



RJA Series

Features

- 105°C, wide temperature range
- Suitable for high reliability products
- RoHS Compliance

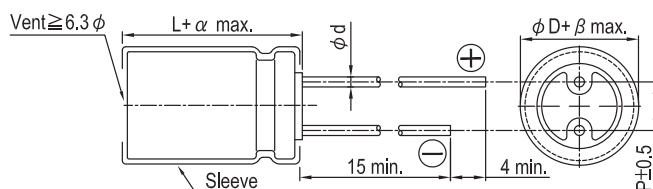


Sleeve & Marking Color: Deep Purple & White

Specifications

Items	Performance																																																													
Category Temperature Range	6.3 ~ 63V					100V																																																								
	-55℃ ~ +105℃					-40℃ ~ +105℃																																																								
Capacitance Tolerance	±20% (at 120Hz, 20℃)																																																													
Leakage Current (at 20℃)	I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF V = rated DC working voltage in V																																																													
Tanδ (at 120 Hz, 20℃)	<table><tr><td>Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td>Tanδ (max)</td><td>0.23</td><td>0.20</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></table> When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.										Rated Voltage	6.3	10	16	25	35	50	63	100	Tanδ (max)	0.23	0.20	0.16	0.14	0.12	0.10	0.09	0.08																																		
Rated Voltage	6.3	10	16	25	35	50	63	100																																																						
Tanδ (max)	0.23	0.20	0.16	0.14	0.12	0.10	0.09	0.08																																																						
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="3">Rated Voltage</td><td>6.3</td><td>10</td><td>16</td><td>25</td><td>35</td><td>50</td><td>63</td><td>100</td></tr><tr><td rowspan="4">Impedance Ratio</td><td>Z(-25℃)</td><td>φ D < 16</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(+20℃)</td><td>φ D ≥ 16</td><td>5</td><td>4</td><td>3</td><td>2</td><td>2</td><td>2</td><td>2</td><td>3</td></tr><tr><td>Z(-40/-55℃)</td><td>φ D < 16</td><td>8</td><td>6</td><td>4</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td></tr><tr><td>/Z(+20℃)</td><td>φ D ≥ 16</td><td>12</td><td>8</td><td>6</td><td>4</td><td>3</td><td>3</td><td>3</td><td>6</td></tr></table>										Rated Voltage			6.3	10	16	25	35	50	63	100	Impedance Ratio	Z(-25℃)	φ D < 16	4	3	3	2	2	2	2	2	/Z(+20℃)	φ D ≥ 16	5	4	3	2	2	2	2	3	Z(-40/-55℃)	φ D < 16	8	6	4	4	4	3	3	3	/Z(+20℃)	φ D ≥ 16	12	8	6	4	3	3	3	6
Rated Voltage			6.3	10	16	25	35	50	63	100																																																				
Impedance Ratio	Z(-25℃)	φ D < 16	4	3	3	2	2	2	2	2																																																				
	/Z(+20℃)	φ D ≥ 16	5	4	3	2	2	2	2	3																																																				
	Z(-40/-55℃)	φ D < 16	8	6	4	4	4	3	3	3																																																				
	/Z(+20℃)	φ D ≥ 16	12	8	6	4	3	3	3	6																																																				
Endurance	<table><tr><td>Test Time</td><td>2,000 Hrs</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr><tr><td>Tanδ</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied with rated ripple current for 2,000 hours at 105℃.										Test Time	2,000 Hrs	Capacitance Change	Within ±20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value																																												
Test Time	2,000 Hrs																																																													
Capacitance Change	Within ±20% of initial value																																																													
Tanδ	Less than 200% of specified value																																																													
Leakage Current	Within specified value																																																													
Shelf Life Test	<table><tr><td>Test Time</td><td>1,000 Hrs</td></tr><tr><td>Capacitance Change</td><td>Within ±20% of initial value</td></tr><tr><td>Tanδ</td><td>Less than 200% of specified value</td></tr><tr><td>Leakage Current</td><td>Within specified value</td></tr></table> * The above specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied.										Test Time	1,000 Hrs	Capacitance Change	Within ±20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value																																												
Test Time	1,000 Hrs																																																													
Capacitance Change	Within ±20% of initial value																																																													
Tanδ	Less than 200% of specified value																																																													
Leakage Current	Within specified value																																																													
Ripple Current and Frequency Multipliers	<table><tr><td> Freq.(Hz) Cap.(μF) </td><td>60 (50)</td><td>120</td><td>500</td><td>1k</td><td>10k up</td></tr><tr><td>Under 100</td><td>0.70</td><td>1.00</td><td>1.30</td><td>1.40</td><td>1.50</td></tr><tr><td>100 < C ≤ 1,000</td><td>0.75</td><td>1.00</td><td>1.20</td><td>1.30</td><td>1.35</td></tr><tr><td>1,000 up above</td><td>0.80</td><td>1.00</td><td>1.10</td><td>1.12</td><td>1.15</td></tr></table>										Freq.(Hz) Cap.(μF)	60 (50)	120	500	1k	10k up	Under 100	0.70	1.00	1.30	1.40	1.50	100 < C ≤ 1,000	0.75	1.00	1.20	1.30	1.35	1,000 up above	0.80	1.00	1.10	1.12	1.15																												
Freq.(Hz) Cap.(μF)	60 (50)	120	500	1k	10k up																																																									
Under 100	0.70	1.00	1.30	1.40	1.50																																																									
100 < C ≤ 1,000	0.75	1.00	1.20	1.30	1.35																																																									
1,000 up above	0.80	1.00	1.10	1.12	1.15																																																									

Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

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



Dimension and Permissible Ripple Current

Dimension: $\phi D \times L(\text{mm})$

Ripple Current: mA/rms at 120 Hz, 105°C

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
2.2	2R2											5×11	20			5×11	26
3.3	3R3											5×11	30			5×11	31
4.7	4R7											5×11	33	5×11	36	6.3×11	40
10	100											5×11	50	5×11	54	6.3×11	54
22	220											5×11	78	6.3×11	86	6.3×11 8×11.5	93 111
33	330									5×11	85	5×11	90	6.3×11	100	8×11.5 10×12.5	144 183
47	470							5×11	97	5×11	90	6.3×11	117	6.3×11	129	10×12.5	204
100	101					5×11	110	6.3×11	142	6.3×11	150	8×11.5	188	10×12.5	235	10×20	285
220	221			5×11	150	6.3×11	180	8×11.5	236	8×11.5	270	10×16	335	10×20	400	12.5×25	440
330	331			6.3×11	200	8×11.5	260	8×11.5	330	10×12.5	350	10×16 10×20	410 460	10×20 12.5×20	490 520	16×25	478
470	471	6.3×11	230	6.3×11 8×11.5	250 290	8×11.5	310	10×12.5	380	10×16	460	12.5×20	590	12.5×20 12.5×25	665 720	16×31.5	688
1,000	102	8×11.5	380	10×12.5	460	10×16	560	10×20	680	12.5×20	830	16×25	1,080	16×25	1,190		
2,200	222	10×16	690	10×20	760	12.5×20	920	12.5×25	1,090	16×25	1,260	16×35.5	1,470				
3,300	332	10×20	840	12.5×20	1,100	12.5×25	1,170	16×25	1,400	16×35.5	1,610	18×35.5	1,650				
4,700	472	12.5×20	1,090	12.5×25	1,260	16×25	1,480	16×31.5	1,710	18×35.5	1,900						
6,800	682	12.5×25	1,460	16×25	1,690	16×31.5	1,930	18×35.5	2,160								
10,000	103	16×25	1,990	16×31.5	2,220	18×31.5	2,330										
22,000	223	18×35.5	2,930	18×40	3,230												

Part Numbering System

RJA Series	470μF	±20%	6.3V	Bulk Package	Gas Type	6.3 ϕ × 11L	Pb-free and PET sleeve
RJA	471	M	0J	BK	-	0611	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration & Package	Rubber Type	Case Size	Lead Wire and Sleeve type

Note: For more details, please refer to "Part Numbering System (Radial Type)" on page 13.