



RLA Series

Features

- 85°C, standard low leakage current series
- 2,000 hours assured
- RoHS Compliance

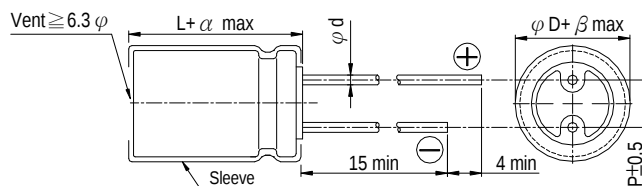


Sleeve & Marking Color: Orange & Black

Specifications

Items	Performance																																						
Category Temperature Range	-40°C ~ +85°C																																						
Capacitance Tolerance	±20% (at 120Hz, 20°C)																																						
Leakage Current (at 20°C)	I = 0.002CV or 0.4 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF V = rated DC working voltage in V																																						
Tanδ (at 120Hz, 20°C)	<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>0.24</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></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)	0.24	0.21	0.16	0.14	0.12	0.10	0.09	0.08												
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Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">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>Impedance</td><td>Z(-25°C)/Z(+20°C)</td><td>5</td><td>4</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr><tr><td>Ratio</td><td>Z(-40°C)/Z(+20°C)</td><td>10</td><td>8</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td></tr></table>									Rated Voltage		6.3	10	16	25	35	50	63	100	Impedance	Z(-25°C)/Z(+20°C)	5	4	2	2	2	2	2	2	Ratio	Z(-40°C)/Z(+20°C)	10	8	6	4	4	3	3	3
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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°C after the rated voltage applied with rated ripple current for 2,000 hours at 85°C.									Test Time	2,000 Hrs	Capacitance Change	Within ±20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value																						
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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°C after exposing them for 1,000 hours at 85°C 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																						
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Ripple Current & Frequency Multipliers	<table><tr><td rowspan="4">Cap.(μF) \ Freq.(Hz)</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>1.35</td><td>1.55</td><td>2.00</td></tr><tr><td>100 < C ≤ 1,000</td><td>0.83</td><td>1.00</td><td>1.23</td><td>1.32</td><td>1.50</td></tr><tr><td>1,000 up above</td><td>0.90</td><td>1.00</td><td>1.10</td><td>1.12</td><td>1.15</td></tr></table>									Cap.(μF) \ Freq.(Hz)	60 (50)	120	500	1k	10k up	Under 100	0.70	1.00	1.35	1.55	2.00	100 < C ≤ 1,000	0.83	1.00	1.23	1.32	1.50	1,000 up above	0.90	1.00	1.10	1.12	1.15						
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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 $\geq$ 20: 2.0						
β	0.5						



Dimension: $\phi D \times L$ (mm)
Ripple Current: mA/rms at 120 Hz, 85°C

Dimension & Permissible Ripple Current

μF	V. DC 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	29			5×11	33
3.3	3R3											5×11	35			5×11	40
4.7	4R7							5×11	31	5×11	40	5×11	42	5×11	45	5×11	48
10	100					5×11	44	5×11	54	5×11	58	5×11	65	5×11	70	6.3×11	80
22	220			5×11	59	5×11	75	5×11	80	5×11	87	5×11	95	6.3×11	115	8×11.5	135
33	330	5×11	55	5×11	84	5×11	90	5×11	97	5×11	105	6.3×11	125	6.3×11	140	10×12.5	195
47	470	5×11	79	5×11	100	5×11	110	5×11	115	6.3×11	145	6.3×11	150	8×11.5	190	10×16	255
100	101	5×11	130	5×11	145	6.3×11	180	6.3×11	190	8×11.5	240	8×11.5	255	10×12.5	320	12.5×20	450
220	221	6.3×11	230	6.3×11	250	8×11.5	300	8×11.5	320	10×12.5	420	10×16	490	10×20	565	16×25	810
330	331	6.3×11	280	8×11.5	350	8×11.5	370	10×12.5	470	10×16	570	10×20	650	12.5×20	765	16×25	990
470	471	8×11.5	380	8×11.5	415	10×12.5	520	10×16	620	10×20	740	12.5×20	860	12.5×25	990	16×31.5	1,250
1,000	102	10×12.5	650	10×16	790	10×20	910	12.5×20	1,090	12.5×25	1,300	16×25	1,530	16×31.5	1,700		
2,200	222	12.5×20	1,150	12.5×20	1,240	12.5×25	1,420	16×25	1,660	16×31.5	1,890	18×35.5	2,160				
3,300	332	12.5×20	1,380	12.5×25	1,590	16×25	1,840	16×31.5	2,070	18×35.5	2,340						
4,700	472	16×25	1,880	16×25	1,980	16×31.5	2,260	18×35.5	2,520	18×40	2,690						

Part Numbering System

RLA series	470 μF	±20%	6.3V	Bulk Package	Gas Type	8 ϕ × 11.5L	Pb-free and PET coating case
RLA	471	M	0J	BK	-	0811	
Series	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration & Package	Rubber Type	Case Size	Lead Wire and Coating Type

Note: For more details, please refer to "Part Numbering System (Radial Type)" on page 10.