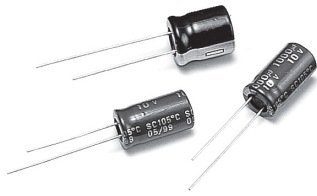


Miniature Aluminum Electrolytic Capacitors

SC [For Low Impedance and Low E.S.R Suitable for Output of Mother Board]

105°C Single-Ended Lead Aluminum Electrolytic Capacitors For High Frequency Applications



DESCRIPTION

Recommended Applications: Applicable for switching regulator of computer, especially for high frequency

ELECTRICAL CHARACTERISTICS

Operating Temperature : -40° ~ +105°C

Working Voltage : 6.3 ~ 100V

Rate Capacitance Range : 4.7 ~ 15000µF

Capacitance Tolerance : +/-20% at 120Hz, 20°C

DC Leakage Current (µA) : I=0.01CV or 3µA, whichever is greater

(After rated voltage applied for 2 minutes)

Dissipation Factor : at 120 Hz, 20°C

| | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|
| WV (V): | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| tan δ : | 0.15 | 0.14 | 0.12 | 0.10 | 0.10 | 0.08 | 0.08 | 0.07 |

When nominal capacitance is over 1000 µF,

| | | | | | | | | |
|---------------------------------|-----|----|----|----|----|----|----|-----|
| WV (V) : | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
| Impedance : Z - 40°C / Z + 20°C | 8 | 6 | 4 | 4 | 4 | 4 | 4 | 4 |

Endurance : After applying rated voltage with ripple current for 3000 hours at 105°C, the capacitors shall meet the following requirements.

If dimension is down size, Endurance will be less 1000 hours than standard

- (a) Capacitance Change : Within 20% of Initial Value
- (b) Not more than 200% of specified value
- (c) Not more than the specified value

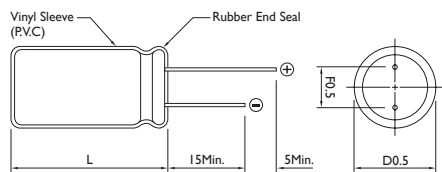
Shelf Life : After placed at 105°C without voltage applied for 1000 hours, the capacitors shall meet the same requirement as Endurance.

Multiplier for Ripple Current

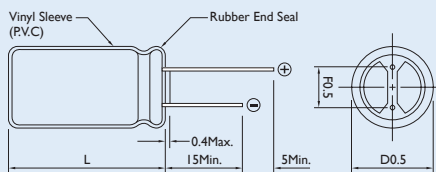
Frequency coefficient

| Frequency(Hz) | 50 | 120 | 300 | 1K | 10K | 100K |
|---------------|------|------|------|------|------|------|
| ~4.7µF | 0.30 | 0.40 | 0.50 | 0.70 | 0.80 | 1.00 |
| 5.6~33µF | 0.40 | 0.50 | 0.60 | 0.80 | 0.90 | 1.00 |
| 34~330µF | 0.60 | 0.70 | 0.80 | 0.90 | 0.95 | 1.00 |
| 331~1000µF | 0.65 | 0.90 | 0.90 | 0.98 | 1.00 | 1.00 |
| 1200µF Higher | 0.85 | 0.90 | 0.95 | 0.98 | 1.00 | 1.00 |

DIAGRAM OF DIMENSIONS



Rubber Stand-off



L ≤ 16 : L+1.5max
 L > 16 : L+2max
 Dø = 8&10 : L+2.5

Dø < 20 : Dø+0.5
 Dø ≥ 20 : Dø+1

Dimensions : mm

| Dø | F | dø |
|------|------|-----------|
| 4.0 | 1.5 | 0.45 |
| 5.0 | 2.0 | 0.5 |
| 6.3 | 2.5 | |
| 8.0 | 3.5 | 0.6 |
| 10.0 | 5.0 | 0.6 |
| 12.0 | | |
| 13.0 | | |
| 16.0 | 7.5 | 0.8 |
| 18.0 | | |
| 22.0 | 10.0 | 0.8 (1.0) |


