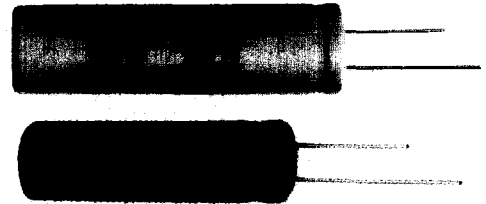


**RZ, RZA SERIES**

LOW Z ; RZ/RZA → LXF → SXG  
 SIZE ; RZ/RZA → LXF/SXG

- RZA capacitors are series which are improved from RZ series on various characteristics. They are designed for use in switching power supplies and offer low impedance, high ripple current and longer life of 5,000 hours at 105°C.
- For cleaning conditions, see page 6.
- Two types (VH and VG)lead configuration are available.

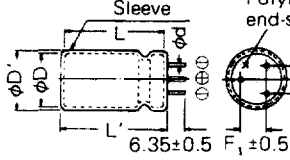


**CHARACTERISTICS**

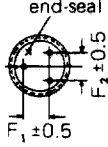
Item	RZ		RZA (TENTATIVE)			
Working voltage range	7.5~100V	150~250V	6.3~100V	160~250V		
Operating temperature range	-55~105°C	-25~105°C	-55~105°C	-25~105°C		
Capacitance tolerance	-10~+75% at 20°C, 120Hz		-10~75% at 20°C, 120Hz	±20% at 20°C, 120Hz		
Leakage current	7.5~40WV; I=0.5√CV 50~100WV; I=√CV	I=0.02CV+10	I=2√CV	I=0.02CV or 3mA, whichever is smaller.		
Where I : Maximum leakage current (μA) at 20°C (after 5 minutes) C : Nominal capacitance (μF) V : Rated working voltage (V)						
ESR	Maximum ESR at 20°C and 120Hz and 10KHz is given in the table of STANDARD RATING.					
Temperature characteristics (at 120Hz)	Working voltage		6.3~12WV	16~100WV	150~250WV	160~250WV
	Series name		RZ/RZA		RZ	RZA
	At -55°C	Impedance ratio at -55°C/20°C	6 max.	3 max.		
		Capacitance change at -55°C/20°C	±35%	±20%		
		Leakage current	Less than the initial specified value.			
		ESR	≤ 20 times the initial specified value.	≤ 10 times the initial specified value.		
	At -25°C	Impedance ratio at -25°C/20°C			4 max.	
		Capacitance change at -25°C/20°C			±30%	
		Leakage current	Less than the initial specified value.			
		ESR	≤ 10 times the initial specified value.			
	At 105°C	Impedance ratio at 105°C/20°C	1 max.			
		Capacitance change	±15%		±15%	±20%
Leakage current		5 times the initial specified value.		≤ 5 times the initial specified value.	≤ 10 times the initial specified value.	
ESR		Less than the initial specified value.				
Impedance	Maximum impedance at 20°C, 100KHz is given in the table of STANDARD RATING.					
Maximum ripple current	Maximum ripple current at the following temperature and frequency is shown in the table of STANDARD RATING. RZ: 85°C, 120Hz RZA (63~100WV): 85°C, 20KHz (160~250WV): 85°C, 120Hz Where the capacitors are operated at conditions other than the above conditions, the maximum ripple current must be multiplied by the factor shown on page 62.					
Load life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 2,000 hours (for RZ series) or 5,000 hours (for RZA series) at 105°C.					
	Capacitance change (7.5~100WV):		Capacitance change		≤ ±20% of the initial value.	
	(150~250WV):		ESR		≤ 300% of the initial specified value.	
	ESR		Impedance		≤ 200% of the initial specified value.	
	Impedance		Leakage current		≤ The initial specified value.	
	Leakage current					
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them at 105°C for 500 hours (for RZ series) or 1,000 hours (for RZA series) without voltage applied.					
	Capacitance change		Capacitance change		≤ ±20% of the initial value.	
	ESR/impedance		ESR/impedance		≤ 200% of the initial specified value.	
	Leakage current		Leakage current		≤ 5 times the initial specified value.	
Others	Satisfies characteristic C of JIS C 5141.					

