | | |
| 47 | | | | 10×12.5 | 288 | 0.43 | | | |
| 56 | 8×12 | 232 | 0.63 | 8×20 | 362 | 0.33 | | | |
| 68 | | | | 10×16 | 357 | 0.31 | | | |
| 82 | 8×15 | 300 | 0.45 | 10×20 | 466 | 0.21 | | | |
| | 10×12.5 | 288 | 0.43 | 13×16 | 466 | 0.23 | | | |
| 100 | | | | 10×25 | 531 | 0.2 | | | |
| 120 | 8×20 | 362 | 0.33 | 10×30 | 663 | 0.15 | | | |
| | 10×16 | 357 | 0.31 | 13×20 | 690 | 0.16 | | | |
| 150 | | | | 16×16 | 795 | 0.14 | | | |
| 180 | 10×20 | 466 | 0.21 | 13×25 | 784 | 0.12 | | | |
| | 13×16 | 466 | 0.23 | 18×16 | 920 | 0.12 | | | |
| 220 | 10×25 | 531 | 0.2 | 13×30 | 905 | 0.1 | | | |
| | | | | 16×20 | 1040 | 0.091 | | | |
| 270 | 10×30 | 663 | 0.15 | | | | | | |
| | 13×20 | 690 | 0.16 | 13X35 | 1050 | 0.083 | | | |
| | 16×16 | 795 | 0.14 | 16×25 | 1250 | 0.073 | | | |
| 330 | 13×25 | 784 | 0.12 | 13×40 | 1180 | 0.071 | | | |
| | | | | 18×20 | 1240 | 0.08 | | | |
| 390 | | | | 16×32 | 1570 | 0.054 | | | |
| | 18×16 | 920 | 0.12 | 18×25 | 1490 | 0.057 | | | |
| 470 | 13×30 | 905 | 0.1 | 16×36 | 1790 | 0.045 | | | |
| | 16×20 | 1040 | 0.091 | 18×32 | 1630 | 0.047 | | | |
| 560 | 13X35 | 1050 | 0.083 | | | | | | |
| | 16×25 | 1250 | 0.073 | 16×40 | 2020 | 0.04 | | | |
| 680 | 13×40 | 1180 | 0.071 | | | | | | |
| | 18×20 | 1240 | 0.08 | 18×36 | 1790 | 0.04 | | | |
| 820 | 16×32 | 1570 | 0.054 | | | | | | |
| | 18×25 | 1490 | 0.057 | 18×40 | 2330 | 0.036 | | | |
| 1000 | 16×36 | 1790 | 0.045 | | | | | | |
| | 18×32 | 1630 | 0.047 | | | | | | |
| 1200 | 16×40 | 2020 | 0.04 | | | | | | |

☆ Size: D$\phi$ x L (mm) ☆ Ripple Current: (mA/rms), 105℃,100KHz ☆Impedance (Ω),20℃,100KHz