



RGA Series

Features

- 105°C, for general purpose, standard series
- RoHS Compliance
- If there is any requirement on ESR, it's suggested to use low ESR series instead of RGA. Please consult our contact window for any inquiry.

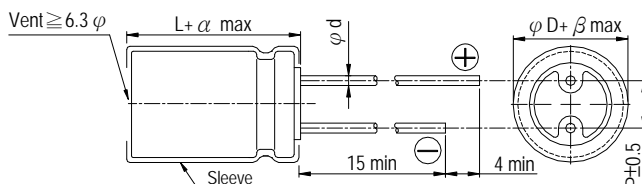


Sleeve & Marking Color: Black & White

Specifications

Items	Performance																																																																																		
Category Temperature Range	-40°C ~ +105°C																																																																																		
Capacitance Tolerance	±20% (at 120Hz, 20°C)																																																																																		
Leakage Current (at 20°C)	<table border="1"> <tr> <td>Rated voltage</td> <td>≤ 100V</td> <td colspan="2">&gt; 100V</td> </tr> <tr> <td>Time</td> <td>after 2 minutes</td> <td colspan="2">after 5 minutes</td> </tr> <tr> <td>Leakage Current</td> <td>I = 0.01CV or 3 (μA) whichever is greater</td> <td>CV ≤ 1,000 I = 0.03CV + 15(μA)</td> <td>CV &gt; 1,000 I = 0.02CV + 25(μA)</td> </tr> </table> <p>Where, C = rated capacitance in μF V = rated DC working voltage in V</p>	Rated voltage	≤ 100V	> 100V		Time	after 2 minutes	after 5 minutes		Leakage Current	I = 0.01CV or 3 (μA) whichever is greater	CV ≤ 1,000 I = 0.03CV + 15(μA)	CV > 1,000 I = 0.02CV + 25(μA)																																																																						
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Dissipation Factor (Tanδ at 120 Hz, 20°C)	<table border="1"> <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><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</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><td>0.12</td><td>0.14</td><td>0.17</td><td>0.20</td><td>0.25</td><td>0.25</td> </tr> </table> <p>When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.</p>	Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Tanδ (max)	0.23	0.20	0.16	0.14	0.12	0.10	0.09	0.08	0.12	0.14	0.17	0.20	0.25	0.25																																																				
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Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <table border="1"> <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><td>160</td><td>200</td><td>250</td><td>350</td><td>400</td><td>450</td> </tr> <tr> <td rowspan="4">Impedance Ratio</td> <td>Z(-25°C)</td> <td>φ D &lt; 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><td>3</td><td>6</td><td>8</td><td>12</td><td>14</td><td>16</td> </tr> <tr> <td>/Z(+20°C)</td> <td>φ D ≥ 16</td><td>6</td><td>4</td><td>4</td><td>3</td><td>3</td><td>3</td><td>3</td><td>3</td><td>4</td><td>8</td><td>10</td><td>16</td><td>18</td><td>20</td> </tr> <tr> <td>Z(-40°C)</td> <td>φ D &lt; 16</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><td>4</td><td>8</td><td>10</td><td>16</td><td>18</td><td>20</td> </tr> <tr> <td>/Z(+20°C)</td> <td>φ D ≥ 16</td><td>12</td><td>10</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td><td>6</td><td>6</td><td>4</td><td>8</td><td>10</td><td>16</td><td>18</td><td>20</td> </tr> </table>	Rated Voltage		6.3	10	16	25	35	50	63	100	160	200	250	350	400	450	Impedance Ratio	Z(-25°C)	φ D < 16	4	3	3	2	2	2	2	2	3	6	8	12	14	16	/Z(+20°C)	φ D ≥ 16	6	4	4	3	3	3	3	3	4	8	10	16	18	20	Z(-40°C)	φ D < 16	8	6	6	4	4	3	3	3	4	8	10	16	18	20	/Z(+20°C)	φ D ≥ 16	12	10	8	8	8	8	8	6	6	4	8	10	16	18	20
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Impedance Ratio	Z(-25°C)	φ D < 16	4	3	3	2	2	2	2	2	3	6	8	12	14	16																																																																			
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Endurance	<table border="1"> <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>Dissipation Factor</td> <td>Less than 200% of specified value</td> </tr> <tr> <td>Leakage Current</td> <td>Within specified value</td> </tr> </table> <p>* 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 105°C.</p>	Test Time	2,000 Hrs	Capacitance Change	Within ±20% of initial value	Dissipation Factor	Less than 200% of specified value	Leakage Current	Within specified value																																																																										
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Ripple Current & Frequency Multipliers	<table border="1"> <tr> <td rowspan="3">Cap. (μF)</td> <td>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>1.30</td><td>1.40</td><td>1.50</td> </tr> <tr> <td>100 &lt; 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>	Cap. (μF)	Freq. (Hz)	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																																																									
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Diagram of Dimensions

