

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



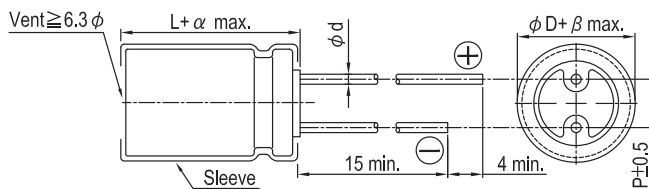
Sleeve & Marking Color: Black & Golden

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																					
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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 φD ≤ 6.3 mm; 3,000 Hrs for φD = 8 mm; 4,000 Hrs for φD = 10 mm; 5,000 Hrs for φD ≥ 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 φD ≤ 6.3 mm; 3,000 Hrs for φD = 8 mm; 4,000 Hrs for φD = 10 mm; 5,000 Hrs for φD ≥ 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

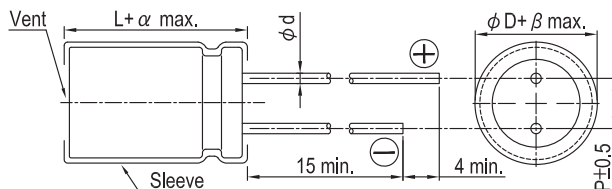
Diagram of Dimensions



Lead Spacing and Diameter Unit: mm

φD	5	6.3	8	10	12.5	16	18
P	2.0	2.5	3.5	5.0	5.0	7.5	7.5
φd	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		12.5×40	0.024	0.060	2,196	2,440	16×25	0.028	0.070	1,863	2,070	16×25	0.028	0.070	1,863	2,070
6,800		16×25	0.028	0.070	2,025	2,250	16×30	0.025	0.063	2,115	2,350	16×30	0.025	0.063	2,115	2,350
8,200		16×30	0.025	0.063	2,295	2,550	16×35	0.022	0.055	2,295	2,550	16×35	0.022	0.055	2,295	2,550
10,000		16×35.5	0.022	0.055	2,691	2,990	18×35.5	0.021	0.053	2,448	2,720	18×35.5	0.021	0.053	2,601	2,890

