

RZA SERIES

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

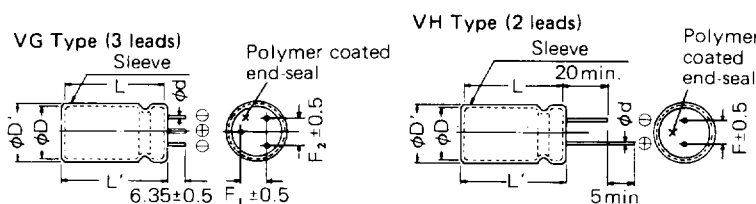
- For cleaning conditions, see page 6.
- Two types (VH and VG)lead configuration are available.
- **Use LXF series (page 42) for new design.**



CHARACTERISTICS

Item	Characteristics				
Working voltage range	6.3~100V	160~250V			
Operating temperature range	-55~105°C	-25~105°C			
Capacitance tolerance	-10~75% at 20°C, 120Hz	±20% at 20°C, 120Hz			
Leakage current	$I=2\sqrt{CV}$ Where I: Maximum leakage current (μA) at 20°C (after 5 minutes) C: Nominal capacitance (μF) V: Rated working voltage (V)	$I=0.02CV$ or 3mA, whichever is smaller.			
ESR	Maximum ESR at 20°C and 120Hz and 10KHz is given in the table of STANDARD RATING.				
Temperature characteristics (at 120Hz)	Item	Working voltage	6.3~10WV	16~100WV	160~250WV
	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.		
	At -25°C	ESR	≤ 20 times the initial specified value.	≤ 10 times the initial specified value.	
		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.
	At 105°C	ESR			≤ 10 times the initial specified value.
		Impedance ratio at 105°C/20°C		1 max.	
		Capacitance change	±15%		±20%
		Leakage current	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.				
Load life	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage applied for 5,000 hours at 105°C. Capacitance change ≤ ±20% of the initial value. ESR ≤ 300% of the initial specified value. Impedance ≤ 200% of the initial specified value. Leakage current ≤ The initial specified value.				
Shelf life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them at 105°C for 1,000 hours without voltage applied. Capacitance change ≤ ±20% of the initial value. ESR/impedance ≤ 200% of the initial specified value. Leakage current ≤ 5 times the initial specified value.				
Others	Satisfies characteristic C of JIS C 5141.				

DIMENSIONS



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 ₁	7.5	10.0	10.0
F ₂	5.0	7.5	7.5
ød	1.0	1.0	1.0

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

Capacitance (μF)	6.3		(8sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
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
6,800	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	8.6
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

Capacitance (μF)	10		(13sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
2,200	0.079	0.037	0.037	3.7
3,900	0.045	0.025	0.026	4.8
5,600	0.033	0.018	0.019	5.8
8,200	0.022	0.015	0.018	6.8
10,000	0.019	0.014	0.014	7.6
3,300	0.054	0.030	0.030	4.2
5,600	0.027	0.024	0.023	5.0
8,200	0.018	0.015	0.015	6.7
10,000	0.015	0.010	0.013	8.6
15,000	0.012	0.009	0.010	11.4
4,700	0.039	0.022	0.024	5.0
6,800	0.030	0.018	0.019	6.0
10,000	0.017	0.012	0.013	8.0
15,000	0.012	0.010	0.012	9.6
18,000	0.011	0.009	0.010	11.0
22,000	0.010	0.008	0.010	12.4

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

Capacitance (μF)	16		(20sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
1,500	0.097	0.043	0.043	3.2
2,200	0.066	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
2,700	0.058	0.029	0.030	4.2
4,700	0.036	0.019	0.020	5.5
6,800	0.026	0.013	0.015	7.0
10,000	0.017	0.009	0.011	9.1
12,000	0.015	0.008	0.010	10.3
15,000	0.010	0.007	0.009	11.5

Capacitance (μF)	20		(32sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
820	0.129	0.069	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
1,000	0.141	0.046	0.046	3.2
1,500	0.062	0.026	0.027	4.5
2,000	0.042	0.017	0.020	5.9
3,000	0.024	0.011	0.013	7.8
4,000	0.024	0.011	0.013	8.4
1,500	0.078	0.035	0.036	3.8
2,000	0.046	0.021	0.022	5.2
3,000	0.030	0.014	0.015	6.7
4,000	0.025	0.011	0.013	8.2
5,000	0.018	0.009	0.011	9.7
8,200	0.010	0.007	0.009	11.5

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

Capacitance (μF)	35		(44sv)	
	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
2,700	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
2,700	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
5,000	0.014	0.008	0.009	10.7