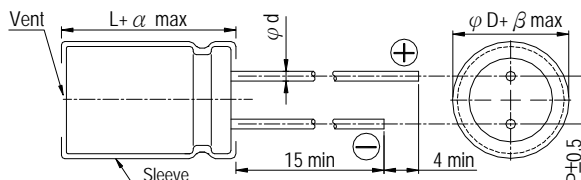


Lead Spacing and Diameter

Unit: mm

φ D	5	6.3	8	10	12.5	16	18	22	25
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5	10	12.5
φ d	0.5		0.6			0.8		1.0	
α	1.0				L < 20: 1.5, L ≥ 20: 2.0		2.0		
β	0.5								

The case size of 12.5×16, 16×16, 16×20, 18×16, 18×20 and 18×25 are suitable for below diagram:





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

Dimension & Permissible Ripple Current

$\mu\text{F}$	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	30
3.3	3R3											5×11	30			5×11	31
4.7	4R7											5×11	33			5×11	36
10	100											5×11	50			6.3×11	54
22	220											5×11	78	6.3×11	86	6.3×11	93
33	330									5×11	75	5×11	90	6.3×11	100	8×11.5	130
47	470							5×11	97	5×11	90	6.3×11	120	6.3×11	130	10×12.5	165
100	101					5×11	110	6.3×11	142	6.3×11	150	8×11.5	188	10×12.5	235	10×20	265
220	221	5×11	140	6.3×11	175	6.3×11	190	8×11.5	236	8×11.5	270	10×12.5	240	10×16	335	12.5×25	440
330	331			6.3×11	200	8×11.5	270	8×11.5	310	10×12.5	350	10×16	410	10×20	510	16×25	620
470	471	6.3×11	230	8×11.5	290	8×11.5	310	10×12.5	380	10×16	460	10×20	530	12.5×20	640	16×31.5	715
1,000	102	8×11.5	380	10×12.5	460	10×16	560	10×20	680	12.5×20	810	12.5×25	950	16×25	930	18×40	1,275
2,200	222	10×16	690	10×20	760	12.5×16	780	12.5×25	1,110	16×25	1,260	16×35.5	1,470	18×40	2,280	25×45	2,400
3,300	332	10×20	840	12.5×20	1,100	12.5×25	1,170	16×25	1,440	16×31.5	1,420	18×35.5	1,770	22×40	2,510		
4,700	472	12.5×20	1,090	12.5×25	1,260	16×20	1,185	16×31.5	1,650	18×25	1,550	18×35.5	1,900	22×40	2,340	25×40	3,000
6,800	682	12.5×25	1,460	16×20	1,270	16×31.5	1,930	16×40	2,000	18×25	1,550	18×40	2,250	25×40	2,530		
10,000	103	16×20	1,340	16×31.5	2,220	16×35.5	2,210	22×40	2,720	18×25	1,800						
15,000	153	16×31.5	2,365	18×25	2,290	18×35.5	2,590	18×40	2,950	25×40	3,200						
22,000	223	16×40	2,800	18×35.5	2,930	18×40	3,230	22×40	3,460								
33,000	333	18×45	3,080	22×40	4,090	25×45	4,500										

$\mu\text{F}$	Contents	160V (2C)		200V (2D)		250V (2E)		350V (2V)		400V (2G)		450V (2W)	
		$\phi D \times L$	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
1	010									6.3×11	21	8×11.5	27
2.2	2R2			6.3×11	30	6.3×11	35	6.3×11	35	8×11.5	39	8×11.5	39
3.3	3R3			6.3×11	39	6.3×11	40	8×11.5	43	8×11.5	45	8×11.5	45
4.7	4R7			6.3×11	43	8×11.5	45	8×11.5	45	8×11.5	50	8×11.5	50
10	100	8×11.5	65	8×11.5	65	10×12.5	92	10×16	95	10×16	95	10×20	105
22	220	10×12.5	110	10×16	140	10×16	140	12.5×20	220	12.5×20	160	12.5×20	160
33	330	10×16	150	10×20	170	12.5×16	175	12.5×25	215	16×20	225	16×20	225
47	470	10×20	195	12.5×16	215	12.5×20	230	16×16	205	16×20	225	16×16	220
68	680	12.5×20	275	12.5×20	265	16×20	320	16×16	245	16×20	255	16×25	280
100	101	12.5×25	355	16×20	365	16×25	425	18×25	360	18×25	360	16×35.5	400
150	151	16×25	470	18×16	360	18×20	415	16×31.5	370	16×31.5	375	18×20	285
220	221	16×31.5	660	18×20	510	16×31.5	550	18×31.5	460	18×35.5	540	18×40	560
330	331	18×25	2,930	18×25	2,590	18×25	2,590	16×35.5	430	22×40	730	22×40	770
470	470	22×40	1,130	22×40	1,130	25×40	1,325	25×40	1,070				