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}	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	0.29	0.84	249	355	
											8×15	0.25	0.75	329	470	
											10×12.5	0.16	0.40	336	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	0.20	0.50	291	415	8×15	0.25	0.75	392	560	
						10×12.5	0.12	0.30	438	625	8×20	0.18	0.52	427	610	
											10×16	0.12	0.30	529	755	
150	8×11.5	0.20	0.50	291	415	8×11.5	0.20	0.50	315	450	10×16	0.12	0.30	588	840	
						10×12.5	0.12	0.30	473	675						
180	8×11.5	0.20	0.50	315	450	8×15	0.16	0.40	347	495	8×20	0.18	0.52	525	750	
	10×12.5	0.12	0.30	438	625						10×20	0.088	0.22	662	945	
220	8×15	0.16	0.40	347	495	8×15	0.16	0.40	413	590	10×20	0.088	0.22	728	1,040	
	10×12.5	0.12	0.30	473	675	8×20	0.11	0.28	448	640	10×25	0.068	0.17	805	1,150	
						10×16	0.084	0.21	578	825						
270						8×20	0.11	0.28	490	700	10×25	0.068	0.17	896	1,280	
						10×16	0.084	0.21	637	910						
330	8×15	0.16	0.40	413	590	10×20	0.062	0.16	728	1,040	10×30	0.059	0.15	882	1,260	
	8×20	0.11	0.28	448	640						12.5×20	0.059	0.15	833	1,190	
	10×16	0.084	0.21	578	825											
390	8×20	0.11	0.28	560	700	10×20	0.062	0.16	904	1,130	12.5×20	0.059	0.15	952	1,190	
	10×16	0.084	0.21	728	910	10×25	0.052	0.13	1,008	1,260						
470	10×20	0.062	0.16	832	1,040	10×25	0.052	0.13	1,112	1,390	10×30	0.059	0.15	1,176	1,470	
											12.5×25	0.045	0.11	1,192	1,490	
560	10×20	0.062	0.16	904	1,130	10×30	0.044	0.11	1,152	1,440	12.5×25	0.045	0.11	1,304	1,630	
	10×25	0.052	0.13	1,008	1,260	12.5×20	0.046	0.12	1,072	1,340	12.5×30	0.039	0.098	1,376	1,720	
680	10×25	0.052	0.13	1,112	1,390	10×30	0.044	0.11	1,256	1,570	12.5×30	0.039	0.098	1,520	1,800	
						12.5×20	0.046	0.12	1,160	1,450	12.5×35	0.033	0.083	1,512	1,900	
						12.5×25	0.034	0.085	1,352	1,690	16×20	0.048	0.120	1,248	1,560	
820	10×30	0.044	0.11	1,152	1,440	12.5×25	0.034	0.085	1,448	1,810	12.5×35	0.033	0.083	1,624	2,030	
	12.5×20	0.046	0.12	1,072	1,340						12.5×40	0.029	0.073	1,656	2,070	
											16×25	0.033	0.083	1,504	1,880	
1,000	10×30	0.044	0.11	1,256	1,570	12.5×30	0.030	0.075	1,560	1,950	12.5×40	0.029	0.073	1,800	2,250	
	12.5×20	0.046	0.12	1,160	1,450	16×20	0.035	0.087	1,376	1,720	16×25	0.033	0.083	1,664	2,080	
	12.5×25	0.034	0.085	1,352	1,690						16×31.5	0.029	0.073	1,720	2,150	
1,200	12.5×25	0.034	0.085	1,629	1,810	12.5×30	0.030	0.075	1,917	2,130	16×31.5	0.029	0.073	2,088	2,320	
						12.5×35	0.027	0.068	1,980	2,200	16×35.5	0.025	0.063	2,115	2,350	
						16×25	0.028	0.070	1,863	2,070						
1,500	12.5×30	0.030	0.075	1,755	1,950	12.5×35	0.027	0.068	2,151	2,390	16×35.5	0.025	0.063	2,160	2,400	
	16×20	0.035	0.087	1,539	1,710	12.5×40	0.024	0.060	2,196	2,440	16×40	0.021	0.063	2,336	2,595	
						16×25	0.028	0.070	2,025	2,250						
1,800	12.5×30	0.030	0.075	1,917	2,130	12.5×40	0.024	0.060	2,358	2,620	16×40	0.021	0.063	2,466	2,740	
	12.5×35	0.027	0.068	1,980	2,200	16×31.5	0.025	0.063	2,115	2,350	18×35.5	0.023	0.058	2,286	2,540	
	16×25	0.028	0.070	1,863	2,070											
2,200	12.5×35	0.027	0.068	2,151	2,390	16×31.5	0.025	0.063	2,295	2,550	18×35.5	0.023	0.058	2,349	2,610	
	12.5×40	0.024	0.060	2,196	2,440	16×35.5	0.022	0.055	2,295	2,550	18×40	0.020	0.050	2,385	2,650	
	16×25	0.028	0.070	2,025	2,250											
2,700	16×31.5	0.025	0.063	2,115	2,350	16×35.5	0.022	0.055	2,394	2,660						
						16×40	0.018	0.045	2,610	2,900						
						18×35.5	0.021	0.053	2,448	2,720						
3,300	16×31.5	0.025	0.063	2,295	2,550	18×35.5	0.021	0.053	2,601	2,890						
	16×35.5	0.022	0.055	2,295	2,550	18×40	0.017	0.043	2,709	3,010						
3,900	16×35.5	0.022	0.055	2,394	2,660											
	16×40	0.018	0.045	2,610	2,900	18×40	0.017	0.043	2,934	3,260						
	18×35.5	0.021	0.053	2,448	2,720											
4,700	18×35.5	0.021	0.053	2,601	2,890											
	18×40	0.017	0.043	2,709	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 $\phi \times 11.5L$ 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