## DIMENSIONS

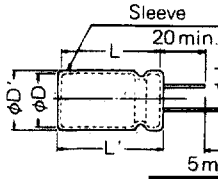
VG Type (3 leads)



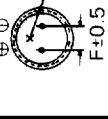
Polymer coated end-seal



VH Type (2 leads)



Polymer coated end-seal



## RZ SERIES

øD	19	22	25.4
øD'	øD+0.8	øD+0.8	øD+0.8
L'	L+2.0	L+2.0	L+2.0
F	7.5	7.5	10.0
F <sub>1</sub>	7.5	10.0	10.0
F <sub>2</sub>	5.0	7.5	7.5
ød	1.0	1.0	1.0

Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
		7.5V (10µv)			
1,800	19x31	0.125	0.062	0.062	1.9
2,200	19x41	0.067	0.038	0.041	2.8
2,800	19x41	0.090	0.045	0.046	2.4
3,300	19x51	0.045	0.026	0.031	3.7
3,900	19x51	0.058	0.029	0.030	3.5
5,200	19x64	0.046	0.023	0.025	4.3
5,800	19x64	0.040	0.021	0.022	4.4
6,800	19x81	0.033	0.018	0.020	5.4
7,700	22x31	0.060	0.047	0.047	2.4
4,100	22x41	0.063	0.034	0.035	2.9
5,800	22x51	0.043	0.023	0.024	4.2
5,900	22x51	0.042	0.023	0.024	4.1
6,800	22x64	0.025	0.016	0.022	5.7
8,200	22x64	0.029	0.016	0.018	5.5
10,000	22x81	0.024	0.013	0.015	6.6
3,500	25.4x31	0.058	0.027	0.032	3.2
4,700	25.4x41	0.037	0.024	0.028	4.1
5,800	25.4x41	0.047	0.026	0.028	3.9
8,200	25.4x51	0.032	0.018	0.020	5.3
10,000	25.4x64	0.020	0.013	0.021	7.3
11,000	25.4x64	0.025	0.015	0.018	5.3
13,500	25.4x81	0.021	0.013	0.016	6.3
16,500	25.4x91	0.018	0.012	0.015	7.4

Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
		12V (18µv)			
1,300	19x31	0.144	0.058	0.058	1.8
1,500	19x41	0.096	0.039	0.039	2.4
2,500	19x51	0.070	0.031	0.032	3.5
3,300	19x64	0.052	0.023	0.025	4.3
3,600	19x64	0.042	0.020	0.022	4.3
4,100	19x81	0.042	0.019	0.021	5.4
4,700	19x81	0.037	0.015	0.017	5.4
1,800	22x31	0.119	0.053	0.053	2.1
2,800	22x41	0.058	0.026	0.028	3.2
2,700	22x41	0.066	0.029	0.030	3.1
3,900	22x51	0.038	0.020	0.025	4.6
4,700	22x64	0.032	0.017	0.023	5.5
5,100	22x64	0.036	0.017	0.019	5.1
6,300	22x81	0.029	0.014	0.017	6.1
2,700	25.4x31	0.084	0.043	0.044	2.7
3,700	25.4x41	0.055	0.029	0.031	3.1
4,700	25.4x51	0.036	0.020	0.022	4.8
5,300	25.4x51	0.036	0.020	0.022	4.3
5,800	25.4x51	0.027	0.014	0.019	5.7
6,800	25.4x64	0.027	0.014	0.017	6.0
7,200	25.4x64	0.028	0.015	0.018	5.3
8,200	25.4x81	0.023	0.013	0.016	6.6
8,800	25.4x81	0.023	0.013	0.016	6.3
10,500	25.4x91	0.020	0.012	0.015	7.4
11,000	25.4x91	0.020	0.012	0.015	8.6

Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
		16V (20µv)			
1,000	19x31	0.146	0.064	0.064	1.8
1,500	19x41	0.097	0.042	0.042	2.4
2,200	19x51	0.066	0.029	0.030	3.4
2,700	19x64	0.047	0.022	0.027	4.4
2,800	19x64	0.055	0.023	0.025	4.3
3,200	19x64	0.042	0.019	0.021	4.3
3,400	19x81	0.044	0.019	0.021	5.4
3,900	19x81	0.037	0.016	0.018	5.4
1,200	22x31	0.132	0.060	0.060	2.0
2,200	22x41	0.072	0.033	0.034	3.0
3,900	22x51	0.050	0.023	0.024	4.0
4,300	22x64	0.038	0.017	0.019	5.1
5,300	22x81	0.031	0.014	0.017	6.1
5,800	22x81	0.028	0.013	0.015	6.1
1,800	25.4x31	0.087	0.044	0.045	2.6
3,100	25.4x41	0.057	0.029	0.031	3.0
3,300	25.4x41	0.052	0.024	0.026	3.7
4,500	25.4x51	0.039	0.020	0.022	4.2
4,700	25.4x51	0.037	0.017	0.019	4.8
6,000	25.4x64	0.029	0.015	0.018	5.3
6,800	25.4x64	0.025	0.013	0.016	6.3
7,400	25.4x81	0.024	0.013	0.016	6.3
8,200	25.4x81	0.024	0.013	0.016	7.3
10,000	25.4x91	0.017	0.012	0.015	8.2

Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
		25V (35µv)			
880	19x31	0.156	0.059	0.059	1.7
1,000	19x41	0.106	0.040	0.040	2.3
1,200	19x51	0.073	0.030	0.033	3.4
1,300	19x51	0.085	0.032	0.033	2.9
1,500	19x51	0.071	0.027	0.028	3.0
2,200	19x64	0.048	0.019	0.020	4.0
2,700	19x81	0.039	0.016	0.020	4.9
1,000	22x31	0.111	0.046	0.046	2.1
1,500	22x41	0.074	0.031	0.032	2.9
2,200	22x51	0.051	0.021	0.022	3.8
2,800	22x64	0.043	0.018	0.020	4.7
3,300	22x81	0.035	0.015	0.018	5.1
3,900	22x81	0.029	0.013	0.015	6.0
1,200	25.4x31	0.097	0.044	0.045	2.4
1,600	25.4x41	0.054	0.028	0.029	4.0
1,900	25.4x41	0.065	0.030	0.031	2.6
2,200	25.4x41	0.053	0.024	0.025	3.6
2,700	25.4x51	0.044	0.020	0.022	3.6
2,800	25.4x51	0.042	0.019	0.021	4.7
3,900	25.4x64	0.030	0.015	0.018	5.7
4,800	25.4x81	0.027	0.013	0.016	5.5
4,900	25.4x81	0.026	0.013	0.016	5.6
5,900	25.4x91	0.023	0.012	0.015	6.5

Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
		40V (55µv)			
390	19x31	0.170	0.061	0.061	1.6
560	19x41	0.118	0.043	0.043	2.1
850	19x51	0.071	0.035	0.033	3.0
1,200	19x64	0.055	0.025	0.027	3.7
1,800	19x81	0.044	0.024	0.023	4.6
580	22x31	0.118	0.048	0.048	2.1
820	22x41	0.081	0.033	0.034	2.8
1,200	22x51	0.055	0.023	0.024	3.7
1,800	22x64	0.037	0.016	0.018	4.9
2,200	22x81	0.030	0.013	0.015	5.9
820	25.4x31	0.097	0.039	0.040	2.4
1,200	25.4x41	0.066	0.027	0.028	3.3
1,800	25.4x51	0.044	0.018	0.019	4.4
2,200	25.4x64	0.066	0.016	0.016	5.2
2,800	25.4x81	0.031	0.013	0.016	5.6
3,300	25.4x91	0.024	0.010	0.015	7.3

Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
		50V (75µv)			
330	19x31	0.281	0.145	0.145	1.2
560	19x41	0.166	0.085	0.085	1.8
820	19x51	0.113	0.058	0.058	1.3
1,200	19x64	0.077	0.041	0.040	3.0
1,500	19x81	0.062	0.033	0.032	3.8
470	22x31	0.206	0.112	0.112	1.6
820	22x41	0.118	0.064	0.064	2.3
1,200	22x51	0.081	0.044	0.044	3.0
1,500	22x64	0.065	0.035	0.035	3.7
2,200	22x81	0.044	0.024	0.025	4.8
680	25.4x31	0.146	0.084	0.084	1.9
1,200	25.4x41	0.083	0.048	0.048	2.9
1,600	25.4x51	0.086	0.038	0.038	3.5
2,200	25.4x64	0.046	0.026	0.027	4.6
2,700	25.4x81	0.037	0.021	0.022	5.6
3,300	25.4x91	0.030	0.017	0.018	6.4

**RZ SERIES**

		75V		100V	
Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
150	19x31	0.424	0.102	0.102	1.0
270	19x41	0.236	0.071	0.071	1.5
390	19x51	0.163	0.049	0.049	2.0
560	19x64	0.113	0.036	0.036	2.6
680	19x81	0.094	0.030	0.030	3.1
270	22x31	0.246	0.083	0.083	1.4
390	22x41	0.170	0.057	0.057	1.9
560	22x51	0.118	0.040	0.040	2.5
680	22x64	0.081	0.030	0.030	3.3
1,000	22x81	0.066	0.025	0.026	4.0
340	25.4x31	0.176	0.066	0.064	1.8
560	25.4x41	0.126	0.045	0.045	2.3
680	25.4x51	0.086	0.033	0.033	3.1
1,200	25.4x64	0.059	0.025	0.025	4.0
1,500	25.4x81	0.047	0.020	0.021	4.9
1,700	25.4x91	0.041	0.017	0.018	5.5

		100V		150V	
Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
82	19x31	0.647	0.213	0.213	0.8
130	19x41	0.440	0.142	0.142	0.9
180	19x51	0.295	0.105	0.105	1.4
270	19x64	0.220	0.078	0.078	1.8
390	19x81	0.180	0.064	0.064	2.1
560	19x81	0.136	0.045	0.045	2.6
120	22x31	0.453	0.159	0.159	1.0
220	22x41	0.247	0.087	0.087	1.6
390	22x51	0.195	0.071	0.071	1.8
400	22x64	0.145	0.053	0.053	2.3
680	22x81	0.097	0.034	0.034	3.2
150	25.4x31	0.316	0.155	0.150	1.3
280	25.4x41	0.210	0.071	0.071	1.5
410	25.4x51	0.140	0.053	0.053	2.0
550	25.4x64	0.105	0.040	0.040	2.7
680	25.4x81	0.082	0.030	0.030	3.7
820	25.4x91	0.068	0.025	0.025	4.2

		150V		200V	
Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
27	19x31	3.240	0.848	0.882	0.36
33	19x31	2.700	0.750	0.690	0.40
39	19x31	2.160	0.570	0.553	0.44
47	19x41	1.830	0.448	0.465	0.51
56	19x41	1.570	0.418	0.406	0.56
68	19x41	1.210	0.318	0.308	0.63
82	22x41	1.050	0.278	0.207	0.71
100	25.4x41	0.849	0.226	0.221	0.83
120	25.4x41	0.693	0.185	0.180	0.92
150	25.4x51	0.562	0.151	0.147	1.07
180	25.4x51	0.457	0.122	0.120	1.18
220	25.4x64	0.378	0.102	0.101	1.36
270	25.4x64	0.312	0.088	0.085	1.50
330	25.4x81	0.251	0.070	0.069	1.80