Capacitance (μF)	50		(63sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 20KHz)
	(20°C/120Hz)	(20°C/10KHz)		
390	0.237	0.057	0.057	2.8
560	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
1,500	0.062	0.015	0.017	6.8
560	0.173	0.094	0.094	2.2
820	0.118	0.064	0.064	2.9
1,200	0.081	0.044	0.044	3.6
1,800	0.054	0.029	0.029	4.8
2,200	0.044	0.024	0.025	5.7
680	0.146	0.084	0.084	2.4
1,200	0.083	0.048	0.048	3.5
1,500	0.066	0.038	0.038	4.1
2,200	0.045	0.026	0.027	5.3
3,300	0.030	0.017	0.018	7.0
3,900	0.025	0.014	0.015	8.1

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

Capacitance (μF)	63		(79sv)	
	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)	80		(100sv)	
	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

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

Capacitance (μF)	100		(125sv)	
	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
180	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

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

Capacitance (μF)	160		(200sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	(20°C/120Hz)	(20°C/10KHz)		
82	1.230	0.220	0.200	0.60
150	0.670	0.120	0.110	0.85
180	0.560	0.100	0.090	0.99
270	0.380	0.068	0.063	1.20
390	0.300	0.055	0.055	1.50
120	0.884	0.150	0.150	0.74
180	0.589	0.105	0.105	0.95
270	0.393	0.070	0.070	1.20
390	0.272	0.049	0.049	1.40
560	0.189	0.034	0.034	2.00
180	0.589	0.108	0.106	0.93
270	0.393	0.070	0.070	1.20
390	0.272	0.049	0.049	1.50
560	0.189	0.034	0.037	1.90
680	0.156	0.029	0.029	2.30
820	0.129	0.022	0.024	2.60

Capacitance (μF)	180		(225sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	(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
220	0.450	0.081	0.073	1.10
330	0.300	0.055	0.055	1.50
100	1.060	0.190	0.190	0.67
180	0.589	0.105	0.105	0.95
270	0.393	0.070	0.070	1.20
350	0.322	0.058	0.058	1.40
470	0.226	0.041	0.041	1.80
150	0.707	0.126	0.126	0.85
220	0.482	0.087	0.087	1.10
330	0.322	0.058	0.058	1.40
470	0.226	0.041	0.041	1.80
560	0.189	0.035	0.035	2.10
680	0.156	0.029	0.029	2.40

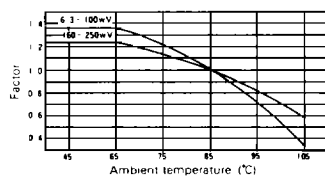
WV(Vdc)	
Case size øDxL (mm)	Case code
19x31	19A
19x41	19B
19X51	19C
19X64	19D
19X81	19E
22X31	22A
22X41	22B
22X51	22C
22X64	22D
22X81	22E
25.4X31	25A
25.4X41	25B
25.4X51	25C
25.4X64	25D
25.4X81	25E
25.4X91	25F

Capacitance (μF)	200		(250sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	(20°C/120Hz)	(20°C/10KHz)		
68	1.460	0.250	0.230	0.55
120	0.830	0.140	0.140	0.78
150	0.670	0.110	0.099	0.90
220	0.450	0.081	0.073	1.10
270	0.370	0.063	0.063	1.30
100	1.060	0.190	0.182	0.67
150	0.707	0.119	0.119	0.87
220	0.482	0.079	0.079	1.10
330	0.322	0.058	0.058	1.40
390	0.272	0.046	0.046	1.60
120	0.884	0.151	0.151	0.76
220	0.482	0.087	0.087	1.10
330	0.322	0.058	0.058	1.40
470	0.226	0.041	0.041	1.80
560	0.189	0.035	0.035	2.10
680	0.156	0.029	0.029	2.40

Capacitance (μF)	250		(300sv)	
	ESR (Ω)		Impedance(Ω) (20°C/100KHz)	Ripple current (Arms:85°C/ 120Hz)
	(20°C/120Hz)	(20°C/10KHz)		
56	1.710	0.390	0.390	0.51
82	1.160	0.270	0.270	0.66
120	0.800	0.180	0.180	0.82
180	0.530	0.130	0.120	1.00
220	0.430	0.100	0.100	1.20
68	1.560	0.356	0.356	0.55
120	0.884	0.206	0.206	0.78
180	0.589	0.133	0.133	1.00
220	0.482	0.118	0.118	1.10
330	0.322	0.075	0.075	1.50
100	1.060	0.242	0.242	0.69
150	0.707	0.165	0.165	0.91
220	0.482	0.108	0.108	1.10
330	0.322	0.079	0.079	1.50
470	0.226	0.053	0.053	1.90
560	0.189	0.044	0.044	2.20

RIPPLE CURRENT MULTIPLIERS

Temperature Multiplying Factor



Frequency Multiplying Factor

