RZW Series

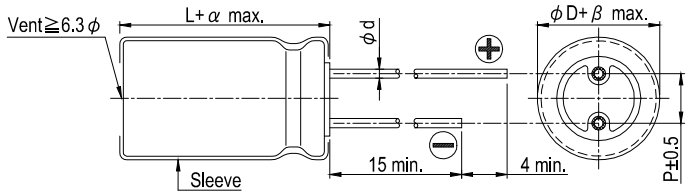
Features

- 105℃, 4,000 ~ 10,000 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℃)	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 When the capacitance exceeds 1000μF, 0.02 shall be added every 1000μF increase.
Low Temperature Characteristics (at 120 Hz)	Impedance ratio shall not exceed the values given in the table below. Rated Voltage: 6.3 / 10 / 16 / 25 / 35 / 50 / 63 Impedance Ratio Z(-55℃) / Z(+20℃): 3 / 3 / 3 / 3 / 3 / 3 / 3
Endurance	Time: 6.3 ~ 10V: 4,000 Hrs for φD = 5 ~ 6.3 mm; 6,000 Hrs for φD = 8 ~ 10 mm; 8,000 Hrs for φD ≧ 12.5 mm Time: 16 ~ 63V: 5,000 Hrs for φD = 5 ~ 6.3 mm; 7,000 Hrs for φD = 8 ~ 10 mm; 10,000 Hrs for φD ≧ 12.5 mm Capacitance Change: Within ± 25% of initial value Tanδ: Less than 200% of specified value Leakage Current: Within specified value * The above specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage applied with rated ripple current for 4,000 ~ 10,000 hours at 105℃.
Shelf Life Test	Test Time: 1,000 Hrs Capacitance Change: Within ± 25% of initial value Tanδ: Less than 200% of specified value Leakage Current: Within specified value * 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	Freq.(Hz) / Cap.(μF): 120 / 1k / 10k / 100k up ≦ ~ 33: 0.42 / 0.70 / 0.90 / 1.0 39 ~ 270: 0.50 / 0.73 / 0.92 / 1.0 330 ~ 680: 0.55 / 0.77 / 0.94 / 1.0 820 ~ 1,800: 0.6 / 0.80 / 0.96 / 1.0 2,200 ~ 18,000: 0.7 / 0.85 / 0.98 / 1.0

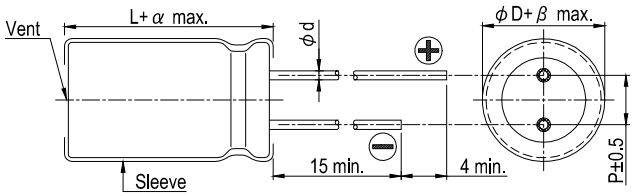
Diagram of Dimensions



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 12.5×16, 16×16, 16×20, 18×16, 18×20 and 18×25 are suitable for below diagram:



