

RNG Series

Features

- 105°C, 2,000 hours assured, standard bi-polarized series
- Suitable for use in circuits which has a reversed or unknown polarity
- RoHS Compliance

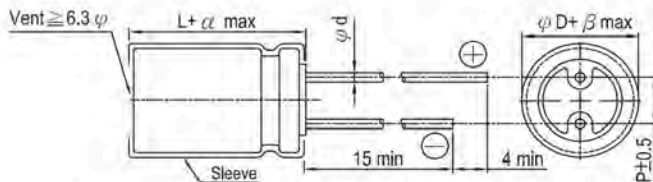


Sleeve & Marking Color: Yellow & Black

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">> 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 = 0.03CV or 4 (μA) whichever is greater</td> <td>CV ≤ 1,000 I = 0.03CV+15(μA)</td> <td>CV > 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 = 0.03CV or 4 (μA) whichever is greater	CV ≤ 1,000 I = 0.03CV+15(μA)	CV > 1,000 I = 0.02CV+25(μA)																							
Rated voltage	≤ 100V	> 100V																																		
Time	after 2 minutes	after 5 minutes																																		
Leakage Current	I = 0.03CV or 4 (μA) whichever is greater	CV ≤ 1,000 I = 0.03CV+15(μA)	CV > 1,000 I = 0.02CV+25(μA)																																	
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> </tr> <tr> <td>Tanδ (max)</td> <td>0.25</td> <td>0.22</td> <td>0.18</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</td> <td>0.15</td> <td>0.15</td> <td>0.20</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	Tanδ (max)	0.25	0.22	0.18	0.16	0.14	0.12	0.10	0.09	0.15	0.15	0.20											
Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250																									
Tanδ (max)	0.25	0.22	0.18	0.16	0.14	0.12	0.10	0.09	0.15	0.15	0.20																									
Low Temperature Characteristics (at 120Hz)	<p>Impedance ratio shall not exceed the values given in the table below.</p> <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> </tr> <tr> <td rowspan="2">Impedance Ratio</td> <td>Z(-25°C)/Z(+20°C)</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>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</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>4</td> </tr> </table>	Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250	Impedance Ratio	Z(-25°C)/Z(+20°C)	4	3	3	2	2	2	2	2	2	2	Z(-40°C)/Z(+20°C)	8	6	6	4	4	3	3	3	4	4
Rated Voltage	6.3	10	16	25	35	50	63	100	160	200	250																									
Impedance Ratio	Z(-25°C)/Z(+20°C)	4	3	3	2	2	2	2	2	2	2																									
	Z(-40°C)/Z(+20°C)	8	6	6	4	4	3	3	3	4	4																									
Endurance (After application of the rated voltage at 105°C, the polarity inverted every 250 hours.)	<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>Tanδ</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	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value																											
Test Time	2,000 Hrs																																			
Capacitance Change	Within ±20% of initial value																																			
Tanδ	Less than 200% of specified value																																			
Leakage Current	Within specified value																																			
Shelf Life Test	<table border="1"> <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> <p>* 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 ~ 250V (Refer to JIS C 5101-4 4.1).</p>	Test Time	1,000 Hrs	Capacitance Change	Within ±20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value																											
Test Time	1,000 Hrs																																			
Capacitance Change	Within ±20% of initial value																																			
Tanδ	Less than 200% of specified value																																			
Leakage Current	Within specified value																																			

Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

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

Bi-polarized

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

Ripple Current: mA/rms at 120 Hz, 105°C

Dimension and 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
1	010											5×11	10	5×11	11	5×11	12
2.2	2R2											5×11	15	5×11	16	6.3×11	20
3.3	3R3											5×11	18	5×11	20	6.3×11	25
4.7	4R7									5×11	21	5×11	22	6.3×11	24	6.3×11	30
10	100					5×11	27	5×11	27	5×11	30	6.3×11	37	6.3×11	40	8×11.5	50
22	220	5×11	34	5×11	34	5×11	40	6.3×11	46	6.3×11	51	8×11.5	63	8×11.5	68	10×16	97
33	330	5×11	45	5×11	45	5×11	49	6.3×11	56	8×11.5	72	8×11.5	77	10×12.5	98	10×20	140
47	470	5×11	54	5×11	54	6.3×11	67	6.3×11	67	8×11.5	86	10×12.5	105	10×16	130	12.5×20	170
100	101	6.3×11	90	6.3×11	90	8×11.5	110	8×11.5	110	10×16	160	10×20	190	12.5×20	225	16×25	300
220	221	8×11.5	150	8×11.5	150	10×12.5	195	10×16	215	12.5×20	290	12.5×25	340	16×25	405	16×35.5	510
330	331	8×11.5	185	10×16	240	10×16	265	12.5×20	320	12.5×20	350	16×25	460	16×31.5	535		
470	471	10×12.5	260	10×20	290	10×20	345	12.5×25	380	12.5×25	465	16×31.5	590	18×35.5	680		
1,000	102	10×20	460	12.5×20	510	12.5×25	605	16×25	670	16×31.5	805						
2,200	222	12.5×25	820	16×25	940	16×31.5	1,070	18×35.5	1,140								

μF	V. DC Contents	160V (2C)		200V (2D)		250V (2E)	
		$\phi D \times L$	mA	$\phi D \times L$	mA	$\phi D \times L$	mA
0.47	R47	5×11	8	5×11	9	6.3×11	10
1	010	6.3×11	11	8×11.5	12	8×11.5	13
2.2	2R2	8×11.5	18	8×11.5	22	10×12.5	26
3.3	3R3	8×11.5	26	10×12.5	30	10×16	37
4.7	4R7	10×12.5	31	10×16	37	10×20	50
10	100	10×16	60	10×20	66	10×20	79
22	220	12.5×20	117	12.5×20	117	12.5×25	138
33	330	12.5×20	143	12.5×25	158	16×25	169
47	470	16×25	188				

Part Numbering System

RNG Series	470 μF	$\pm 20\%$	6.3V	Bulk Package	Gas Type	10 ϕ × 12.5L	Pb-free and PET sleeve
RNG	471	M	0J	BK	-	1012	S
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration & Package	Rubber Type	Case Size	Lead Wire and Sleeve type
							Supplement Code

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

Bi-polarized