CASE SIZE OF STANDARD PRODUCTS $D\varnothing \geq 6\text{mm}$ with Safety Vent at Can Bottom

| CAP. (μF) | RATED VOLTAGE WV | | | RATED VOLTAGE WV | | | RATED VOLTAGE WV | | | RATED VOLTAGE WV | | |
|------------------------|------------------|--------|-------|------------------|--------|-------|------------------|--------|-------|------------------|--------|-------|
| | 6.3 SIZE | RIPPLE | ESR | 10 SIZE | RIPPLE | ESR | 16 SIZE | RIPPLE | ESR | 25 SIZE | RIPPLE | ESR |
| 4.7 | | | | | | | | | | | | |
| 6.8 | | | | | | | | | | | | |
| 10 | | | | | | | 5 x 11 | 29 | 0.064 | 4 x 7 | 40 | 2.00 |
| | | | | | | | | | | 5 x 11 | 50 | 0.550 |
| 22 | | | | | | | 5 x 11 | 77 | 0.060 | | | |
| 39 | | | | | | | 5 x 11 | 95 | 0.500 | | | |
| 47 | | | | | | | 5 x 11 | 117 | 0.500 | | | |
| 56 | | | | | | | 5 x 11 | 100 | 0.630 | 5 x 11 | 150 | 0.042 |
| 68 | | | | | | | 5 x 11 | 150 | 0.420 | 6 x 11 | 200 | 0.370 |
| 82 | | | | | | | | | | | | |
| 100 | | | | 5 x 11 | 150 | 0.420 | 5 x 11 | 200 | 0.370 | 6 x 11 | 250 | 0.220 |
| | | | | | | | 6 x 7 | 164 | 0.240 | | | |
| 120 | | | | 5 x 11 | 200 | 0.370 | 6 x 11 | 250 | 0.320 | 8 x 11 | 300 | 0.200 |
| 150 | 5 x 11 | 200 | 0.420 | 6 x 11 | 250 | 0.320 | 6 x 11 | 300 | 0.220 | 8 x 11 | 550 | 0.140 |
| 180 | | | | 6 x 11 | 250 | 0.32 | | | | | | |
| 220 | 6 x 11 | 250 | 0.320 | 6 x 11 | 300 | 0.220 | 8 x 11 | 550 | 0.140 | *8 x 11 | 620 | 0.120 |
| | | | | | | | | | | 8 x 15 | 750 | 0.100 |
| 270 | *6 x 11 | 300 | 0.220 | | | | | | | 10 x 12 | 865 | 0.08 |
| 330 | *6 x 11 | 320 | 0.230 | 8 x 11 | 550 | 0.140 | *8 x 11 | 623 | 0.120 | *8 x 15 | 660 | 0.100 |
| | 8 x 11 | 400 | 0.180 | | | | 8 x 15 | 750 | 0.100 | 8 x 20 | 800 | 0.069 |
| | | | | | | | 10 x 12 | 688 | 0.080 | 10 x 15 | 900 | 0.086 |
| 470 | *6 x 11 | 440 | 0.180 | | | | *8 x 15 | 730 | 0.093 | *8 x 20 | 1000 | 0.067 |
| | 8 x 11 | 550 | 0.140 | 8 x 15 | 750 | 0.100 | 10 x 12 | 800 | 0.085 | 8 x 15 | 835 | 0.086 |
| | | | | | | | | | | 10 x 12 | 900 | 0.086 |
| | | | | 8 x 11 | 620 | 0.120 | 8 x 11 | 644 | 0.150 | 10 x 15 | 1050 | 0.064 |
| 560 | | | | | | | 10 x 12 | 846 | 0.073 | | | |
| 680 | 8 x 11 | 580 | 0.120 | 8 x 11 | 640 | 0.110 | 10 x 15 | 1050 | 0.064 | 10 x 19 | 1100 | 0.039 |
