

Features

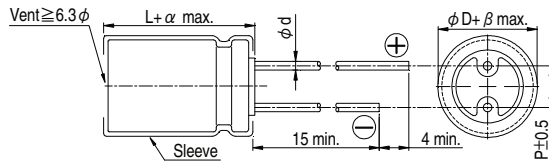
- 105°C, 1,000 hours assured
- Very low leakage current
- Use in high temperature industrial equipment
- RoHS compliance



Specifications

Items	Performance																													
Category Temperature Range	-40°C ~ +105°C																													
Capacitance Tolerance	±20% (at 120 Hz, 20°C)																													
Leakage Current (at 20°C)	$I = 0.002CV$ or $0.4 (\mu A)$ whichever is greater (after 2 minutes) Where, C = rated capacitance in μF , V = rated DC working voltage in V																													
Tan δ (at 120 Hz, 20°C)	<table border="1"> <thead> <tr> <th>Rated Voltage</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>Tanδ (max)</td> <td>0.24</td> <td>0.21</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.08</td> </tr> </tbody> </table> <p>When the capacitance exceeds 1,000 μF, 0.02 shall be added every 1,000 μF increase.</p>	Rated Voltage	6.3	10	16	25	35	50	63	100	Tan δ (max)	0.24	0.21	0.16	0.14	0.12	0.10	0.09	0.08											
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Low Temperature Characteristics (at 120 Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <thead> <tr> <th colspan="2">Rated Voltage</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance Ratio</td> <td>Z(-25°C)/Z(+20°C)</td> <td>4</td> <td>3</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>6</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Rated Voltage		6.3	10	16	25	35	50	63	100	Impedance Ratio	Z(-25°C)/Z(+20°C)	4	3	3	2	2	2	2	2	Z(-40°C)/Z(+20°C)	8	6	6	4	4	3	3	3
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Diagram of Dimensions



Lead Spacing and Diameter

Unit: mm

ϕD	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ϕd	0.5		0.6			0.8	
α	L < 20: 1.5, L ≥ 20: 2.0						
β	0.5						

Dimension and Permissible Ripple Current

Dimension: $\phi D \times L$ (mm)
Ripple Current: mA/rms at 120 Hz, 105°C

Rated Volt. (V _{DC})	Cap. (μF)	Contents	6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)		100V (2A)		
			$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$
2.2	2R2													5×11	20			5×11	23
3.3	3R3													5×11	25			5×11	29
4.7	4R7								5×11	26	5×11	28	5×11	30	5×11	32	5×11	34	34
10	100					5×11	35	5×11	38	5×11	41	5×11	46	5×11	50	6.3×11	56		
22	220			5×11	49	5×11	54	5×11	57	5×11	61	5×11	68	6.3×11	82	8×11.5	96		
33	330	5×11	54	5×11	60	5×11	64	5×11	69	5×11	75	6.3×11	90	6.3×11	100	10×12.5	140		
47	470	5×11	65	5×11	70	5×11	99	5×11	82	6.3×11	100	6.3×11	110	8×11.5	135	10×16	180		
100	101	5×11	95	5×11	105	6.3×11	125	6.3×11	135	8×11.5	170	8×11.5	180	10×12.5	225	12.5×20	320		
220	221	6.3×11	160	6.3×11	175	8×11.5	215	8×11.5	230	10×12.5	300	10×16	345	10×20	400	16×25	570		
330	331	6.3×11	195	8×11.5	245	8×11.5	260	10×12.5	335	10×16	400	10×20	460	12.5×20	540	16×25	700		
470	471	8×11.5	270	8×11.5	290	10×12.5	370	10×16	440	10×20	520	12.5×20	610	12.5×25	700	16×31.5	880		
1,000	102	10×12.5	460	10×16	550	10×20	640	12.5×20	770	12.5×25	920	16×25	1,080	16×31.5	1,210				
2,200	222	12.5×20	810	12.5×20	860	12.5×25	1,000	16×25	1,170	16×31.5	1,340	18×35.5	1,530						
3,300	332	12.5×20	960	12.5×25	1,100	16×25	1,300	16×31.5	1,460	18×35.5	1,650								
4,700	472	16×25	1,330	16×25	1,400	16×31.5	1,600	18×35.5	1,780	18×40	1,900								

Part Numbering System

RA Series 470μF ±20% 6.3V Bulk Package Gas Type 8 ϕ × 11.5L

RA- **471** **M** **0J** **BK** - **0811**

Series Name Capacitance Capacitance Tolerance Rated Voltage Lead Configuration and Package Rubber Type Case Size

XX
S = Standard
KS = AEC-Q200 Qualified, Safety Critical Application
LS = AEC-Q200 Qualified, Non-Safety Critical Application