

ALUMINUM ELECTROLYTIC CAPACITORS



EK Series

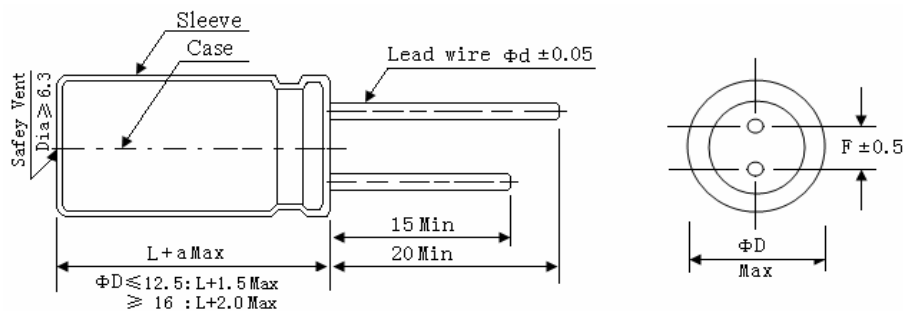
Miniaturized, Low ESR and low impedance.
Suitable for use in high ripple current capability.



SPECIFICATIONS

| Item | Performance Characteristics | | | | | | | | | | | | | | | | |
|--|--|--------------------|---------------------------------------|-----------------------------------|--------------------------------------|-----------------|-------------------------|-------------|--------------------|-----------------|-------|--------------------|---------------------------------------|-----------------------------------|--------------------------------------|-----------------|-------------------------|
| Category Temperature Range | -40 ~ +105°C | | | | | | | | | | | | | | | | |
| Working Voltage Range | 6.3 ~ 50Vdc | | | | | | | | | | | | | | | | |
| Capacitance Range | 10 ~ 10,000 μ F | | | | | | | | | | | | | | | | |
| Capacitance Tolerance | \pm 20% (at 25°C and 120Hz) | | | | | | | | | | | | | | | | |
| Dissipation Factor (tan δ) (at 25°C, 120Hz) | <table border="1"> <tr> <td>Rated Voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> </tr> <tr> <td>tanδ(Max)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> </tr> </table> | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | tan δ (Max) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | |
| | Rated Voltage (V) | 6.3 | 10 | 16 | 25 | 35 | 50 | | | | | | | | | | |
| tan δ (Max) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 | 0.10 | | | | | | | | | | | |
| The above values should be increased by 0.02 for every additional 1000 μ F | | | | | | | | | | | | | | | | | |
| Leakage Current | $I=0.03CV$ or 3 μ A, whichever is greater. I : Leakage current (μ A) C : Rated capacitance (μ F) V : Rated voltage (V) Impress the rated voltage for 2 minutes. | | | | | | | | | | | | | | | | |
| Endurance | The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 2,000 to 5,000 hours at 105°C. <table border="1" style="float: right;"> <thead> <tr> <th>Size</th> <th>Life time (hours)</th> </tr> </thead> <tbody> <tr> <td>$\leq 6.3\Phi$</td> <td>2,000</td> </tr> <tr> <td>= 8 Φ</td> <td>3,000</td> </tr> <tr> <td>= 10Φ</td> <td>4,000</td> </tr> <tr> <td>$\geq 