| | 8 x 15 | 700 | 0.100 | 10 x 12 | 800 | 0.085 | 8 x 15 | 880 | 0.076 | | | |
| 820 | 8 x 15 | 620 | 0.100 | | | | | | | | | |
| | 8 x 20 | 750 | 0.085 | 10 x 15 | 1050 | 0.064 | 10 x 19 | 1100 | 0.044 | 10 x 19 | 1250 | 0.039 |
| | *8 x 11 | 580 | 0.150 | 8 x 20 | 1080 | 0.065 | | | | 10 x 20 | 1160 | 0.047 |
| 1000 | *8 x 15 | 670 | 0.085 | 8 x 15 | 900 | 0.077 | | | | | | |
| | 8 x 20 | 800 | 0.069 | 10 x 12 | 930 | 0.075 | 10 x 19 | 1250 | 0.039 | *10 x 25 | 1310 | 0.042 |
| | 10 x 12 | 690 | 0.080 | 10 x 15 | 990 | 0.085 | 10 x 15 | 1140 | 0.043 | 13 x 20 | 1450 | 0.038 |
| 1200 | 10 x 15 | 1000 | 0.064 | 10 x 19 | 1250 | 0.044 | *10 x 25 | 1310 | 0.042 | 13 x 25 | 1600 | 0.029 |
| | 8 x 15 | 840 | 0.076 | | | | 13 x 20 | 1450 | 0.038 | | | |
| | *10 x 15 | 1070 | 0.055 | 10 x 19 | 1450 | 0.039 | 10 x 20 | 1200 | 0.045 | | | |
| 1500 | 10 x 19 | 1250 | 0.044 | | | | 13 x 20 | 1600 | 0.035 | 16 x 25 | 2000 | 0.028 |
| | 8 x 15 | 980 | 0.085 | | | | | | | | | |
| | 8 x 20 | 1070 | 0.051 | | | | | | | | | |
| | 10 x 19 | 1220 | 0.051 | *10 x 19 | 1330 | 0.047 | 10 x 30 | 1780 | 0.032 | 13 x 30 | 1810 | 0.029 |
| 2200 | *10 x 25 | 1310 | 0.048 | 10 x 25 | 1450 | 0.025 | 13 x 20 | 1720 | 0.033 | 16 x 25 | 1660 | 0.032 |
| | | | | | | | 10 x 25 | 1644 | 0.034 | | | |
| | | | | 13 x 20 | 1450 | 0.043 | 13 x 25 | 2000 | 0.028 | 16 x 32 | 2200 | 0.024 |
| | 10 x 19 | 1236 | 0.048 | 10 x 30 | 1740 | 0.032 | | | | 16 x 36 | 2540 | 0.019 |
| 3300 | 13 x 25 | 1700 | 0.035 | 13 x 25 | 2000 | 0.028 | 16 x 25 | 2200 | 0.024 | | | |
| | 10 x 25 | 1400 | 0.043 | | | | 13 x 40 | 2200 | 0.026 | 18 x 36 | 2550 | 0.019 |
| 3900 | | | | | | | | | | | | |
| | *13 x 30 | 1570 | 0.033 | 13 x 25 | 1860 | 0.028 | | | | 18 x 36 | 2800 | 0.019 |
| 4700 | | | | 16 x 25 | 2200 | 0.024 | 16 x 36 | 2550 | 0.019 | | | |
| | 16 x 25 | 1800 | 0.028 | | | | | | | | | |
| 6800 | 16 x 32 | 2000 | 0.024 | 16 x 36 | 2550 | 0.019 | 18 x 36 | 2800 | 0.019 | 18 x 36 | 2800 | 0.019 |
| | 16 x 32 | 2350 | 0.019 | | | | 18 x 36 | 3638 | 0.019 | | | |
| 8200 | | | | 18 x 36 | 2800 | 0.019 | | | | | | |
| 10000 | 16 x 36 | 2350 | 0.019 | | | | | | | | | |
| 15000 | 18 x 36 | 3000 | 0.019 | | | | | | | | | |