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)	6.3V (0J)				10V (1A)				16V (1C)				25V (1E)			
	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)
		20℃	-10℃	100k Hz		20℃	-10℃	100k Hz		20℃	-10℃	100k Hz		20℃	-10℃	100k Hz
47													5×11	0.58	1.16	210
56									5×11	0.58	1.16	210				
100					5×11	0.58	1.16	210					6.3×11	0.22	0.44	340
120									6.3×11	0.22	0.44	340				
150	5×11	0.58	1.16	210												
220					6.3×11	0.22	0.44	340	8×11.5	0.11	0.22	640	8×11.5	0.11	0.22	640
330	6.3×11	0.22	0.44	340					8×11.5	0.11	0.22	640	8×15 10×12.5	0.083 0.080	0.166 0.160	840 865
470					8×11.5	0.11	0.22	640	8×15 10×12.5	0.083 0.080	0.166 0.160	840 865	8×20 10×16	0.064 0.060	0.128 0.120	1,050 1,210
680	8×11.5	0.11	0.22	640	8×15 10×12.5	0.083 0.080	0.166 0.160	840 865	8×20 10×16	0.064 0.060	0.128 0.120	1,050 1,210	10×20 12.5×16	0.046 0.049	0.092 0.098	1,400 1,450
820	10×12.5	0.080	0.16	865									10×25	0.042	0.084	1,650
1,000	8×15	0.087	0.174	840	8×20 10×16	0.064 0.060	0.128 0.120	1,050 1,210	10×20 12.5×16	0.046 0.049	0.092 0.098	1,400 1,450	10×30 12.5×20 16×16	0.031 0.035 0.042	0.062 0.070 0.084	1,910 1,900 1,940
1,200	8×20 10×16	0.069 0.060	0.128 0.120	1,050 1,210	10×20	0.046	0.092	1,400	10×25	0.042	0.084	1,650	18×16	0.043	0.086	2,210
1,500	10×20	0.046	0.092	1,400	10×25 12.5×16	0.042 0.049	0.084 0.090	1,650 1,450	10×30 12.5×20 16×16	0.031 0.035 0.042	0.062 0.070 0.084	1,910 1,900 1,940	12.5×25	0.027	0.054	2,230
1,800	12.5×16	0.045	0.090	1,450									12.5×30 16×20	0.024 0.027	0.048 0.054	2,650 2,530
2,200	10×25	0.042	0.084	1,650	10×30 12.5×20 16×16	0.031 0.035 0.042	0.062 0.070 0.084	1,910 1,900 1,940	12.5×25 18×16	0.027 0.043	0.054 0.086	2,230 2,210	12.5×35 18×20	0.020 0.026	0.040 0.052	2,880 2,860
2,700	10×30 16×16	0.031 0.042	0.062 0.084	1,910 1,940	18×16	0.043	0.086	2,210	12.5×30 16×20	0.024 0.027	0.048 0.054	2,650 2,530	12.5×40 16×25	0.017 0.021	0.034 0.042	3,350 2,930
3,300	12.5×20	0.035	0.070	1,900	12.5×25	0.027	0.054	2,230	12.5×35	0.020	0.040	2,880	16×31.5 18×25	0.017 0.019	0.034 0.038	3,450 3,140
3,900	12.5×25 18×16	0.027 0.043	0.054 0.086	2,230 2,210	12.5×30 16×20	0.024 0.027	0.048 0.054	2,650 2,530	12.5×40 16×25 18×20	0.017 0.021 0.026	0.034 0.042 0.052	3,350 2,930 2,860	16×35.5 18×31.5	0.015 0.015	0.030 0.030	3,610 4,170
4,700	12.5×30	0.024	0.048	2,650	12.5×35	0.020	0.040	2,880	16×31.5 18×25	0.017 0.019	0.034 0.038	3,450 3,140	16×40 18×35.5	0.013 0.014	0.026 0.028	4,080 4,220
5,600	12.5×35 16×20	0.020 0.027	0.040 0.054	2,880 2,530	12.5×40 16×25 18×20	0.017 0.021 0.026	0.034 0.042 0.052	3,350 2,930 2,860	16×35.5 18×31.5	0.015 0.015	0.030 0.03	3,610 4,170	18×40	0.012	0.024	4,280
6,800	12.5×40 16×25 18×20	0.017 0.021 0.026	0.034 0.042 0.052	3,350 2,930 2,860	16×31.5 18×25	0.017 0.019	0.034 0.038	3,450 3,140	16×40	0.013	0.026	4,080				
8,200	16×31.5	0.017	0.034	3,450	16×35.5 18×31.5	0.015 0.015	0.030 0.030	3,610 4,170	18×35.5	0.014	0.02	4,220				
10,000	16×35.5 18×25	0.015 0.019	0.030 0.038	3,610 3,140	16×40 18×35.5	0.013 0.014	0.026 0.028	4,080 4,220	18×40	0.012	0.024	4,280				
12,000	16×40 18×31.5	0.013 0.015	0.026 0.030	4,080 4,170	18×40	0.012	0.024	4,280								
15,000	18×35.5	0.014	0.028	4,220												
18,000	18×40	0.012	0.024	4,280												

