

RXK Series

Features

- 105°C, 2,000 ~ 5,000 hours assured
- Low ESR, suitable for switching power supplies
- Smaller size with large permissible ripple current
- RoHS Compliance



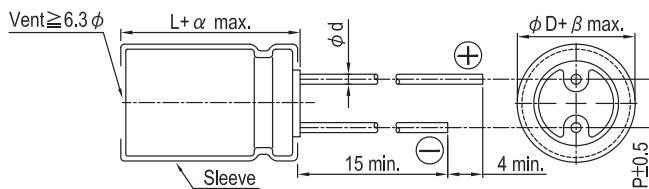
Sleeve & Marking Color: Black & Golden

Specifications

Items	Performance																																					
Category Temperature Range	-55°C ~ +105°C																																					
Capacitance Tolerance	±20% (at 120Hz, 20°C)																																					
Leakage Current (at 20°C)	I = 0.01CV or 3 (μA) whichever is greater (after 2 minutes) Where, C = rated capacitance in μF, V = rated DC working voltage in V																																					
Tanδ (at 120Hz, 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> </tr> <tr> <td>Tanδ (max)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.10</td> <td>0.09</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	Tanδ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09																					
Rated Voltage	6.3	10	16	25	35	50	63																															
Tanδ (max)	0.22	0.19	0.16	0.14	0.12	0.10	0.09																															
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> </tr> <tr> <td>Impedance Ratio</td> <td>Z(-55°C)/Z(+20°C)</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> </tr> </table>	Rated Voltage	6.3	10	16	25	35	50	63	Impedance Ratio	Z(-55°C)/Z(+20°C)	4	4	3	3	3	3																					
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Endurance	<table border="1"> <tr> <td>Test Time</td> <td>2,000 Hrs for φ D ≤ 6.3 mm; 3,000 Hrs for φ D = 8 mm; 4,000 Hrs for φ D = 10 mm; 5,000 Hrs for φ D ≥ 12.5 mm</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 ~ 5,000 hours at 105°C.</p>	Test Time	2,000 Hrs for φ D ≤ 6.3 mm; 3,000 Hrs for φ D = 8 mm; 4,000 Hrs for φ D = 10 mm; 5,000 Hrs for φ D ≥ 12.5 mm	Capacitance Change	Within ±20% of initial value	Tanδ	Less than 200% of specified value	Leakage Current	Within specified value																													
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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.</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																													
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Ripple Current and Frequency Multipliers	<table border="1"> <tr> <td></td> <td>Freq.(Hz)</td> <td>60 (50)</td> <td>120</td> <td>500</td> <td>1k</td> <td>10k</td> <td>100k</td> </tr> <tr> <td rowspan="4">Cap.(μF)</td> <td>Under 33</td> <td>0.40</td> <td>0.55</td> <td>0.65</td> <td>0.80</td> <td>0.90</td> <td>1.00</td> </tr> <tr> <td>39 ~ 330</td> <td>0.60</td> <td>0.70</td> <td>0.80</td> <td>0.90</td> <td>0.95</td> <td>1.00</td> </tr> <tr> <td>390 ~ 1,000</td> <td>0.65</td> <td>0.80</td> <td>0.85</td> <td>0.98</td> <td>1.00</td> <td>1.00</td> </tr> <tr> <td>1,200 up above</td> <td>0.80</td> <td>0.90</td> <td>0.95</td> <td>0.98</td> <td>1.00</td> <td>1.00</td> </tr> </table>		Freq.(Hz)	60 (50)	120	500	1k	10k	100k	Cap.(μF)	Under 33	0.40	0.55	0.65	0.80	0.90	1.00	39 ~ 330	0.60	0.70	0.80	0.90	0.95	1.00	390 ~ 1,000	0.65	0.80	0.85	0.98	1.00	1.00	1,200 up above	0.80	0.90	0.95	0.98	1.00	1.00
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Radial

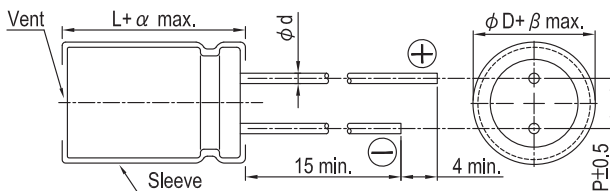
Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

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						

The case size of 16×20 is suitable for below diagram:





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

Ripple Current: mA/rms at 100k Hz, 105°C

Dimension and Permissible Ripple Current

Cap. (μ F)	Contents	6.3V (0J)				10V (1A)				16V (1C)						
		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)	
			20°C	-10°C	120 Hz	100k Hz		20°C	-10°C	120 Hz	100k Hz		20°C	-10°C	120 Hz	100k Hz
56												5×11	0.72	1.8	116	165
68												5×11	0.72	1.8	126	180
82						5×11	0.72	1.8	116	165						
100						5×11	0.72	1.8	126	180						
120		5×11	0.72	1.8	116	165						6.3×11	0.38	0.95	179	255
180							6.3×11	0.38	0.95	179	255	6.3×15	0.27	0.68	231	330
220		6.3×11	0.38	0.95	179	255	6.3×11	0.38	0.95	196	280					
270		6.3×11	0.38	0.95	196	280	6.3×15	0.27	0.68	231	330	8×11.5	0.20	0.50	291	415
330		6.3×15	0.27	0.68	231	330	8×11.5	0.20	0.50	291	415	10×12.5	0.12	0.30	438	625
390		8×11.5	0.20	0.50	332	415	8×11.5	0.20	0.50	360	450	8×11.5	0.20	0.50	315	450
470		8×11.5	0.20	0.50	360	450	10×12.5	0.12	0.30	500	625	8×15	0.16	0.40	347	495
560		8×15	0.16	0.40	396	495	8×15	0.16	0.40	472	590	10×12.5	0.12	0.30	540	675
680		10×16	0.084	0.21	660	825	8×15	0.16	0.40	472	590	8×15	0.16	0.40	347	495
820		8×15	0.16	0.40	472	590	8×20	0.11	0.28	512	640	10×16	0.084	0.21	660	825
1,000		8×20	0.11	0.28	560	700	10×16	0.084	0.21	660	825	8×20	0.11	0.28	560	700
1,200		10×20	0.062	0.16	936	1,040	10×20	0.062	0.16	1,017	1,130	10×16	0.084	0.21	660	825
1,500		10×20	0.062	0.16	1,017	1,130	10×25	0.052	0.13	1,134	1,260	10×20	0.062	0.16	904	1,130
1,800		10×25	0.052	0.13	1,251	1,390	10×30	0.044	0.11	1,296	1,440	10×25	0.052	0.13	1,008	1,260
2,200		10×30	0.044	0.11	1,296	1,440	12.5×20	0.046	0.12	1,305	1,450	12.5×20	0.046	0.12	1,206	1,340
2,700		12.5×20	0.046	0.12	1,305	1,450	12.5×25	0.034	0.085	1,521	1,690	12.5×25	0.034	0.085	1,521	1,690
3,300		12.5×25	0.034	0.085	1,629	1,810	12.5×30	0.030	0.075	1,755	1,950	12.5×30	0.030	0.075	1,755	1,950
3,900		12.5×30	0.030	0.075	1,755	1,950	12.5×35	0.027	0.068	1,917	2,130	12.5×35	0.027	0.068	1,917	2,130
4,700		12.5×35	0.027	0.068	1,980	2,200	16×20	0.035	0.087	1,692	1,880	16×20	0.035	0.087	1,440	1,600
5,600		16×20	0.035	0.087	1,440	1,600	16×25	0.028	0.070	1,863	2,070	16×25	0.028	0.070	1,863	2,070
6,800		12.5×40	0.024	0.060	2,196	2,440	16×31.5	0.025	0.063	2,115	2,350	16×31.5	0.025	0.063	2,115	2,350
8,200		16×25	0.028	0.070	2,025	2,250	16×40	0.025	0.063	2,115	2,350	16×40	0.025	0.063	2,115	2,350
10,000		16×31.5	0.025	0.063	2,115	2,350	18×35.5	0.021	0.053	2,448	2,720	18×35.5	0.021	0.053	2,448	2,720