		200V		250V	
Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
18	19x31	4.490	0.924	0.886	0.31
22	19x31	3.720	0.760	0.740	0.34
27	19x31	2.920	0.606	0.581	0.38
33	19x41	2.500	0.540	0.500	0.44
39	19x41	2.020	0.418	0.400	0.49
47	19x41	1.550	0.322	0.309	0.56
56	22x41	1.350	0.282	0.270	0.63
68	25.4x41	1.130	0.238	0.229	0.72
82	25.4x41	0.934	0.196	0.189	0.79
100	25.4x41	0.775	0.163	0.157	0.87
120	25.4x51	0.647	0.138	0.134	0.99
150	25.4x64	0.501	0.107	0.104	1.18
180	25.4x64	0.430	0.093	0.090	1.28
220	25.4x91	0.346	0.075	0.074	1.59

		250V		300V	
Capacitance (µF)	Case size øDxL (mm)	ESR(Ω) at 20°C		Impedance(Ω) 100KHz, 20°C	Ripple current(A rms) 85°C 120Hz
		120Hz	10KHz		
15	19x31	5.470	0.936	0.887	0.28
18	19x31	4.700	0.760	0.750	0.30
22	19x31	3.750	0.645	0.611	0.34
27	19x41	2.870	0.492	0.467	0.41
33	19x41	2.460	0.429	0.406	0.44
39	22x41	2.030	0.350	0.332	0.51
47	22x41	1.620	0.280	0.266	0.57
56	25.4x41	1.410	0.244	0.232	0.64
68	25.4x41	1.140	0.198	0.189	0.71
82	25.4x41	0.940	0.165	0.158	0.78
100	25.4x51	0.795	0.141	0.141	0.89
120	25.4x64	0.632	0.112	0.108	1.05
150	25.4x64	0.524	0.094	0.090	1.15
180	25.4x91	0.437	0.078	0.076	1.42

**RZA SERIES**

**STANDARD RATINGS**

WV(Vdc)	
Case size øDxL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

		6.3		10	
Capacitance (µF)	ESR (Ω)	Impedance(Ω)		Ripple current (Arms) 85°C/ 20KHz	
		(20°C/120Hz)	(20°C/10KHz)		(20°C/100KHz)
3,300	0.068	0.037	0.037	3.7	
5,600	0.045	0.025	0.026	4.8	
6,800	0.033	0.018	0.019	5.8	
10,000	0.022	0.015	0.018	6.8	
15,000	0.019	0.014	0.014	7.6	
4,700	0.045	0.030	0.030	4.2	
6,500	0.038	0.024	0.024	5.0	
10,000	0.024	0.015	0.015	6.7	
15,000	0.016	0.010	0.011	8.8	
22,000	0.011	0.009	0.010	11.4	
6,800	0.030	0.016	0.018	6.0	
10,000	0.017	0.013	0.015	7.3	
15,000	0.017	0.011	0.013	8.0	
22,000	0.011	0.009	0.011	9.6	
27,000	0.011	0.009	0.010	11.0	
33,000	0.009	0.008	0.010	12.4	

