

RGA Series

Features

- 105°C, 2,000 hours assured
- 105°C standard series for general purposes
- RoHS Compliance
- If there is any requirement on ESR, it's suggested to use low ESR series instead of RGA. Please consult us for any inquiry.

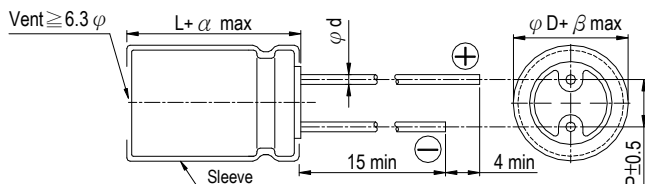


Sleeve & Marking Color: Black & White

Specifications

Items	Performance																																																																																														
Category Temperature Range	6.3~400V	450V																																																																																													
	-40°C ~ +105°C	-25°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>> 100V</td> </tr> <tr> <td>Time</td> <td>after 2 minutes</td> <td>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) CV > 1,000 I = 0.02CV + 25(μA)</td> </tr> </table>		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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Where, C = rated capacitance in μF V = rated DC working voltage in V																																																																																															
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>														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)	Impedance ratio shall not exceed the values given in the table below.																																																																																														
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		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	-																																																																															
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Ripple Current and Frequency Multipliers	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																																																																																						

Diagram of Dimensions

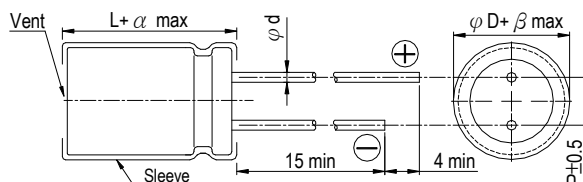


Lead Spacing and Diameter

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	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 and Permissible Ripple Current

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	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	99
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	300	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	18×40	2,250	25×40	2,530				
10,000	103	16×20	1,340	16×31.5	2,220	18×25	1,800	18×31.5	2,330	22×40	2,720						
15,000	153	16×31.5	2,365	18×25	2,290	18×31.5	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										

μF	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	18×16	220
68	680	12.5×20	275	12.5×20	265	16×20	320	18×25	360	18×25	360	16×25	280
100	101	12.5×25	355	16×20	365	18×20	415	16×31.5	370	16×31.5	375	18×20	285
150	151	16×25	470	18×20	510	16×31.5	550	18×31.5	460	18×35.5	540	16×35.5	400
220	221	16×31.5	660	18×25	290	18×20	320	18×25	360	18×25	360	18×31.5	420
330	331	18×35.5	820	18×40	965	18×20	415	16×31.5	430	16×31.5	375	18×31.5	420
470	330	22×40	1,130	22×40	1,130	25×40	1,325	25×40	1,070				

Part Numbering System

RGA Series 470 μF $\pm 20\%$ 6.3V Bulk Package Gas Type 6.3 $\phi \times 11L$ Pb-free and PET sleeve

RGA **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.

RGL Series

Features

- 105°C, for general purposes
- 8φ ~ 18φ with large permissible ripple current
- Slim type included
- RoHS Compliance

