Load Life: 125°C  3000~5000 hours Low ESR

*ESR standard after endurance test. (φ8~φ10)
*AEC-Q200.

---

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Items</th>
<th>Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Category Temperature Range</td>
<td>−40~+125°C</td>
</tr>
<tr>
<td>Rated Voltage Range</td>
<td>16~50Vdc</td>
</tr>
<tr>
<td>Capacitance Tolerance</td>
<td>±20% (20°C, 120Hz)</td>
</tr>
<tr>
<td>Leakage Current(MAX)</td>
<td>I=0.01CV or 3μA whichever is greater,(After 2 minutes application of rated voltage)</td>
</tr>
<tr>
<td></td>
<td>I=Leakage Current(μA) C=Capacitance (μF) V=Rated Voltage/ε(Vdc)</td>
</tr>
<tr>
<td>Dissipation Factor(MAX) (tanδ)</td>
<td>Rated Voltage (Vdc) 16 25 35 50 (20°C, 120Hz)</td>
</tr>
<tr>
<td></td>
<td>0.23 0.18 0.16 0.14</td>
</tr>
<tr>
<td></td>
<td>0.18 0.16 0.14 0.12</td>
</tr>
<tr>
<td></td>
<td>When rated capacitance is over 1000μF, tanδ shall be added 0.02 to the listed value with increase of every 1000 μF.</td>
</tr>
<tr>
<td>Endurance</td>
<td>After applying rated voltage for specified time at 125°C, the capacitors shall meet the following requirements.</td>
</tr>
<tr>
<td></td>
<td>Capacitance Change Within ±30% of the initial value.</td>
</tr>
<tr>
<td></td>
<td>Dissipation Factor Not more than 300% of the specified value.</td>
</tr>
<tr>
<td></td>
<td>Leakage Current Not more than the specified value.</td>
</tr>
<tr>
<td>Case Size</td>
<td>Life Time (hrs)</td>
</tr>
<tr>
<td></td>
<td>φD≤10 3000</td>
</tr>
<tr>
<td></td>
<td>φD≥12.5 5000</td>
</tr>
<tr>
<td>Low Temperature Stability Impedance Ratio(MAX)</td>
<td>Rated Voltage (Vdc) 16 25 35 50 (120Hz)</td>
</tr>
<tr>
<td></td>
<td>Z(−40°C)/Z(20°C) 3 3 3 3</td>
</tr>
</tbody>
</table>

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**MULTIPLIER FOR RIPPLE CURRENT**

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>120</th>
<th>1k</th>
<th>10k</th>
<th>100k≤s</th>
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<tbody>
<tr>
<td>Coefficient 33μF</td>
<td>0.45</td>
<td>0.75</td>
<td>0.90</td>
<td>1.00</td>
</tr>
<tr>
<td>47~100μF</td>
<td>0.50</td>
<td>0.80</td>
<td>0.95</td>
<td>1.00</td>
</tr>
<tr>
<td>220~3300μF</td>
<td>0.60</td>
<td>0.85</td>
<td>0.95</td>
<td>1.00</td>
</tr>
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</table>

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**MARKING**

(φ12.5~φ18)

<table>
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<tr>
<th>(φ8,φ10)</th>
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<tbody>
<tr>
<td>AA 470 CTG</td>
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<tr>
<td>Lot No.</td>
</tr>
<tr>
<td>Capacitance</td>
</tr>
<tr>
<td>Series</td>
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<tr>
<td>Rated voltage code</td>
</tr>
<tr>
<td>Negative</td>
</tr>
<tr>
<td>Voltage code</td>
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</table>

<table>
<thead>
<tr>
<th>Rated Voltage (Vdc)</th>
<th>16</th>
<th>25</th>
<th>35</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage code φD≤10</td>
<td>C</td>
<td>E</td>
<td>V</td>
<td>H</td>
</tr>
<tr>
<td>φD≥12.5 1C 1E 1V 1H</td>
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**PART NUMBER**

<table>
<thead>
<tr>
<th>Rated Voltage</th>
<th>Series</th>
<th>Capacitance</th>
<th>Capacitance Tolerance</th>
<th>Option</th>
<th>D×L</th>
<th>Case Size</th>
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<td>TGV</td>
<td></td>
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## Dimensions

![Dimension Diagram]

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<tr>
<th>φD</th>
<th>L</th>
<th>A1</th>
<th>B1</th>
<th>C</th>
<th>W1</th>
<th>P</th>
<th>K</th>
<th>α</th>
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<tbody>
<tr>
<td>8</td>
<td>10.5</td>
<td>8.3</td>
<td>8.3</td>
<td>2.9</td>
<td>0.8~1.1</td>
<td>3.1</td>
<td>0.5Max</td>
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<td>10</td>
<td>10.5</td>
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<td>3.2</td>
<td>0.8~1.1</td>
<td>4.5</td>
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<td>12.5</td>
<td>13.5</td>
<td>13</td>
<td>13</td>
<td>4.9</td>
<td>0.8~1.1</td>
<td>4.5</td>
<td>0.7±0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>16.5</td>
<td>16</td>
<td>13</td>
<td>13</td>
<td>4.9</td>
<td>0.8~1.1</td>
<td>4.5</td>
<td>0.7±0.4</td>
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<tr>
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<td>16.5</td>
<td>17</td>
<td>17</td>
<td>6</td>
<td>1.0~1.6</td>
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<td>0.7±0.4</td>
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<tr>
<td>18</td>
<td>16.5</td>
<td>19</td>
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<td>7</td>
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<td>0.7±0.4</td>
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<td>21.5</td>
<td>19</td>
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## Standard Size

### Size φD×L (mm), Rated Ripple Current (mA r.m.s./125°C, 100kHz), ESR (Ω MAX/100kHz)

<table>
<thead>
<tr>
<th>Vdc</th>
<th>Cap (μF)</th>
<th>Size (ϕDXL)</th>
<th>Ripple</th>
<th>ESR 20°C</th>
<th>ESR -40°C</th>
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<tbody>
<tr>
<td>16</td>
<td>100</td>
<td>8x10.5</td>
<td>350</td>
<td>0.150</td>
<td>3.0</td>
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<tr>
<td></td>
<td>220</td>
<td>8x10.5</td>
<td>350</td>
<td>0.150</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>330</td>
<td>10x10.5</td>
<td>550</td>
<td>0.120</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>470</td>
<td>10x10.5</td>
<td>550</td>
<td>0.120</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>820</td>
<td>12.5x13.5</td>
<td>850</td>
<td>0.092</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>12.5x16</td>
<td>1000</td>
<td>0.074</td>
<td>0.9</td>
</tr>
<tr>
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<td>1200</td>
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<td>0.7</td>
</tr>
<tr>
<td></td>
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<td>18x16.5</td>
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<td>0.064</td>
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<td>18x21.5</td>
<td>1800</td>
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