

## RGA Series

### Features

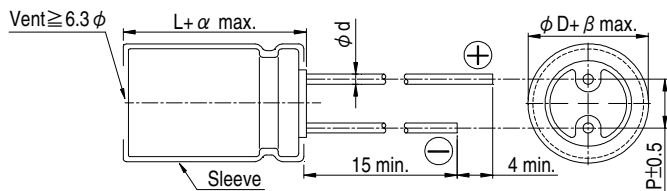
- 105°C, 2,000 hours assured
- 105°C standard series for general purposes
- RoHS compliance
- If there is any requirement on ESR, it's suggested to use low ESR series instead of RGA. Please consult us for any inquiry.



### Specifications

Items	Performance																
Category Temperature Range	6.3~400V	450V															
	-40°C ~ +105°C	-25°C ~ +105°C															
Capacitance Tolerance	±20% (at 120 Hz, 20°C)																
Leakage Current (at 20°C)	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)													
Where, C = rated capacitance in μF, V = rated DC working voltage in V																	
Tanδ (at 120 Hz, 20°C)	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		
When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.																	
Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below.																
	Impedance Ratio	Rated Voltage		6.3	10	16	25	35	50	63	100	160	200	250	350	400	450
		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	3	6	8	12	14	16
		Z(-40°C)	φ D < 16	8	6	6	4	4	3	3	3	4	8	10	16	18	-
/Z(+20°C)	φ D ≥ 16	12	10	8	8	8	8	8	6	6	4	8	10	16	18	-	
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 for 160 ~ 450V (Refer to JIS C 5101-4 4.1).																
Ripple Current and Frequency Multipliers	Freq. (Hz)		60 (50)	120	500	1k	10k up										
	Cap. (μF)	≤ 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 <	0.80	1.00	1.10	1.12	1.15										

### Diagram of Dimensions

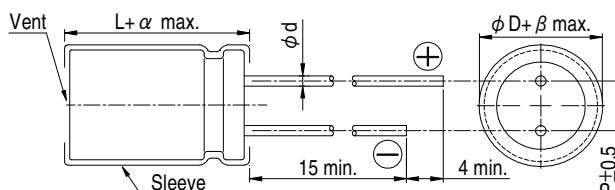


### Lead Spacing and Diameter

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

Cap. (μF)	Rated Volt. (V <sub>DC</sub> ) 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	18×20	1,220	18×25	1,570	22×40	3,000		
6,800	682	12.5×25	1,460	16×20	1,270	16×31.5	1,930	16×40	2,000	18×20	1,585	18×35.5	2,160	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	2,330	18×45	2,410				
15,000	153	16×31.5	2,365	18×25	2,290	18×31.5	2,620	25×40	3,200	16×20	1,800	18×31.5	2,330				
22,000	223	16×40	2,800	18×35.5	2,590	18×40	2,950			18×40	2,250	25×40	2,530				
33,000	333	18×45	3,080	22×40	4,090	25×45	4,500										

Cap. (μF)	Rated Volt. (V <sub>DC</sub> ) 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	16×20	255	16×25	295	16×25	280
68	680	12.5×20	275	12.5×20	265	16×20	320	18×25	360	18×25	360	16×35.5	400
100	101	12.5×25	355	16×20	365	16×25	425	16×31.5	370	16×31.5	375	18×31.5	420
150	151	16×25	470	18×20	510	16×31.5	550	18×40	600	18×20	730	22×40	770
220	221	16×31.5	660	18×31.5	750	18×35.5	760	25×40	865	22×45	930		
330	331	18×35.5	820	18×40	965	22×40	1,140	25×45	1,070				
470	471	22×40	1,130	22×40	1,130	25×40	1,325						

### Part Numbering System

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

**RGA**    **471**    **M**    **0J**    **BK**    -    **0611**

Series Name    Capacitance    Capacitance Tolerance    Rated Voltage    Lead Configuration and 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.