Note : * 1. D x L : mm

 * 2. Ripple Current : (mA r.m.s 105°C / 100KHz), ESR (Ω Max20°C/100KHz)

* 3. " * " is down size, Edurance is less 1000 hrs than standard



CASE SIZE OF STANDARD PRODUCTS $D\varnothing \geq 6\text{mm}$ with Safety Vent at Can Bottom

| CAP. (μF) | RATED VOLTAGE WV | | | RATED VOLTAGE WV | | | RATED VOLTAGE WV | | | RATED VOLTAGE WV | | |
|------------------------|------------------|--------|-------|------------------|--------|-------|------------------|--------|-------|------------------|--------|-------|
| | 35 SIZE | RIPPLE | ESR | 50 SIZE | RIPPLE | ESR | 63 SIZE | RIPPLE | ESR | 100 SIZE | RIPPLE | ESR |
| 1.0 | | | | 5 x 11 | 100 | 4.000 | | | | | | |
| 2.2 | | | | 5 x 11 | 100 | 3.000 | | | | | | |
| 3.3 | | | | | | | | | | | | |
| 4.7 | 5 x 11 | 115 | 1.200 | 5 x 11 | 115 | 2.000 | 5 x 11 | 115 | 2.200 | 5 x 11 | 120 | 2.000 |
| 6.8 | 5 x 11 | 120 | 1.000 | 5 x 11 | 120 | 1.850 | 5 x 11 | 120 | 2.000 | 5 x 11 | 140 | 1.850 |
| 10 | 5 x 11 | 140 | 0.900 | 5 x 11 | 140 | 1.700 | 5 x 11 | 140 | 1.850 | 6 x 11 | 200 | 1.500 |
| 12 | | | | | | | | | | | | |
| 15 | 5 x 11 | 170 | 0.690 | 5 x 11 | 180 | 1.200 | 5 x 11 | 200 | 1.700 | 6 x 11 | 250 | 1.200 |
| 18 | | | | | | | | | | | | |
| 22 | 5 x 11 | 190 | 0.420 | 5 x 11 | 200 | 0.700 | 6 x 11 | 250 | 1.200 | 8 x 11 | 300 | 0.790 |
| 27 | | | | | | | | | | | | |
| 33 | 5 x 11 | 200 | 0.420 | 6 x 11 | 250 | 0.600 | 6 x 11 | 300 | 0.900 | 8 x 15 | 450 | 0.590 |
| 39 | | | | | | | | | | | | |
| 47 | 6 x 11 | 250 | 0.370 | 6.3 x 11 | 300 | 0.520 | 8 x 11 | 450 | 0.700 | 10 x 15 | 550 | 0.350 |
| 56 | | | | | | | | | | 8 x 20 | 362 | 0.264 |
| 68 | 6 x 11 | 340 | 0.220 | 8 x 11 | 450 | 0.350 | 8 x 11 | 550 | 0.520 | 10 x 19 | 650 | 0.240 |
| 82 | 8 x 11 | 640 | 0.130 | | | | | | | | | |
| 100 | 6 x 11 | 360 | 0.180 | *8 x 11 | 480 | 0.290 | 8 x 20 | 650 | 0.350 | 13 x 20 | 800 | 0.180 |
| | 8 x 11 | 450 | 0.140 | 8 x 15 | 550 | 0.250 | | | | | | |
| 120 | 8 x 11 | 550 | 0.130 | 8 x 20 | 650 | 0.210 | 10 x 15 | 800 | 0.300 | 13 x 25 | 1050 | 0.150 |
| 150 | | | | 10 x 12 | 800 | 0.160 | | | | 13 x 25 | 1300 | 0.110 |
| 180 | 8 x 15 | 650 | 0.100 | | | | 10 x 15 | 1050 | 0.200 | | | |
| 220 | *8 x 15 | 730 | 0.075 | 10 x 15 | 1050 | 0.100 | 10 x 19 | 1300 | 0.150 | 16 x 25 | 1400 | 0.071 |
| | 10 x 12 | 800 | 0.069 | 10 x 25 | 1050 | 0.068 | | | | | | |
| 270 | | | | | | | | | | | | |
| 330 | *10 x 15 | 900 | 0.052 | 10 x 19 | 1300 | 0.072 | | | | 16 x 32 | 1550 | 0.049 |
| | 8 x 20 | 902 | 0.051 | | | | 13 x 20 | 1400 | 0.100 | | | |
| | 10 x 19 | 1050 | 0.044 | | | | | | | | | |
| 390 | | | | | | | | | | | | |
| 470 | 10 x 19.5 | 1300 | 0.039 | 10 x 19 | 1390 | 0.075 | 13 x 25 | 1550 | 0.064 | 18 x 36 | 1700 | 0.038 |
| | | | | 13 x 20 | 1400 | 0.060 | | | | | | |
| 560 | | | | | | | | | | | | |
| 680 | 13 x 20 | 1400 | 0.038 | 13 x 25 | 1550 | 0.050 | 16 x 25 | 1700 | 0.052 | | | |
| 820 | 13 x 20 | 1550 | 0.034 | 16 x 25 | 1700 | 0.040 | 16 x 32 | 1900 | 0.048 | | | |
| 1000 | 13 x 25 | 1700 | 0.030 | 16 x 25 | 1900 | 0.039 | 16 x 32 | 2100 | 0.042 | | | |
| | 13 x 20 | 1724 | 0.034 | | | | | | | | | |
| 1200 | | | | 16 x 32 | 2100 | 0.025 | 16 x 36 | 2550 | 0.036 | | | |
| 1500 | 16 x 25 | 1900 | 0.028 | | | | | | | | | |
| 1800 | 16 x 25 | 2100 | 0.024 | 16 x 36 | 2550 | 0.025 | 18 x 36 | 2800 | 0.033 | | | |
| 2200 | *16 x 32 | 2300 | 0.021 | 18 x 40 | 2800 | 0.025 | 18 x 40 | 2800 | 0.026 | | | |
| | 16 x 25 | 2062 | 0.023 | | | | | | | | | |
| | 16 x 36 | 2550 | 0.019 | | | | | | | | | |
| 2700 | | | | | | | | | | | | |
| 3300 | 18 x 36 | 2880 | 0.019 | | | | | | | | | |
| 3900 | | | | | | | | | | | | |
| 4700 | | | | 22 x 40 | 2850 | 0.025 | | | | | | |
| 6800 | | | | | | | | | | | | |
| 8200 | | | | | | | | | | | | |
| 10000 | | | | | | | | | | | | |
| 15000 | | | | | | | | | | | | |

Note : * I. D x L : mm

* 2. Ripple Current : (mA r.m.s 105°C / 100KHz), ESR (Ω Max20°C / 100KHz)

* 3. " * " is down size, Edurance is less 1000 hrs than standard