		10		13.5v	
Capacitance (µF)	ESR (Ω)	Impedance(Ω)		Ripple current (Arms) 85°C/ 20KHz	
		(20°C/120Hz)	(20°C/10KHz)		(20°C/100KHz)
3,300	0.079	0.037	0.037	3.7	
5,600	0.045	0.025	0.026	4.8	
6,800	0.033	0.018	0.019	5.8	
10,000	0.022	0.015	0.018	6.8	
15,000	0.019	0.014	0.014	7.6	
4,700	0.054	0.030	0.030	4.2	
6,500	0.027	0.024	0.023	5.0	
10,000	0.018	0.015	0.015	6.7	
15,000	0.015	0.010	0.013	8.6	
22,000	0.012	0.009	0.010	11.4	
6,800	0.039	0.022	0.024	5.0	
10,000	0.030	0.018	0.019	6.0	
15,000	0.017	0.012	0.013	8.0	
22,000	0.012	0.010	0.012	9.6	
27,000	0.011	0.009	0.010	11.0	
33,000	0.010	0.008	0.010	12.4	

RZA SERIES

Case size μDxdL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
1,000	0.097	0.043	0.043	3.2
2,200	0.086	0.029	0.029	4.1
3,300	0.044	0.019	0.021	5.3
4,700	0.028	0.013	0.019	6.8
6,800	0.026	0.013	0.015	7.3
2,200	0.072	0.033	0.033	3.8
3,300	0.048	0.022	0.023	4.9
4,700	0.031	0.016	0.020	6.1
6,800	0.024	0.011	0.012	7.8
10,000	0.016	0.007	0.009	10.5
2,200	0.058	0.029	0.030	4.2
3,300	0.038	0.019	0.020	5.5
4,700	0.026	0.013	0.015	7.0
6,800	0.017	0.009	0.011	9.1
10,000	0.015	0.008	0.010	10.3
15,000	0.010	0.007	0.009	11.5

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
820	0.129	0.049	0.049	3.0
1,200	0.088	0.033	0.033	3.9
1,800	0.049	0.020	0.022	5.2
2,700	0.039	0.015	0.019	6.4
3,900	0.032	0.013	0.015	7.3
5,600	0.111	0.046	0.046	3.2
7,500	0.062	0.026	0.027	4.5
10,000	0.042	0.017	0.020	5.9
15,000	0.024	0.011	0.013	7.8
20,000	0.024	0.011	0.013	8.4
27,000	0.078	0.035	0.036	3.8
37,000	0.046	0.021	0.022	5.2
50,000	0.030	0.014	0.015	6.7
68,000	0.025	0.011	0.013	8.2
90,000	0.018	0.009	0.011	9.7
120,000	0.010	0.007	0.009	11.5

Case size μDxdL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
560	0.130	0.049	0.049	3.0
1,000	0.088	0.033	0.033	3.9
1,500	0.049	0.020	0.022	5.2
1,800	0.039	0.015	0.019	6.4
2,200	0.032	0.013	0.015	7.3
820	0.111	0.046	0.046	3.2
1,500	0.062	0.026	0.027	4.5
1,800	0.042	0.017	0.020	5.9
2,200	0.026	0.011	0.013	7.8
3,900	0.025	0.011	0.013	8.4
1,200	0.078	0.035	0.036	3.8
1,800	0.046	0.021	0.022	5.2
2,700	0.030	0.014	0.015	6.7
3,900	0.025	0.011	0.013	8.2
4,700	0.018	0.009	0.011	9.7
5,900	0.014	0.008	0.009	10.7

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
500	0.237	0.057	0.057	2.8
680	0.166	0.040	0.040	3.5
820	0.113	0.027	0.027	4.5
1,200	0.077	0.019	0.020	5.6
1,800	0.062	0.015	0.017	6.8
2,200	0.173	0.094	0.094	2.2
3,300	0.118	0.064	0.064	2.9
4,700	0.081	0.044	0.044	3.6
6,800	0.054	0.029	0.029	4.8
9,000	0.044	0.024	0.025	5.7
12,000	0.146	0.084	0.084	2.4
15,000	0.083	0.048	0.048	3.5
20,000	0.066	0.038	0.038	4.1
27,000	0.045	0.026	0.027	5.3
37,000	0.030	0.017	0.018	7.0
50,000	0.025	0.014	0.015	8.1

