



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.

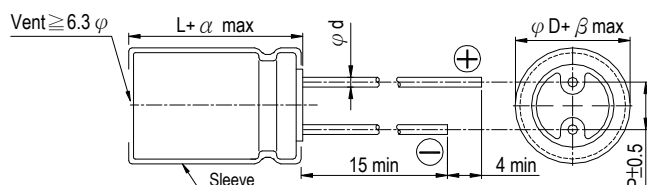


Sleeve & Marking Color: Black & White

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)	Rated voltage	≤ 100V
	Time	after 2 minutes
	Leakage Current	I = 0.01CV or 3 (μA) whichever is greater
	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 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 120Hz)	Impedance ratio shall not exceed the values given in the table below.	
	Rated Voltage	6.3 10 16 25 35 50 63 100 160 200 250 350 400 450
	Impedance Ratio	Z(-25°C) / Z(+20°C) φ D < 16 4 3 3 2 2 2 2 2 3 6 8 12 14 16
	Impedance Ratio	Z(-40°C) / Z(+20°C) φ D < 16 8 6 6 4 4 3 3 3 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	With in ±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 & Frequency Multipliers	Freq. (Hz)	60 (50) 120 500 1k 10k up
	Cap. (μF)	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

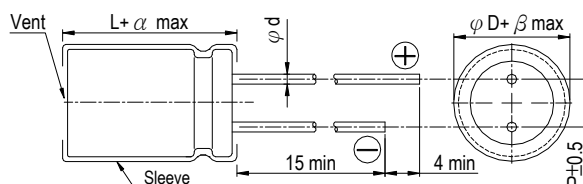


Lead Spacing and Diameter

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 & Permissible Ripple Current

V. DC		6.3V (0J)		10V (1A)		16V (1C)		25V (1E)		35V (1V)		50V (1H)		63V (1J)		100V (2A)	
μF	Contents	$\phi D \times L$	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	16×16	1,060	16×20	1,290	16×40	2,000	18×25	1,550	18×35.5	1,900	22×40	2,340	25×40	3,000
10,000	103	16×20	1,340	16×31.5	2,220	16×35.5	2,210	22×40	2,720	18×45	2,410						
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										

V. DC		160V (2C)		200V (2D)		250V (2E)		350V (2V)		400V (2G)		450V (2W)	
μF	Contents	$\phi D \times L$	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	16×25	295	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	16×25	425	16×31.5	460	16×31.5	375	16×35.5	400
150	151	16×25	470	18×16	360	18×20	415	18×35.5	430	18×35.5	540	18×40	560
220	221	16×31.5	660	18×20	510	16×31.5	550	18×40	600	22×40	730	22×40	770
330	331	18×35.5	820	18×25	290	18×35.5	760	25×40	865	22×45	930		
470	330	22×40	1,130	22×40	965	25×40	1,325	25×45	1,070				

Part Numbering System

RGA series	470 μF	±20%	6.3V	Bulk Package	Gas Type	6.3 $\phi \times 11\text{L}$	Pb-free and PET sleeve
RGA	471	M	0J	BK	-	0611	
Series	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 10.

RGL Series

Features

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

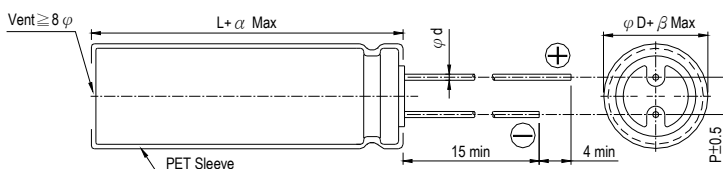


Sleeve & Marking Color: Black & Golden

Specifications

Items	Performance					
Category Temperature Range	400V			420 ~ 450V		
	-40℃ ~ +105℃			-25℃ ~ +105℃		
Capacitance Tolerance	±20% (at 120Hz, 20℃)					
Leakage Current (at 20℃)	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℃)	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℃)/Z(+20℃) Z(-40℃)/Z(+20℃)	5 6	6 -	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℃ after the rated voltage applied with rated ripple current for 2,000 hours at 105℃.						
Shelf Life Test	Test Time		1,000 Hrs			
	Capacitance Change		With in ±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℃ after exposing them for 1,000 hours at 105℃ 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 & 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 & Permissible Ripple Current

Dimension: $\phi D \times L$ (mm)

Ripple Current: mA/rms at 105°C

V. DC	Cap. (μ F)	8 ϕ			10 ϕ			12.5 ϕ			16 ϕ			18 ϕ		
		$\phi D \times L$	Ripple Current		$\phi D \times L$	Ripple Current		$\phi D \times L$	Ripple Current		$\phi D \times L$	Ripple Current		$\phi D \times L$	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 16×40	800 840	1,200 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 16×45	840 885	1,260 1,330	18×35.5	850	1,275
	150										16×50	1030	1,545	18×35.5 18×40	920 960	1,380 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

22 μ F

±20%

450V

Bulk Package

Gas Type

10 ϕ × 30LPb-free and PET
sleeve**RGL**

Series

220

Capacitance

MCapacitance
Tolerance**2W**Rated
Voltage**BK**Lead Configuration
& Package**-**Rubber
Type**1030**

Case Size

Lead Wire and
Sleeve type

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