12.5\Phi$</td> <td>5,000</td> </tr> </tbody> </table> <table border="1" style="margin-top: 10px;"> <tr> <td>Capacitance change</td> <td>$\cong \pm 25\%$ of the initial value</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>$\cong 200\%$ of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>\cong specified value</td> </tr> </table> | Size | Life time (hours) | $\leq 6.3\Phi$ | 2,000 | = 8 Φ | 3,000 | = 10 Φ | 4,000 | $\geq 12.5\Phi$ | 5,000 | Capacitance change | $\cong \pm 25\%$ of the initial value | Dissipation factor(tan δ) | $\cong 200\%$ of the specified value | Leakage current | \cong specified value |
| Size | Life time (hours) | | | | | | | | | | | | | | | | |
| $\leq 6.3\Phi$ | 2,000 | | | | | | | | | | | | | | | | |
| = 8 Φ | 3,000 | | | | | | | | | | | | | | | | |
| = 10 Φ | 4,000 | | | | | | | | | | | | | | | | |
| $\geq 12.5\Phi$ | 5,000 | | | | | | | | | | | | | | | | |
| Capacitance change | $\cong \pm 25\%$ of the initial value | | | | | | | | | | | | | | | | |
| Dissipation factor(tan δ) | $\cong 200\%$ of the specified value | | | | | | | | | | | | | | | | |
| Leakage current | \cong specified value | | | | | | | | | | | | | | | | |
| Shelf Life | The following requirements shall be satisfied when the capacitor are restored to 25°C after exposing them for 500 hours at 105°C without voltage applied. <table border="1" style="margin-top: 10px;"> <tr> <td>Capacitance change</td> <td>$\cong \pm 25\%$ of the initial value</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>$\cong 200\%$ of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>\cong specified value</td> </tr> </table> | Capacitance change | $\cong \pm 25\%$ of the initial value | Dissipation factor(tan δ) | $\cong 200\%$ of the specified value | Leakage current | \cong specified value | | | | | | | | | | |
| Capacitance change | $\cong \pm 25\%$ of the initial value | | | | | | | | | | | | | | | | |
| Dissipation factor(tan δ) | $\cong 200\%$ of the specified value | | | | | | | | | | | | | | | | |
| Leakage current | \cong specified value | | | | | | | | | | | | | | | | |
| Others | Conforms to JIS-C-5101-4 (1998), characteristic W. | | | | | | | | | | | | | | | | |