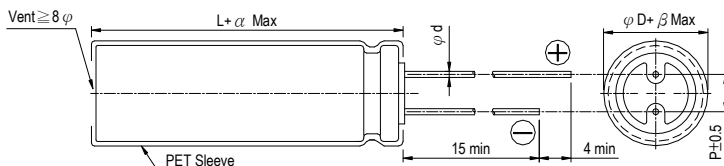


Sleeve & Marking Color: Black & Golden

Specifications

Items	Performance					
Category Temperature Range	400V			420 ~ 450V		
	-40°C ~ +105°C			-25°C ~ +105°C		
Capacitance Tolerance	±20% (at 120Hz, 20°C)					
Leakage Current (at 20°C)	Time		after 5 minutes			
	Leakage Current		CV ≤ 1,000 I = 0.03CV + 15(μA)	CV > 1,000 I = 0.02CV + 25(μA)		
Where, C = rated capacitance in μF V = rated DC working voltage in V						
Tanδ (at 120Hz, 20°C)	Rated Voltage		400	420	450	
	Tanδ (max)		0.24	0.24	0.24	
Low Temperature Characteristics (at 120Hz)	Impedance ratio shall not exceed the values given in the table below.					
	Rated Voltage		400	420	450	
	Impedance Ratio	Z(-25°C)/Z(+20°C)	5	6	6	
Z(-40°C)/Z(+20°C)		6	-	-		
Endurance	Test Time		2,000 Hrs			
	Capacitance Change		Within ±20% of initial value			
	Tanδ		Less than 200% of specified value			
	Leakage Current		Within specified value			
* 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.						
Shelf Life Test	Test Time		1,000 Hrs			
	Capacitance Change		Within ±20% of initial value			
	Tanδ		Less than 200% of specified value			
	Leakage Current		Within specified value			
* The above specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied. The rated voltage shall be applied to the capacitors before the measurements (Refer to JIS C 5101-4 4.1).						
Ripple Current and Frequency Multipliers	Frequency (Hz)	60	120	500	1k	10k up
	Multipliers	0.8	1.00	1.25	1.45	1.50

Diagram of Dimensions



Lead Spacing and Diameter

Unit: mm

φD	8	10	12.5	16	18
P	3.5	5.0	5.0	7.5	7.5
φd	0.6		0.8		
α	2.0				
β	0.5				



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

V. DC	Cap. (μF)	8 φ				10 φ			12.5 φ			16 φ			18 φ		
		φ D×L	Ripple Current		φ D×L	Ripple Current		φ D×L	Ripple Current		φ D×L	Ripple Current		φ D×L	Ripple Current		
			120 Hz	100k Hz		120 Hz	100k Hz		120 Hz	100k Hz		120 Hz	100k Hz		120 Hz	100k Hz	
400V (2G)	15	8×30	190	285													
	22	8×35	250	375													
	27	8×40	300	450	10×30	245	370										
	33	8×45	350	525	10×35	295	445										
	39	8×50	390	585	10×40	345	515										
	47				10×45	400	600										
	56				10×50	450	675	12.5×30	470	705							
	68							12.5×35	540	810							
	82							12.5×40	620	930							
	100																
	120										16×35.5	800	1,200				
											16×40	840	1,260				
	150										16×45	940	1,410	18×35.5	920	1,380	
180										16×50	1,050	1,575	18×40	1,060	1,590		
220													18×45	1,200	1,800		
420V (2P)	15	8×30	195	293													
	22	8×35	255	383													
	27	8×45	320	480	10×30	245	370										
	33	8×50	370	555	10×35	295	445										
	39				10×40	345	515										
	47				10×45	400	600										
	56				10×50	450	675	12.5×30	470	705							
	68							12.5×35	540	810							
	82							12.5×45	630	945							
	100							12.5×50	730	1,095	16×35.5	730	1,095				
	120										16×40	840	1,260	18×35.5	850	1,275	
											16×45	885	1,330				
	150										16×50	1030	1,545	18×35.5	920	1,380	
													18×40	960	1,440		
180													18×45	1,100	1,650		
220													18×50	1,220	1,830		
450V (2W)	15	8×30	195	293													
	22	8×40	270	405	10×30	225	330										
	27	8×45	320	480	10×35	265	400										
	33	8×50	370	555	10×40	315	475										
	39				10×45	360	545	12.5×30	400	600							
	47				10×50	420	625	12.5×35	460	690							
	56							12.5×40	520	780							
	68							12.5×45	580	870							
	82							12.5×50	660	990	16×35.5	660	990				
	100										16×40	750	1,125				
	120										16×45	840	1,260	18×35.5	820	1,230	
	150										16×50	980	1,470	18×45	995	1,490	
	180													18×50	1,140	1,710	

Remark: Other sizes and specification are available, please contact us for detail.

Part Numbering System

RGL Series 22μF ±20% 450V Bulk Package Gas Type 10 φ ×30L Pb-free and PET sleeve

RGL **220** **M** **2W** **BK** - **1030**

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.