Case size μDxdL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
220	0.289	0.070	0.070	2.5
390	0.163	0.049	0.049	3.2
560	0.114	0.040	0.040	3.7
820	0.077	0.030	0.030	4.5
1,000	0.064	0.025	0.026	5.3
330	0.201	0.094	0.094	2.2
560	0.118	0.064	0.064	2.9
820	0.081	0.044	0.044	3.6
1,200	0.055	0.029	0.029	4.8
1,500	0.044	0.024	0.025	5.7
470	0.146	0.084	0.084	2.4
680	0.104	0.048	0.048	3.5
1,000	0.071	0.038	0.038	4.1
1,500	0.047	0.026	0.027	5.3
1,800	0.039	0.017	0.018	7.0
2,200	0.032	0.014	0.015	8.1

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
150	0.424	0.102	0.102	2.1
220	0.289	0.087	0.087	2.4
330	0.193	0.057	0.057	3.1
470	0.135	0.043	0.043	3.7
680	0.114	0.037	0.037	4.3
220	0.302	0.102	0.102	2.1
330	0.201	0.067	0.067	2.8
470	0.141	0.048	0.048	3.5
680	0.098	0.036	0.036	4.3
820	0.080	0.030	0.032	5.0
270	0.222	0.108	0.106	2.1
470	0.150	0.054	0.054	3.2
680	0.104	0.040	0.040	4.0
820	0.086	0.037	0.037	4.4
1,200	0.059	0.025	0.026	5.8
1,500	0.046	0.019	0.020	7.0

Case size μDxdL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
120	0.530	0.175	0.175	1.6
220	0.312	0.101	0.101	2.2
270	0.250	0.089	0.089	2.4
390	0.176	0.063	0.063	3.1
560	0.136	0.045	0.045	3.9
160	0.302	0.106	0.106	2.1
270	0.201	0.071	0.071	2.7
390	0.145	0.053	0.053	3.3
560	0.104	0.038	0.038	4.2
820	0.080	0.030	0.032	5.0
220	0.273	0.108	0.106	2.1
390	0.156	0.054	0.054	3.2
560	0.104	0.040	0.040	4.0
820	0.086	0.037	0.037	4.4
1,000	0.059	0.025	0.026	5.8
1,200	0.046	0.019	0.020	7.0

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
150	0.424	0.102	0.102	2.1
220	0.289	0.087	0.087	2.4
330	0.193	0.057	0.057	3.1
470	0.135	0.043	0.043	3.7
680	0.114	0.037	0.037	4.3
220	0.302	0.102	0.102	2.1
330	0.201	0.067	0.067	2.8
470	0.141	0.048	0.048	3.5
680	0.098	0.036	0.036	4.3
820	0.080	0.030	0.032	5.0
270	0.222	0.108	0.106	2.1
470	0.150	0.054	0.054	3.2
680	0.104	0.040	0.040	4.0
820	0.086	0.037	0.037	4.4
1,200	0.059	0.025	0.026	5.8
1,500	0.046	0.019	0.020	7.0

**RZA SERIES**

Case size μDxL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	150 (200v)			
	(20°C/120Hz)	(20°C/10KHz)		
82	1.230	0.220	0.200	0.60
150	0.670	0.120	0.110	0.86
180	0.560	0.100	0.090	0.99
270	0.380	0.068	0.063	1.20
330	0.300	0.055	0.055	1.50
470	0.884	0.150	0.150	0.74
560	0.589	0.105	0.105	0.95
770	0.393	0.070	0.070	1.20
820	0.272	0.049	0.049	1.40
1000	0.189	0.034	0.034	2.00
1500	0.589	0.108	0.106	0.93
2700	0.393	0.070	0.070	1.20
3300	0.272	0.049	0.049	1.50
5600	0.189	0.037	0.037	1.90
6800	0.156	0.029	0.029	2.30
8200	0.129	0.024	0.024	2.60