DIMENSIONS (mm)



| | | | | | | | |
|----------|--------------------|-----|-----|-----|-------------|------------------|-----|
| ΦD | 5 | 6.3 | 8 | 10 | 12.5 L < 35 | 12.5 L \geq 35 | 16 |
| ΦD | $\Phi D + 0.5$ Max | | | | | | |
| Φd | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.8 | 0.8 |
| F | 2.0 | 2.5 | 3.5 | 5.0 | 5.0 | | 7.5 |

ALUMINUM ELECTROLYTIC CAPACITORS



EK Series

Case size & Permissible rated ripple current:

| Nominal Capacitance (uF) | 6.3V | | | 10V | | | 16 V | | |
|--------------------------|---------------------|----------------------------|--|---------------------|----------------------------|--|---------------------|----------------------------|--|
| | Case Size DΦ×L (mm) | Max. impd @25°C 100kHz (Ω) | Max. Rated ripple current @105°C 100kHz (mA rms) | Case Size DΦ×L (mm) | Max. impd @25°C 100kHz (Ω) | Max. Rated ripple current @105°C 100kHz (mA rms) | Case Size DΦ×L (mm) | Max. impd @25°C 100kHz (Ω) | Max. Rated ripple current @105°C 100kHz (mA rms) |
| 2.2 | | | | | | | 5×11 | 4.500 | 40 |
| 4.7 | | | | | | | 5×11 | 4.000 | 80 |
| 10 | | | | | | | 5×11 | 1.300 | 90 |
| 22 | 6.3×11 | 0.150 | 150 | 5×11 | 0.500 | 80 | 5×11 | 0.800 | 150 |
| 47 | | | | | | | 5×11 | 0.350 | 100 |
| 56 | | | | | | | 5×11 | 0.300 | 250 |
| 100 | | | | 5×11 | 0.300 | 250 | 5×11 | 0.240 | 320 |
| 120 | | | | | | | 6.3×11 | 0.150 | 350 |
| 150 | 5×11 | 0.300 | 250 | 5×11 | 0.380 | 300 | 6.3×11 | 0.130 | 405 |
| 220 | 5×11 | 0.300 | 350 | 6.3×11 | 0.130 | 405 | 6.3×11 | 0.110 | 680 |
| | | | | 8×12 | 0.072 | 760 | 8×12 | 0.090 | 720 |
| 330 | 6.3×11 | 0.130 | 405 | | | | 8×12 | 0.072 | 760 |
| | | | | 8×12 | 0.072 | 760 | 8×12 | 0.056 | 995 |
| 470 | | | | | | | 8×16 | 0.056 | 995 |
| | | | | 10×13 | 0.053 | 1030 | 10×13 | 0.053 | 1030 |
| | | | | | | | 10×16 | 0.050 | 1080 |
| 560 | 8×12 | 0.072 | 760 | | | | | | |
| | | | | 8×16 | 0.056 | 995 | 8×16 | 0.015 | 1200 |
| 680 | | | | | | | 8×20 | 0.041 | 1250 |
| | | | | 10×13 | 0.053 | 1030 | 10×16 | 0.038 | 1430 |
| 820 | 8×16 | 0.056 | 995 | | | | | | |
| | | | | 8×20 | 0.041 | 1250 | | | |
| 1000 | 10×13 | 0.053 | 1030 | 10×13 | 0.038 | 1410 | | | |
| | | | | 10×16 | 0.038 | 1430 | 10×20 | 0.023 | 1820 |
| 1200 | 8×20 | 0.041 | 1250 | 10×20 | 0.023 | 1820 | 10×25 | 0.022 | 2150 |
| | 10×16 | 0.038 | 1430 | | | | | | |
| 1500 | 10×20 | 0.023 | 1820 | 10×25 | 0.022 | 2150 | | | |
| | | | | 12.5×20 | 0.021 | 2150 | 12.5×20 | 0.021 | 2360 |
| 2200 | 10×25 | 0.022 | 2150 | 10×30 | 0.021 | 2500 | 12.5×25 | 0.018 | 2770 |
| 2700 | 12.5×20 | 0.022 | 2200 | | | | 12.5×30 | 0.016 | 3290 |
| | | | | | | | 16×20 | 0.018 | 3140 |
| 3300 | 12.5×20 | 0.021 | 2360 | 12.5×25 | 0.018 | 2770 | 12.5×35 | 0.015 | 3400 |
| 3900 | 12.5×25 | 0.018 | 2770 | 12.5×30 | 0.016 | 3290 | | | |
| | | | | 16×20 | 0.018 | 3140 | 16×25 | 0.016 | 3460 |
| 4700 | 12.5×30 | 0.016 | 3290 | 12.5×35 | 0.015 | 3400 | | | |
| 5600 | 12.5×35 | 0.015 | 3400 | 16×26 | 0.016 | 3460 | | | |
| | 16×20 | 0.018 | 3140 | | | | | | |
| 6800 | 16×26 | 0.016 | 3460 | | | | | | |

ALUMINUM ELECTROLYTIC CAPACITORS



EK Series

Case size & Permissible rated ripple current:

| Nominal Capacitance (uF) | 25V | | | 35V | | | 50V | | |
|--------------------------|---------------------|----------------------------|--|---------------------|----------------------------|--|---------------------|----------------------------|--|
| | Case Size DΦ×L (mm) | Max. impd @25°C 100kHz (Ω) | Max. Rated ripple current @105°C 100kHz (mA rms) | Case Size DΦ×L (mm) | Max. impd @25°C 100kHz (Ω) | Max. Rated ripple current @105°C 100kHz (mA rms) | Case Size DΦ×L (mm) | Max. impd @25°C 100kHz (Ω) | Max. Rated ripple current @105°C 100kHz (mA rms) |
| 0.1 | | | | | | | 5×11 | 20.000 | 38 |
| 0.22 | | | | | | | 5×11 | 15.000 | 40 |
| 0.33 | | | | | | | 5×11 | 12.000 | 45 |
| 0.47 | | | | | | | 5×11 | 4.000 | 50 |
| 1 | | | | | | | 5×11 | 3.600 | 100 |
| 2.2 | | | | | | | 5×11 | 3.600 | 140 |
| 4.7 | 5×11 | 1.200 | 100 | | | | 5×11 | 3.600 | 140 |
| 10 | 5×11 | 1.200 | 100 | 5×11 | 0.800 | 170 | 5×11 | 0.900 | 180 |
| 22 | 5×11 | 1.000 | 120 | | | | 5×11 | 0.340 | 238 |
| 33 | | | | 5×11 | 0.300 | 250 | | | |
| 47 | 5×11 | 0.300 | 250 | | | | 6.3×11 | 0.340 | 285 |
| 56 | | | | 6.3×11 | 0.130 | 405 | 63×11 | 0.140 | 385 |
| 68 | | | | | | | | | |
| 100 | 6.3×11 | 0.130 | 405 | | | | 8×12 | 0.074 | 724 |
| 120 | | | | | | | 8×16 | 0.061 | 950 |
| 150 | | | | 8×12 | 0.072 | 760 | 10×13 | 0.061 | 979 |
| 180 | | | | | | | 8×20 | 0.046 | 1190 |
| 220 | 8×12 | 0.072 | 840 | 8×16 | 0.056 | 995 | 10×16 | 0.042 | 1370 |
| 270 | | | | 10×13 | 0.053 | 1030 | | | |
| 330 | | | | 8×20 | 0.041 | 1250 | 10×20 | 0.030 | 1580 |
| 330 | 8×16 | 0.056 | 995 | | | | | | |
| 330 | 10×13 | 0.053 | 1030 | 10×16 | 0.038 | 1430 | 10×25 | 0.028 | 1870 |
| 470 | 8×20 | 0.041 | 1250 | | | | | | |
| 470 | 10×13 | 0.038 | 1430 | 10×16 | 0.030 | 1430 | | | |
| 470 | 10×16 | 0.038 | 1430 | 10×20 | 0.023 | 1820 | | | |
| 470 | 12.5×16 | 0.035 | 1480 | 12.5×16 | 0.033 | 1750 | 12.5×20 | 0.027 | 2050 |
| 560 | | | | 10×25 | 0.022 | 2150 | 12.5×25 | 0.023 | 2410 |
| 680 | 10×16 | 0.028 | 1750 | | | | 12.5×20 | 0.028 | 2700 |
| 680 | 10×20 | 0.023 | 1820 | 12.5×20 | 0.021 | 2360 | 12.5×30 | 0.021 | 2860 |
| 820 | 10×25 | 0.022 | 2150 | | | | 12.5×35 | 0.019 | 2960 |
| 820 | | | | | | | 16×20 | 0.023 | 2730 |
| 1000 | 12.5×17 | 0.028 | 2250 | 12.5×20 | 0.050 | 2610 | | | |
| 1000 | 12.5×20 | 0.021 | 2360 | 12.5×25 | 0.018 | 2770 | 16×26 | 0.021 | 3010 |
| 1200 | | | | 12.5×30 | 0.016 | 3290 | | | |
| 1200 | | | | 16×20 | 0.018 | 3140 | | | |
| 1500 | 12.5×25 | 0.018 | 2770 | 12.5×35 | 0.015 | 3400 | | | |
| 1800 | 12.5×30 | 0.016 | 3290 | | | | | | |
| 1800 | 16×20 | 0.018 | 3140 | 16×26 | 0.016 | 3460 | | | |
| 2200 | 12.5×35 | 0.015 | 3400 | | | | | | |
| 2700 | 16×26 | 0.016 | 3460 | | | | | | |

RIPPLE CURRENT MULTIPLIERS

Frequency Multipliers

| Vdc | Cap.(uF) | Frequency (Hz) | | | |
|----------|--------------|----------------|------|------|------|
| | | 120 | 1K | 10K | 100K |
| 6.3 ~ 50 | 10 ~ 68 | 0.30 | 0.55 | 0.80 | 1.00 |
| | 82 ~ 220 | 0.40 | 0.60 | 0.85 | 1.00 |
| | 330 ~ 820 | 0.50 | 0.65 | 0.90 | 1.00 |
| | 1000 ~ 10000 | 0.60 | 0.70 | 0.95 | 1.00 |