

EJ

Feature: Low E.S.R. and impedance. Load life 2,000 to 5,000 hours at 105°C.

SPECIFICATIONS

| Item | Performance Characteristics | | | | | | | | | | | | | | |
|--|---|-------------------|-----------|-----------------------|-------------|----------------------|-------------|-----------------------|--------------------|------|------|------|------|------|------|
| Category Temperature Range | -55 to +105°C | | | | | | | | | | | | | | |
| Working Voltage Range | 6.3 to 50Vdc | | | | | | | | | | | | | | |
| Capacitance Range | 47 to 10,000 μ F | | | | | | | | | | | | | | |
| Capacitance Tolerance | $\pm 20\%$ (at 25°C 120Hz) | | | | | | | | | | | | | | |
| Dissipation Factor (tan δ) (at 25°C 120Hz) | <table border="1"> <thead> <tr> <th>Rated Voltage (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> </tr> </thead> <tbody> <tr> <td>tan δ (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> </tbody> </table> <p>The above values should be increased by 0.02 for every additional 1000 μ F</p> | 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 | | | | | | | | | |
| Leakage Current | <p>$I = 0.01CV$ or 3μ A, whichever is greater</p> <p>I: Leakage current. (μ A) C: Rated capacitance. (μ F) V: Rated voltage. (V)</p> <p>The rated voltage is impressed for two minutes.</p> | | | | | | | | | | | | | | |
| Endurance | <p>After applying rated voltage to the capacitor for 2,000 to 5,000 hours at 105°C, the following characteristics shall be satisfied when the capacitor has been restored to 25°C.</p> <table border="1"> <thead> <tr> <th>Case size</th> <th>Life time</th> </tr> </thead> <tbody> <tr> <td>5 ϕ & 6.3 ϕ</td> <td>2,000 hours</td> </tr> <tr> <td>8 ϕ & 10 ϕ</td> <td>3,000 hours</td> </tr> <tr> <td>13 ϕ & 18 ϕ</td> <td>5,000 hours</td> </tr> </tbody> </table> <p>Capacitance change $\leq \pm 25\%$ of the initial value Dissipation factor (tan δ) $\leq 200\%$ of the specified value Leakage current \leq specified value</p> | Case size | Life time | 5 ϕ & 6.3 ϕ | 2,000 hours | 8 ϕ & 10 ϕ | 3,000 hours | 13 ϕ & 18 ϕ | 5,000 hours | | | | | | |
| Case size | Life time | | | | | | | | | | | | | | |
| 5 ϕ & 6.3 ϕ | 2,000 hours | | | | | | | | | | | | | | |
| 8 ϕ & 10 ϕ | 3,000 hours | | | | | | | | | | | | | | |
| 13 ϕ & 18 ϕ | 5,000 hours | | | | | | | | | | | | | | |
| Shelf Life | <p>After exposing the capacitor for 1,000 hours at 105°C, without applying voltage, the following characteristics shall be satisfied when the capacitor has been restored to 25°C.</p> <p>Capacitance change $\leq \pm 25\%$ of the initial value Dissipation factor (tan δ) $\leq 200\%$ of the specified value Leakage current $\leq 200\%$ of the specified value</p> | | | | | | | | | | | | | | |
| Others | Conforms to JIS C-5141 (1991), characteristic W | | | | | | | | | | | | | | |

RIPPLE CURRENT MULTIPLIERS

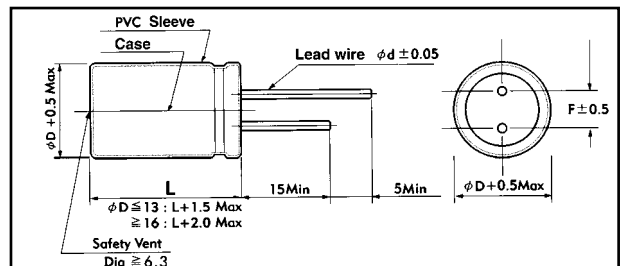
Temperature Multipliers

| Temp (°C) | 40 | 60 | 70 | 85 | 95 | 105 |
|-----------|------|------|------|------|------|------|
| Factor | 2.10 | 1.90 | 1.65 | 1.40 | 1.25 | 1.00 |

Frequency Multipliers

| Cap. (μ F) | 50(60) | 120 | 1K | 10K | 100K |
|-----------------|--------|------|------|------|------|
| 47 to 220 | 0.30 | 0.50 | 0.80 | 0.95 | 1.00 |
| 330 to 820 | 0.57 | 0.71 | 0.90 | 0.98 | 1.00 |
| 1000 to 10000 | 0.75 | 0.87 | 0.98 | 1.00 | 1.00 |