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)	35V (1V)				50V (1H)				63V (1J)			
	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)	ϕD×L	Impedance (Ω, max./100kHz)		Ripple Current (mA/rms, 105℃)
		20℃	-10℃	100k Hz		20℃	-10℃	100k Hz		20℃	-10℃	100k Hz
3.3					5×11	2.9	5.8	53				
4.7					5×11	2.5	5.0	95				
10					5×11	2.0	4.0	130				
15									5×11	1.2	2.4	165
22					5×11	0.91	1.82	180				
33	5×11	0.58	1.16	210					6.3×11	0.49	0.98	265
56	6.3×11	0.22	0.44	340	6.3×11	0.39	0.78	295	8×11.5	0.31	0.62	500
82									8×15 10×12.5	0.22 0.15	0.44 0.30	665 690
100					8×11.5	0.22	0.44	555				
120					8×15	0.190	0.38	730	8×20 10×16	0.17 0.11	0.34 0.22	820 950
150	8×11.5	0.11	0.22	640	10×12.5	0.160	0.32	760				
180					8×20	0.17	0.34	880	10×20 12.5×16	0.078 0.101	0.156 0.202	1,150 1,150
220	8×15 10×12.5	0.083 0.080	0.166 0.160	840 865	10×16	0.110	0.22	1,050	10×25	0.064	0.128	1,350
270	8×20	0.064	0.128	1,050	10×20 12.5×16	0.078 0.079	0.156 0.158	1,220 1,260	12.5×20	0.057	0.114	1,500
330	10×16	0.060	0.120	1,210	10×25	0.072	0.144	1,440				
390									12.5×25	0.043	0.086	1,900
470	10×20 12.5×16	0.046 0.049	0.092 0.098	1,400 1,450	10×30 12.5×20 16×16	0.056 0.059 0.072	0.112 0.118 0.114	1,690 1,660 1,690	12.5×30 16×20	0.039 0.045	0.078 0.090	2,300 2,000
560	10×25	0.042	0.084	1,650	12.5×25 18×16	0.044 0.070	0.088 0.140	1,950 1,930	12.5×35	0.034	0.068	2,500
680	10×30 12.5×20 16×16	0.031 0.035 0.042	0.062 0.070 0.084	1,910 1,900 1,940	12.5×30	0.039	0.078	2,310	12.5×40 16×25 18×20	0.029 0.035 0.042	0.058 0.070 0.084	2,800 2,600 2,500
820					12.5×35 16×20	0.033 0.044	0.066 0.088	2,510 2,210	16×31.5 18×25	0.029 0.034	0.058 0.068	2,850 2,800
1,000	12.5×25 18×16	0.027 0.043	0.054 0.086	2,230 2,210	12.5×40 16×25 18×20	0.027 0.033 0.047	0.054 0.066 0.094	2,920 2,555 2,490	16×35.5	0.027	0.054	2,900
1,200	12.5×30 16×20	0.024 0.027	0.048 0.054	2,650 2,530	16×31.5 18×25	0.027 0.028	0.054 0.056	3,010 2,740	16×40 18×31.5	0.025 0.028	0.050 0.056	3,400 3,300
1,500	12.5×35	0.020	0.040	2,880	16×35.5	0.024	0.048	3,150	18×35.5	0.025	0.050	3,400
1,800	12.5×40 16×25 18×20	0.017 0.021 0.026	0.034 0.042 0.052	3,350 2,930 2,860	16×40 18×31.5	0.021 0.024	0.042 0.048	3,710 3,635	18×40	0.024	0.048	3,500
2,200	16×31.5 18×25	0.017 0.019	0.034 0.038	3,450 3,140	18×35.5	0.022	0.044	3,680				
2,700	16×35.5 18×31.5	0.015 0.015	0.030 0.030	3,610 4,170	18×40	0.018	0.036	3,800				
3,300	16×40 18×35.5	0.013 0.014	0.026 0.028	4,080 4,220								
3,900	18×40	0.012	0.024	4,280								

Part Numbering System

RZW Series	470μF	± 20%	16V	Bulk Package	Gas Type	8ϕ×15L	General Purpose
RZW	**471**	**M**	**1C**	**BK**	**-**	**0815**	
Series Name	Capacitance	Capacitance Tolerance	Rated Voltage	Lead Configuration and Package	Rubber Type	Case Size	Application

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

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