



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

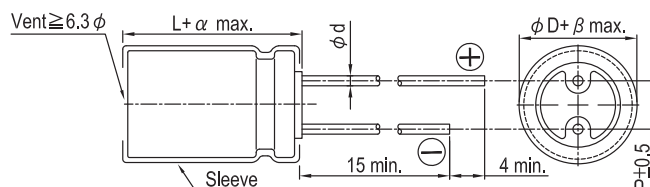


Sleeve & Marking Color: Black & Golden

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><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> When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.	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)	Impedance ratio shall not exceed the values given in the table below. <table><tr><td colspan="2">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><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	3																	
Rated Voltage		6.3	10	16	25	35	50	63																												
Impedance Ratio	Z(-55°C)/Z(+20°C)	4	4	3	3	3	3	3																												
Endurance	<table><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> * 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.	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																											
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																																			
Shelf Life Test	<table><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> * 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.	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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Capacitance Change	Within ±20% of initial value																																			
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Ripple Current and Frequency Multipliers	<table><tr><th>Cap.(μF) \ Freq.(Hz)</th><th>60 (50)</th><th>120</th><th>500</th><th>1k</th><th>10k</th><th>100k</th></tr><tr><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>	Cap.(μF) \ Freq.(Hz)	60 (50)	120	500	1k	10k	100k	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
Cap.(μF) \ Freq.(Hz)	60 (50)	120	500	1k	10k	100k																														
Under 33	0.40	0.55	0.65	0.80	0.90	1.00																														
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1,200 up above	0.80	0.90	0.95	0.98	1.00	1.00																														

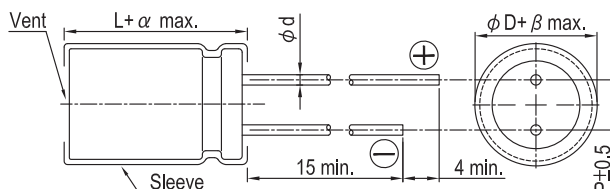
Diagram of Dimensions



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 $\geq$ 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. (μF)	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 10×12.5	0.20 0.12	0.50 0.30	291 438	415 625
330		6.3×15	0.27	0.68	231	330	8×11.5	0.20	0.50	291	415	8×11.5 8×15 10×12.5	0.20 0.16 0.12	0.50 0.40 0.30	315 347 540	450 495 675
390		8×11.5	0.20	0.50	332	415	8×11.5 10×12.5	0.20 0.12	0.50 0.30	360 500	450 625					
470		8×11.5 10×12.5	0.20 0.12	0.50 0.30	360 500	450 625	8×15 10×12.5	0.16 0.12	0.40 0.30	396 540	495 675	8×15 8×20 10×16	0.16 0.11 0.084	0.40 0.28 0.21	472 512 660	590 640 825
560		8×15 10×12.5	0.16 0.12	0.40 0.30	396 540	495 675	8×15	0.16	0.40	472	590	8×20 10×16	0.11 0.084	0.28 0.21	560 728	700 910
680		10×16	0.084	0.21	660	825	8×20 10×16	0.11 0.084	0.28 0.21	512 660	640 825	10×20	0.062	0.16	832	1,040
820		8×15 8×20 10×16	0.16 0.11 0.084	0.40 0.28 0.21	472 512 728	590 640 910	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
1,000		8×20	0.11	0.28	560	700	10×20	0.062	0.16	832	1,040	10×25	0.052	0.13	1,112	1,390
1,200		10×20	0.062	0.16	936	1,040	10×20 10×25	0.062 0.052	0.16 0.13	1,017 1,134	1,130 1,260	10×30 12.5×20	0.044 0.046	0.11 0.12	1,296 1,206	1,440 1,340
1,500		10×20 10×25	0.062 0.052	0.16 0.13	1,017 1,134	1,130 1,260	10×25 10×30	0.052 0.044	0.13 0.11	1,251 1,296	1,390 1,440	10×30 12.5×20 12.5×25	0.044 0.046 0.034	0.11 0.12 0.085	1,413 1,305 1,521	1,570 1,450 1,690
1,800		10×25	0.052	0.13	1,251	1,390	10×30 12.5×20	0.044 0.046	0.11 0.12	1,413 1,206	1,570 1,340	12.5×25	0.034	0.085	1,629	1,810
2,200		10×30 12.5×20	0.044 0.046	0.11 0.12	1,296 1,206	1,440 1,340	12.5×20 12.5×25	0.046 0.034	0.12 0.085	1,305 1,521	1,450 1,690	12.5×30 16×20	0.030 0.035	0.075 0.087	1,755 1,485	1,950 1,650
2,700		10×30 12.5×20 12.5×25	0.044 0.046 0.034	0.11 0.12 0.085	1,413 1,305 1,521	1,570 1,450 1,690	12.5×25 12.5×30	0.034 0.030	0.085 0.075	1,629 1,755	1,810 1,950	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
3,300		12.5×25	0.034	0.085	1,629	1,810	12.5×30 12.5×35	0.030 0.027	0.075 0.068	1,917 1,980	2,130 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
3,900		12.5×30	0.030	0.075	1,755	1,950	12.5×35 12.5×40 16×20 16×25	0.027 0.024 0.035 0.028	0.068 0.060 0.087 0.070	2,196 2,151 1,692 1,863	2,390 2,440 1,880 2,070	16×31.5	0.025	0.063	2,115	2,350
4,700		12.5×30 12.5×35 16×20	0.030 0.027 0.035	0.075 0.068 0.087	1,917 1,980 1,440	2,130 2,200 1,600	12.5×40 16×25	0.024 0.028	0.060 0.070	2,358 2,025	2,620 2,250	16×31.5 16×35.5	0.025 0.022	0.055 0.055	2,295 2,295	2,550 2,550
5,600		12.5×35 12.5×40 16×25	0.027 0.024 0.028	0.068 0.060 0.070	2,151 2,196 1,863	2,390 2,440 2,070	16×31.5	0.025	0.063	2,115	2,350	16×35.5 16×40	0.022 0.018	0.055 0.045	2,394 2,610	2,660 2,900
6,800		12.5×40 16×25 16×31.5	0.024 0.028 0.025	0.060 0.070 0.063	2,358 2,025 2,115	2,620 2,250 2,350	16×31.5 16×35.5	0.025 0.022	0.063 0.055	2,295 2,295	2,550 2,550	16×40 18×35.5	0.018 0.021	0.045 0.053	2,844 2,448	3,160 2,720
8,200		16×31.5	0.025	0.063	2,295	2,550	16×35.5	0.022	0.055	2,448	2,720	18×35.5	0.021	0.053	2,601	2,890
10,000		16×35.5	0.022	0.055	2,691	2,990										



Dimension: $\phi D \times L(\text{mm})$

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

Dimension and Permissible Ripple Current

Cap. (μF)	Contents	25V (1E)					35V (1V)					50V (1H)				
		ϕ D×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105°C)		ϕ D×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105°C)		ϕ D×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											



Dimension and Permissible Ripple Current

Dimension: $\phi D \times L(\text{mm})$

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

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	470μF	±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.