DIMENSIONS(mm)



| ϕ D | 5 | 6.3 | 8 | 10 | 13 | 16 | 18 |
|----------|-----|-----|-----|-----|-----|-----|-----|
| ϕ d | 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 | 7.5 |

EJ

Case size & Permissible Ripple Current:

| Nominal Capacitance (μF) | 6.3V | | | | 10 V | | | | 16 V | | | |
|--------------------------|----------------------|-----------------------------|-------|--|----------------------|-----------------------------|-------|--|----------------------|-----------------------------|-------|--|
| | Case Size φ DxL (mm) | Max. Impedance @ 100kHz (Ω) | | Max. Ripple Current @105°C 100kHz (mA rms) | Case Size φ DxL (mm) | Max. Impedance @ 100kHz (Ω) | | Max. Ripple Current @105°C 100kHz (mA rms) | Case Size φ DxL (mm) | Max. Impedance @ 100kHz (Ω) | | Max. Ripple Current @105°C 100kHz (mA rms) |
| | | 25°C | -10°C | | | 25°C | -10°C | | | 25°C | -10°C | |
| 100 | 5x11 | 1.3 | 4.8 | 155 | 6.3x11 | 1.08 | 3.3 | 170 | 6.3x11 | 0.9 | 3.0 | 185 |
| 220 | 6.3x11 | 0.55 | 1.6 | 255 | 8x12 | 0.50 | 1.6 | 260 | 8x12 | 0.40 | 1.2 | 340 |
| 330 | 8x12 | 0.41 | 1.20 | 330 | 8x12 | 0.29 | 0.84 | 415 | 10x12 | 0.25 | 0.75 | 495 |
| 470 | 10x12 | 0.16 | 0.40 | 635 | 10x12 | 0.25 | 0.75 | 495 | 8x20 | 0.18 | 0.52 | 640 |
| 560 | 10x12 | 0.25 | 0.75 | 495 | 8x20 | 0.23 | 0.73 | 510 | 10x20 | 0.115 | 0.29 | 810 |
| 680 | 10x16 | 0.12 | 0.30 | 795 | 8x20 | 0.18 | 0.52 | 640 | 10x20 | 0.088 | 0.22 | 1060 |
| 820 | 8x20 | 0.18 | 0.52 | 640 | 10x20 | 0.13 | 0.28 | 810 | 10x25 | 0.068 | 0.17 | 1240 |
| 1000 | 10x20 | 0.11 | 0.28 | 820 | 10x20 | 0.088 | 0.22 | 1060 | 10x30 | 0.067 | 0.16 | 1280 |
| 1200 | 10x20 | 0.088 | 0.22 | 1060 | 10x25 | 0.068 | 0.17 | 1240 | 10x30 | 0.059 | 0.15 | 1450 |
| 1500 | 10x25 | 0.068 | 0.17 | 1240 | 10x30 | 0.059 | 0.15 | 1450 | 13x25 | 0.045 | 0.11 | 1700 |
| 2200 | 10x30 | 0.059 | 0.15 | 1450 | 13x25 | 0.045 | 0.11 | 1700 | 13x30 | 0.039 | 0.098 | 1980 |
| 2700 | 13x25 | 0.045 | 0.11 | 1700 | 13x30 | 0.039 | 0.098 | 1980 | 13x35 | 0.033 | 0.083 | 2230 |
| 3300 | 13x30 | 0.044 | 0.108 | 1750 | 13x35 | 0.033 | 0.083 | 2230 | 13x40 | 0.029 | 0.073 | 2460 |
| 3900 | 13x30 | 0.039 | 0.098 | 1980 | 13x40 | 0.029 | 0.073 | 2460 | 16x32 | 0.029 | 0.073 | 2510 |
| 4700 | 13x35 | 0.033 | 0.083 | 2230 | 16x32 | 0.029 | 0.073 | 2510 | 16x36 | 0.025 | 0.063 | 2770 |
| 5600 | 13x40 | 0.029 | 0.073 | 2460 | 16x36 | 0.028 | 0.071 | 2550 | 16x40 | 0.021 | 0.053 | 3110 |
| 6800 | 16x32 | 0.029 | 0.073 | 2510 | 16x36 | 0.025 | 0.063 | 2770 | 18x36 | 0.023 | 0.058 | 3050 |
| 8200 | 16x36 | 0.025 | 0.063 | 2770 | 16x40 | 0.021 | 0.053 | 3110 | 18x40 | 0.020 | 0.050 | 3300 |
| 10000 | 16x40 | 0.021 | 0.053 | 3110 | 18x40 | 0.020 | 0.050 | 3300 | | | | |