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	150 (225v)			
	(20°C/120Hz)	(20°C/10KHz)		
82	1.230	0.220	0.200	0.60
120	0.830	0.150	0.140	0.78
180	0.560	0.100	0.090	0.99
270	0.450	0.081	0.073	1.10
330	0.300	0.055	0.055	1.50
470	1.060	0.190	0.190	0.67
560	0.589	0.105	0.105	0.95
770	0.393	0.070	0.070	1.20
820	0.322	0.058	0.058	1.40
1000	0.226	0.041	0.041	1.80
1500	0.707	0.126	0.126	0.85
2700	0.482	0.087	0.087	1.10
3300	0.322	0.058	0.058	1.40
4700	0.226	0.041	0.041	1.80
5600	0.189	0.035	0.035	2.10
8200	0.156	0.029	0.029	2.40

Case size μDxL (mm)	Case code
19x31	19A
19x41	19B
19x51	19C
19x64	19D
19x81	19E
22x31	22A
22x41	22B
22x51	22C
22x64	22D
22x81	22E
25.4x31	25A
25.4x41	25B
25.4x51	25C
25.4x64	25D
25.4x81	25E
25.4x91	25F

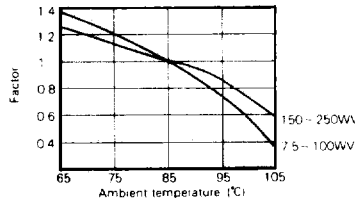
Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	200 (250v)			
	(20°C/120Hz)	(20°C/10KHz)		
68	1.460	0.250	0.230	0.55
120	0.830	0.140	0.140	0.78
180	0.670	0.110	0.089	0.90
270	0.450	0.081	0.073	1.10
330	0.370	0.063	0.063	1.30
470	1.060	0.190	0.182	0.67
560	0.707	0.119	0.119	0.87
770	0.482	0.079	0.079	1.10
820	0.322	0.058	0.058	1.40
1000	0.272	0.046	0.046	1.60
1500	0.884	0.151	0.151	0.78
2700	0.482	0.087	0.087	1.10
3300	0.322	0.058	0.058	1.40
4700	0.226	0.041	0.041	1.80
5600	0.189	0.035	0.035	2.10
8200	0.156	0.029	0.029	2.40

Capacitance (μF)	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	250 (300v)			
	(20°C/120Hz)	(20°C/10KHz)		
68	1.710	0.390	0.390	0.51
82	1.180	0.270	0.270	0.66
120	0.800	0.180	0.180	0.82
180	0.530	0.130	0.120	1.00
270	0.430	0.100	0.100	1.20
330	1.580	0.356	0.356	0.55
470	0.884	0.206	0.206	0.78
560	0.589	0.133	0.133	1.00
770	0.482	0.118	0.118	1.10
820	0.322	0.075	0.075	1.50
1000	1.060	0.242	0.242	0.69
1500	0.707	0.165	0.165	0.91
2700	0.482	0.108	0.108	1.10
3300	0.322	0.079	0.079	1.50
4700	0.226	0.053	0.053	1.90
5600	0.189	0.044	0.044	2.20

**RIPPLE CURRENT MULTIPLIERS**

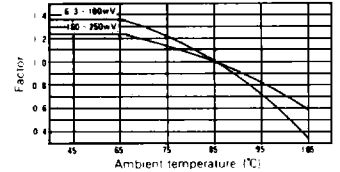
**RZ series**

Temperature Multiplying Factor

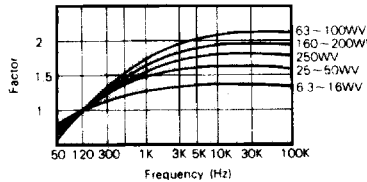


**RZA series**

Temperature Multiplying Factor



Frequency Multiplying Factor



Frequency Multiplying Factor