Radial



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

Ripple Current: mA/rms at 100k Hz, 105°C

Dimension and Permissible Ripple Current

Rated Volt. V_{DC} Cap. (μF)	Contents	25V (1E)				35V (1V)				50V (1H)						
		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)	
			20°C	-10°C	120 Hz	100k Hz		20°C	-10°C	120 Hz	100k Hz		20°C	-10°C	120 Hz	100k Hz
18												5×11	1.1	3.3	72	130
22												5×11	1.1	3.3	83	150
27						5×11	0.72	1.8	91	165						
33						5×11	0.72	1.8	99	180						
39	5×11	0.72	1.8	116	165							6.3×11	0.56	1.6	154	220
47	5×11	0.72	1.8	126	180							6.3×11	0.56	1.6	161	230
56						6.3×11	0.38	0.95	179	255	6.3×15	0.41	1.2	217	310	
68						6.3×11	0.38	0.95	196	280	8×11.5	0.29	0.84	238	340	
82	6.3×11	0.38	0.95	179	255	6.3×15	0.27	0.68	231	330	8×11.5 8×15 10×12.5	0.29 0.25 0.16	0.84 0.75 0.40	249 329 336	355 470 480	
100	6.3×11	0.38	0.95	196	280						10×12.5	0.16	0.40	371	530	
120	6.3×15	0.27	0.68	231	330	8×11.5 10×12.5	0.20 0.12	0.50 0.30	291 438	415 625	8×15 8×20 10×16	0.25 0.18 0.12	0.75 0.52 0.30	392 427 529	560 610 755	
150	8×11.5	0.20	0.50	291	415	8×11.5 10×12.5	0.20 0.12	0.50 0.30	315 473	450 675	10×16	0.12	0.30	588	840	
180	8×11.5 10×12.5	0.20 0.12	0.50 0.30	315 438	450 625	8×15	0.16	0.40	347	495	8×20 10×20	0.18 0.088	0.52 0.22	525 662	750 945	
220	8×15 10×12.5	0.16 0.12	0.40 0.30	347 473	495 675	8×15 8×20 10×16	0.16 0.11 0.084	0.40 0.28 0.21	413 448 578	590 640 825	10×20 10×25	0.088 0.068	0.22 0.17	728 805	1,040 1,150	
270						8×20 10×16	0.11 0.084	0.28 0.21	490 637	700 910	10×25	0.068	0.17	896	1,280	
330	8×15 8×20 10×16	0.16 0.11 0.084	0.40 0.28 0.21	413 448 578	590 640 825	10×20	0.062	0.16	728	1,040	10×30 12.5×20	0.059 0.059	0.15 0.15	882 833	1,260 1,190	
390	8×20 10×16	0.11 0.084	0.28 0.21	560 728	700 910	10×20 10×25	0.062 0.052	0.16 0.13	904 1,008	1,130 1,260	12.5×20	0.059	0.15	952	1,190	
470	10×20	0.062	0.16	832	1,040	10×25	0.052	0.13	1,112	1,390	10×30 12.5×25	0.059 0.045	0.15 0.11	1,176 1,192	1,470 1,490	
560	10×20 10×25	0.062 0.052	0.16 0.13	904 1,008	1,130 1,260	10×30 12.5×20	0.044 0.046	0.11 0.12	1,152 1,072	1,440 1,340	12.5×25 12.5×30	0.045 0.039	0.11 0.098	1,304 1,376	1,630 1,720	
680	10×25	0.052	0.13	1,112	1,390	10×30 12.5×20 12.5×25	0.044 0.046 0.034	0.11 0.12 0.085	1,256 1,160 1,352	1,570 1,450 1,690	12.5×30 12.5×35 16×20	0.039 0.033 0.048	0.098 0.083 0.120	1,520 1,512 1,248	1,800 1,900 1,560	
820	10×30 12.5×20	0.044 0.046	0.11 0.12	1,152 1,072	1,440 1,340	12.5×25	0.034	0.085	1,448	1,810	12.5×35 12.5×40 16×25	0.033 0.029 0.033	0.083 0.073 0.083	1,624 1,656 1,504	2,030 2,070 1,880	
1,000	10×30 12.5×20 12.5×25	0.044 0.046 0.034	0.11 0.12 0.085	1,256 1,160 1,352	1,570 1,450 1,690	12.5×30 16×20	0.030 0.035	0.075 0.087	1,560 1,376	1,950 1,720	12.5×40 16×25 16×31.5	0.029 0.033 0.029	0.073 0.083 0.073	1,800 1,664 1,720	2,250 2,080 2,150	
1,200	12.5×25	0.034	0.085	1,629	1,810	12.5×30 12.5×35 16×25	0.030 0.027 0.028	0.075 0.068 0.070	1,917 1,980 1,863	2,130 2,200 2,070	16×31.5 16×35.5	0.029 0.025	0.073 0.063	2,088 2,115	2,320 2,350	
1,500	12.5×30 16×20	0.030 0.035	0.075 0.087	1,755 1,539	1,950 1,710	12.5×35 12.5×40 16×25	0.027 0.024 0.028	0.068 0.060 0.070	2,151 2,196 2,025	2,390 2,440 2,250	16×35.5 16×40	0.025 0.021	0.063 0.063	2,160 2,336	2,400 2,595	
1,800	12.5×30 12.5×35 16×25	0.030 0.027 0.028	0.075 0.068 0.070	1,917 1,980 1,863	2,130 2,200 2,070	12.5×40 16×31.5	0.024 0.025	0.060 0.063	2,358 2,115	2,620 2,350	16×40 18×35.5	0.021 0.023	0.063 0.058	2,466 2,286	2,740 2,540	
2,200	12.5×35 12.5×40 16×25	0.027 0.024 0.028	0.068 0.060 0.070	2,151 2,196 2,025	2,390 2,440 2,250	16×31.5 16×35.5	0.025 0.022	0.063 0.055	2,295 2,295	2,550 2,550	18×35.5 18×40	0.023 0.020	0.058 0.050	2,349 2,385	2,610 2,650	
2,700	16×31.5	0.025	0.063	2,115	2,350	16×35.5 16×40 18×35.5	0.022 0.018 0.021	0.055 0.045 0.053	2,394 2,610 2,448	2,660 2,900 2,720						
3,300	16×31.5 16×35.5	0.025 0.022	0.063 0.055	2,295 2,295	2,550 2,550	18×35.5 18×40	0.021 0.017	0.053 0.043	2,601 2,709	2,890 3,010						
3,900	16×35.5 16×40 18×35.5	0.022 0.018 0.021	0.055 0.045 0.053	2,394 2,610 2,448	2,660 2,900 2,720	18×40	0.017	0.043	2,934	3,260						
4,700	18×35.5 18×40	0.021 0.017	0.053 0.043	2,601 2,709	2,890 3,010											
5,600	18×40	0.017	0.043	2,934	3,260											

