Radial Leaded Aluminum Electrolytic Capacitors
RES Series

FEATURES
• Small size
• Long life and high ripple current
• Endurance: 5000 - 7000 hours at 105°C
• RoHS Compliance

APPLICATIONS
• Communications equipment
• Industrial equipment

HOW TO ORDER

Product Type
Aluminum

Series Type
See Table Below

Case Size
See Table Below

Capacitance Code
µF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)

Tolerance
M = ±20%

CASE DIMENSIONS millimeters (inches)

<table>
<thead>
<tr>
<th>Code</th>
<th>D=±0.50(0.020)</th>
<th>L'=±0.50(0.020)</th>
<th>d±0.05(0.002)</th>
<th>P±0.50(0.020)</th>
<th>Typical Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0511</td>
<td>5.00 (0.202)</td>
<td>11.00 (0.433)</td>
<td>0.50 (0.020)</td>
<td>2.00 (0.079)</td>
<td>0.41</td>
</tr>
<tr>
<td>0611</td>
<td>6.30 (0.248)</td>
<td>11.00 (0.433)</td>
<td>0.50 (0.020)</td>
<td>2.50 (0.098)</td>
<td>0.68</td>
</tr>
<tr>
<td>0812</td>
<td>8.00 (0.315)</td>
<td>12.00 (0.472)</td>
<td>0.50 (0.020)</td>
<td>3.50 (0.138)</td>
<td>1.00</td>
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<tr>
<td>0816</td>
<td>8.00 (0.315)</td>
<td>16.00 (0.629)</td>
<td>0.50 (0.020)</td>
<td>3.50 (0.138)</td>
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<tr>
<td>0820</td>
<td>8.00 (0.315)</td>
<td>20.00 (0.787)</td>
<td>0.50 (0.020)</td>
<td>3.50 (0.138)</td>
<td>1.81</td>
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</table>

MARKING

TECHNICAL SPECIFICATIONS

Category Temperature Range: -40°C to +105°C
Capacitance Range: 2.2µF to 1,000µF
Capacitance Tolerance: ±20%
Dissipation Factor (%): Please see the Ratings and Part Number Reference Table below
Leakage Current: After 2 minutes at rated working voltage at 25°C I≤0.01CV (µA) or 3µA, whichever is greater

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### CAPACITANCE AND RATED VOLTAGE RANGE (FIGURES DENOTES CASE SIZE)

<table>
<thead>
<tr>
<th>Capacitance (µF)</th>
<th>Code</th>
<th>16V</th>
<th>25V</th>
<th>35V</th>
<th>50V</th>
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<tr>
<td>2.2</td>
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<td>4.7</td>
<td>4R7</td>
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<td>10</td>
<td>100</td>
<td>0511</td>
<td></td>
<td></td>
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<td></td>
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<td>47</td>
<td>470</td>
<td>0511</td>
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<td>0812</td>
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<td>1000</td>
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### RATINGS & PART NUMBER REFERENCE

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Case Size</th>
<th>Capacitance (µF)</th>
<th>Rated Voltage (V)</th>
<th>DCL Max. (µA)</th>
<th>DF Max. (%)</th>
<th>Impedance @100kHz/20°C (Ωmax)</th>
<th>100kHz RMS Current (mA)/105°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>16V</td>
<td></td>
<td></td>
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<td>RES0611221M016B</td>
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<td>35.2</td>
<td>16</td>
<td>0.140</td>
<td>450</td>
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<td>75.2</td>
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<td>25</td>
<td>11.8</td>
<td>14</td>
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<td>25.0</td>
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<td>117.5</td>
<td>14</td>
<td>0.069</td>
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<td>35V</td>
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<td>0.086</td>
<td>850</td>
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<td>50V</td>
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</tr>
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<td>RES05112R2M050B</td>
<td>0511</td>
<td>2.2</td>
<td>50</td>
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<td>10</td>
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<td>0511</td>
<td>4.7</td>
<td>50</td>
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<td>50</td>
<td>23.5</td>
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<tr>
<td>RES0812101M050B</td>
<td>0812</td>
<td>100</td>
<td>50</td>
<td>50.0</td>
<td>10</td>
<td>0.170</td>
<td>560</td>
</tr>
</tbody>
</table>

All technical data relates to an ambient temperature of +25°C

### FREQUENCY COEFFICIENT OF PERMISSIBLE RIPPLE CURRENT

<table>
<thead>
<tr>
<th>Rated Voltage (Vdc)</th>
<th>Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Cap. &lt; 220</td>
<td>0.40</td>
</tr>
<tr>
<td>220 ≤ Cap. &lt; 470</td>
<td>0.50</td>
</tr>
<tr>
<td>470 ≤ Cap. &lt; 1000</td>
<td>0.60</td>
</tr>
</tbody>
</table>
Radial Leaded Aluminum Electrolytic Capacitors

RES Series

QUALIFICATION TABLE

<table>
<thead>
<tr>
<th>Test</th>
<th>Condition</th>
<th>RES Series (Temperature range -40°C to +105°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Stability</td>
<td>Application of the rated voltage and the rated ripple current. Test temperature: 105 ± 2°C</td>
<td>Rated Voltage (V) 16 - 50 Z(-25°C) / Z(20°C) 2</td>
</tr>
<tr>
<td>(Max. Impedance Ratio)</td>
<td></td>
<td>ΔC/C Within ±20% of initial limit</td>
</tr>
<tr>
<td>Load Life</td>
<td>Diameter: 6.3, Life Time (h): 5000</td>
<td>DF Not more than 200% of the specified limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DCL Not more than the specified limit</td>
</tr>
<tr>
<td>Shelf Life</td>
<td>The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours 105°C without voltage applied.</td>
<td>ΔC/C Within ±20% of initial limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DF 200% or less of initial limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DCL Initial specified limit or less</td>
</tr>
</tbody>
</table>

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use the rms ripple current has to be reduced.

STORAGE

1. It is recommended to keep capacitors between the ambient temperatures of 5°C to 35°C and a relative humidity of 75% or below.
2. Confirm that the environment does not have any of the following conditions:
   a. Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
   b. In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfuric acid, nitric acid, chlorine, ammonia, etc.).
   c. Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
   d. Exposed to acidic or alkaline solutions.
   e. Under severe conditions where vibration and / or mechanical shock exceed the applicable ranges of the specification.
3. Storage life: 2yrs

PACKAGE DIMENSIONS (BULK PACKING)

<table>
<thead>
<tr>
<th>Type of Product</th>
<th>Code</th>
<th>Bags / Inner Box</th>
<th>Quantity (Pcs/Carton)</th>
<th>Total Quantity (Pcs/Carton)</th>
<th>Wt (Kg/bag)</th>
<th>Size of Inner Box L x W x H (mm)</th>
<th>Size of Out Box L x W x H (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radial Classic</td>
<td>0511</td>
<td>12</td>
<td>1000</td>
<td>12000</td>
<td>0.43</td>
<td>267 x 546</td>
<td>260 x 279</td>
</tr>
<tr>
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<td>0611</td>
<td>8</td>
<td>1000</td>
<td>8000</td>
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<td>260 x 135</td>
<td>279 x 160</td>
</tr>
<tr>
<td></td>
<td>0812</td>
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<td>300</td>
<td>3000</td>
<td>0.71</td>
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</tr>
</tbody>
</table>

Note: if you need more packing information, please contact your sales representative.

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