| Nominal Capacitance (μF) | 25 V | | | | 35 V | | | | 50 V | | | |
|--------------------------|----------------------|-----------------------------|-------|--|----------------------|-----------------------------|-------|--|----------------------|-----------------------------|-------|--|
| | Case Size φ DxL (mm) | Max. Impedance @ 100kHz (Ω) | | Max. Ripple Current @105°C 100kHz (mA rms) | Case Size φ DxL (mm) | Max. Impedance @ 100kHz (Ω) | | Max. Ripple Current @105°C 100kHz (mA rms) | Case Size φ DxL (mm) | Max. Impedance @ 100kHz (Ω) | | Max. Ripple Current @105°C 100kHz (mA rms) |
| | | 25°C | -10°C | | | 25°C | -10°C | | | 25°C | -10°C | |
| 47 | 5x11 | 1.1 | 3.3 | 165 | 6.3x11 | 1.0 | 3.0 | 180 | 6.3x11 | 0.57 | 1.7 | 255 |
| 56 | 6.3x11 | 1.0 | 3.0 | 180 | 6.3x11 | 0.55 | 1.6 | 255 | 8x12 | 0.46 | 1.4 | 310 |
| 68 | 6.3x11 | 0.95 | 2.90 | 185 | 8x12 | 0.50 | 1.55 | 260 | 8x12 | 0.29 | 0.90 | 415 |
| 100 | 8x12 | 0.52 | 1.60 | 270 | 8x12 | 0.38 | 1.15 | 350 | 8x20 | 0.23 | 0.70 | 510 |
| 150 | 8x12 | 0.29 | 0.84 | 415 | 10x12 | 0.28 | 0.83 | 420 | 10x20 | 0.16 | 0.43 | 680 |
| 220 | 8x16 | 0.25 | 0.75 | 495 | 8x20 | 0.18 | 0.52 | 640 | 10x25 | 0.096 | 0.24 | 1060 |
| 330 | 8x20 | 0.18 | 0.52 | 640 | 10x20 | 0.088 | 0.22 | 1060 | 10x30 | 0.083 | 0.21 | 1230 |
| 470 | 10x20 | 0.088 | 0.22 | 1060 | 10x30 | 0.065 | 0.17 | 1300 | 13x25 | 0.061 | 0.16 | 1500 |
| 560 | 10x25 | 0.068 | 0.17 | 1240 | 10x30 | 0.059 | 0.15 | 1450 | 13x30 | 0.056 | 0.14 | 1680 |
| 680 | 10x30 | 0.065 | 0.17 | 1280 | 13x25 | 0.045 | 0.11 | 1700 | 13x35 | 0.046 | 0.12 | 1900 |
| 820 | 10x30 | 0.059 | 0.15 | 1450 | 13x30 | 0.044 | 0.11 | 1750 | 13x40 | 0.041 | 0.10 | 2120 |
| 1000 | 13x25 | 0.045 | 0.11 | 1700 | 13x30 | 0.039 | 0.098 | 1980 | 16x32 | 0.041 | 0.10 | 2150 |
| 1200 | 13x25 | 0.044 | 0.11 | 1750 | 13x35 | 0.033 | 0.083 | 2230 | 16x36 | 0.037 | 0.093 | 2320 |
| 1500 | 13x30 | 0.039 | 0.098 | 1980 | 13x40 | 0.029 | 0.073 | 2460 | 16x40 | 0.030 | 0.075 | 2650 |
| 2200 | 13x40 | 0.029 | 0.073 | 2460 | 16x36 | 0.025 | 0.063 | 2770 | 18x40 | 0.029 | 0.073 | 2790 |
| 2700 | 16x32 | 0.029 | 0.073 | 2510 | 16x40 | 0.021 | 0.053 | 3110 | | | | |
| 3300 | 16x36 | 0.025 | 0.063 | 2770 | 18x40 | 0.020 | 0.050 | 3300 | | | | |
| 3900 | 16x40 | 0.021 | 0.053 | 3110 | | | | | | | | |
| 4700 | 18x40 | 0.020 | 0.050 | 3300 | | | | | | | | |

LOAD LIFE TEST

————— 2200 μF 10WV
 - - - - - 1000 μF 10WV