Radial



Dimension: $\phi D \times L(\text{mm})$
 Ripple Current: mA/rms at 100k Hz, 105°C

Dimension and Permissible Ripple Current

Cap. (μF)	Contents	63V(1J)				
		$\phi D \times L$	Impedance (Ω , max./100k Hz)		Ripple Current (mA/rms, 105°C)	
			20°C	-10°C	120 Hz	100k Hz
12	5×11	1.90	4.78	55	100	
27	6.3×11	1.10	2.78	88	160	
33	6.3×11	1.10	2.75	96	175	
39	6.3×15	0.62	1.55	161	230	
47	8×11.5	0.49	1.23	193	275	
56	8×11.5	0.49	1.23	203	290	
	10×12.5	0.27	0.675	294	420	
68	8×15	0.34	0.850	252	360	
	10×12.5	0.27	0.675	354	505	
	10×16	0.21	0.525	366	523	
82	8×20	0.21	0.525	350	500	
100	8×15	0.34	0.850	308	440	
120	10×16	0.210	0.525	455	650	
	10×20	0.160	0.400	490	700	
150	8×20	0.210	0.525	476	680	
	10×25	0.130	0.325	546	780	
180	10×20	0.160	0.400	553	790	
	10×30	0.100	0.250	672	960	
220	10×25	0.130	0.325	648	925	
	12.5×20	0.110	0.275	609	870	
270	10×30	0.100	0.250	812	1,160	
	12.5×25	0.074	0.185	805	1,150	
330	12.5×20	0.110	0.275	746	1,065	
390	12.5×25	0.074	0.185	1,088	1,280	
	12.5×30	0.068	0.170	1,024	1,360	
470	12.5×30	0.068	0.170	1,120	1,360	
	12.5×35	0.063	0.158	1,112	1,400	
	16×20	0.059	0.148	1,080	1,350	
	16×25	0.055	0.138	1,184	1,480	
560	12.5×40	0.051	0.128	1,224	1,530	
	16×25	0.055	0.138	1,296	1,620	
680	12.5×40	0.051	0.128	1,336	1,670	
	16×31.5	0.046	0.115	1,376	1,720	
820	12.5×40	0.051	0.128	1,480	1,850	
	16×31.5	0.046	0.115	1,512	1,890	
	16×35.5	0.040	0.100	1,528	1,910	
1,000	16×35.5	0.040	0.100	1,576	1,970	
	18×35.5	0.040	0.100	1,688	2,110	
1,500	18×35.5	0.040	0.100	2,169	2,410	

Part Numbering System

RXK Series 470 μF $\pm 20\%$ 6.3V Bulk Package Gas Type 8 ϕ ×11.5L Pb-free and PET sleeve

RXK **471** **M** **0J** **BK** - **0811**

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.

Radial