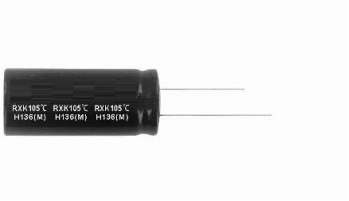
RXK Series



Features

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

Specifications

Items	Performance
Category Temperature Range	-55℃ ~ +105℃
Capacitance Tolerance	± 20% (at 120 Hz, 20℃)
Leakage Current (at 20℃)	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 120 Hz, 20℃)	When the capacitance exceeds 1,000μF, 0.02 shall be added every 1,000μF increase.
Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below.
Endurance	* 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 ~ 5,000 hours at 105℃.
Shelf Life Test	* 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.
Ripple Current and Frequency Multipliers	

Tanδ (at 120 Hz, 20℃)

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 120 Hz)

Rated Voltage		6.3	10	16	25	35	50	63
Impedance Ratio	Z(-55℃) / Z(+20℃)	4	4	3	3	3	3	3

Endurance

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

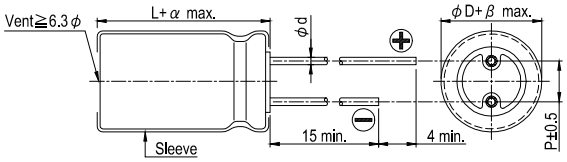
Shelf Life Test

Test Time	1,000 Hrs
Capacitance Change	Within ± 20% of initial value
Tanδ	Less than 200% of specified value
Leakage Current	Within specified value

Ripple Current and Frequency Multipliers

Cap.(μF) \ Freq.(Hz)	60 (50)	120	500	1k	10k	100k
≦ 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 ≦	0.80	0.90	0.95	0.98	1.00	1.00

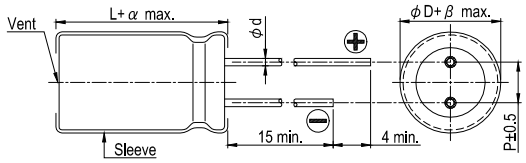
Diagram of Dimensions



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≧20: 2.0						
β	0.5						

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



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Dimension: ϕD × L(mm)
Impedance: Ω/ at 100k Hz
Ripple Current: mA/rms at 105°C

Dimension and Permissible Ripple Current

Rated Volt. (V_{DC}) / Contents Cap. (μF)	6.3V (0J)					10V (1A)					16V (1C)				
	ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)		ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)		ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)	
		20℃	-10℃	120 Hz	100k Hz		20℃	-10℃	120 Hz	100k Hz		20℃	-10℃	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										

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Dimension: ϕD × L(mm)
Impedance: Ω/ at 100k Hz
Ripple Current: mA/rms at 105℃

Dimension and Permissible Ripple Current

Rated Volt. (V_{DC}) / Contents / Cap. (μF)	25V (1E)					35V (1V)					50V (1H)				
	ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)		ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)		ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)	
		20℃	-10℃	120 Hz	100k Hz		20℃	-10℃	120 Hz	100k Hz		20℃	-10℃	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										

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Dimension: ϕD × L(mm)
Impedance: Ω/ at 100k Hz
Ripple Current: mA/rms at 105°C

Dimension and Permissible Ripple Current

Rated Volt. (Vdc) / Contents Cap. (μF)	63V(1J)				
	ϕD×L	Impedance (Ω, max./100k Hz)		Ripple Current (mA/rms, 105℃)	
		20℃	-10℃	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 10×12.5	0.49 0.27	1.23 0.675	203 294	290 420
68	8×15 10×12.5 10×16	0.34 0.27 0.21	0.850 0.675 0.525	252 354 366	360 505 523
82	8×20	0.21	0.525	350	500
100	8×15	0.34	0.850	308	440
120	10×16 10×20	0.210 0.160	0.525 0.400	455 490	650 700
150	8×20 10×25	0.210 0.130	0.525 0.325	476 546	680 780
180	10×20 10×30	0.160 0.100	0.400 0.250	553 672	790 960
220	10×25 12.5×20	0.130 0.110	0.325 0.275	648 609	925 870
270	10×30 12.5×25	0.100 0.074	0.250 0.185	812 805	1,160 1,150
330	12.5×20	0.110	0.275	746	1,065
390	12.5×25 12.5×30	0.074 0.068	0.185 0.170	1,088 1,024	1,280 1,360
470	12.5×30 12.5×35 16×20 16×25	0.068 0.063 0.059 0.055	0.170 0.158 0.148 0.138	1,120 1,112 1,080 1,184	1,360 1,400 1,350 1,480
560	12.5×40 16×25	0.051 0.055	0.128 0.138	1,224 1,296	1,530 1,620
680	12.5×40 16×31.5	0.051 0.046	0.128 0.115	1,336 1,376	1,670 1,720
820	12.5×40 16×31.5 16×35.5	0.051 0.046 0.040	0.128 0.115 0.100	1,480 1,512 1,528	1,850 1,890 1,910
1,000	16×35.5 18×35.5	0.040 0.040	0.100 0.100	1,576 1,688	1,970 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	8ϕ×11.5L	Regional Tracking Purpose
RXK	**471**	**M**	**0J**	**BK**	**-**	**0811**	**S**
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration and Package	Rubber Type	Case Size	

Note: For more details, please refer to “Part Numbering System - Radial Type” on page 139.

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