

# KZE Series

- Newly innovative electrolyte is employed to minimize impedance
- Endurance with ripple current: 1,000 to 5,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant

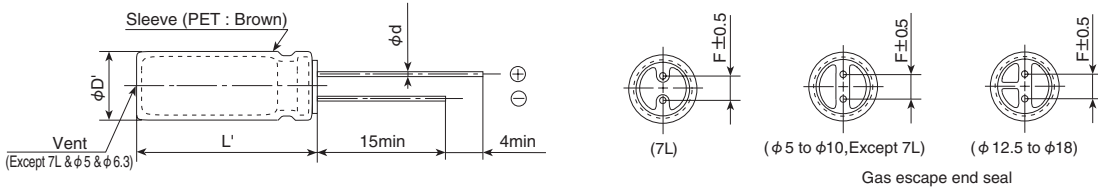


## SPECIFICATIONS

Items	Characteristics									
<b>Category</b>	-40 to +105°C									
<b>Temperature Range</b>	-40 to +105°C									
<b>Rated Voltage Range</b>	6.3 to 100V <sub>dc</sub>									
<b>Capacitance Tolerance</b>	±20% (M) (at 20°C, 120Hz)									
<b>Leakage Current</b>	I=0.01CV or 3µA, whichever is greater. Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 2 minutes)									
<b>Dissipation Factor (tan δ)</b>	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	50V	63V	80V	100V
	tan δ (Max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.09	0.08
	When nominal capacitance exceeds 1,000µF, add 0.02 to the value above for each 1,000µF increase. (at 20°C, 120Hz)									
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	Z (-25°C) / Z (+20°C)	2max.								
	Z (-40°C) / Z (+20°C)	3max.								
<b>Endurance</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for the specified period of time at 105°C.									
	Time	7L : 1,000hours φ5 & φ6.3 : 2,000hours φ8 : 3,000hours φ10 : 4,000hours φ12.5 to φ18 : 5,000hours								
	Capacitance change	≤ ±25% of the initial value								
	D.F. (tan δ)	≤ 200% of the initial specified value								
	Leakage current	≤ The initial specified value								
<b>Shelf Life</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 500 hours at 105°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4.									
	Capacitance change	≤ ±25% of the initial value								
	D.F. (tan δ)	≤ 200% of the initial specified value								
	Leakage current	≤ The initial specified value								

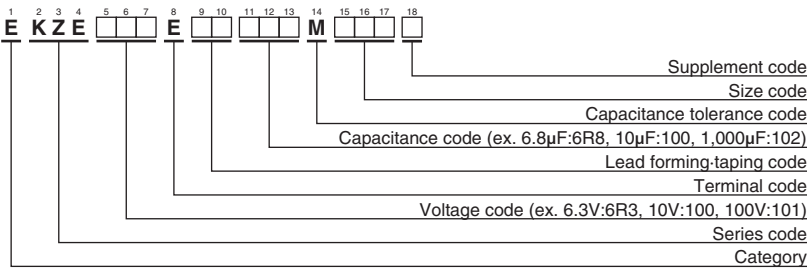
## DIMENSIONS [mm]

- Terminal Code : E



φD	5	6.3	8	10, 12.5	16, 18
φd	7L	0.45	0.45	0.45	—
	11L~	0.5	0.5	0.6	0.6
F		2.0	2.5	3.5	5.0
φD'	φD+0.5max.				
L'	L+1.5max.(7L : L+1.0max.)				

## PART NUMBERING SYSTEM



Please refer to "Product code guide (radial lead type)"

◆ STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA <sub>rms</sub> / 100kHz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA <sub>rms</sub> / 100kHz)	Part No.	
			20°C	-10°C						20°C	-10°C			
6.3	68	5×7	0.43	1.3	210	EKZE6R3E□□680ME07D	25	820	10×25	0.022	0.066	2,150	EKZE250E□□821MJ25S	
	150	5×11	0.30	1.0	250	EKZE6R3E□□151ME11D		1,000	12.5×20	0.021	0.053	2,360	EKZE250E□□102MK20S	
	150	6.3×7	0.23	0.69	300	EKZE6R3E□□151MF07D		1,500	12.5×25	0.018	0.045	2,770	EKZE250E□□152MK25S	
	220	8×7	0.15	0.45	380	EKZE6R3E□□221MH07D		1,800	12.5×30	0.016	0.041	3,290	EKZE250E□□182MK30S	
	330	6.3×11	0.13	0.41	405	EKZE6R3E□□331MF11D		1,800	16×20	0.018	0.045	3,140	EKZE250E□□182ML20S	
	560	8×11.5	0.072	0.22	760	EKZE6R3E□□561MHB5D		2,200	12.5×35	0.015	0.039	3,400	EKZE250E□□222MK35S	
	820	8×15	0.056	0.17	995	EKZE6R3E□□821MH15D		2,700	16×25	0.016	0.043	3,460	EKZE250E□□272ML25S	
	1,000	10×12.5	0.053	0.16	1,030	EKZE6R3E□□102MJ25S		35	18	5×7	0.47	1.5	210	EKZE350E□□180ME07D
	1,200	8×20	0.041	0.13	1,250	EKZE6R3E□□122MH20D			33	5×11	0.30	1.0	250	EKZE350E□□330ME11D
	1,200	10×16	0.038	0.12	1,430	EKZE6R3E□□122MJ16S			39	6.3×7	0.25	0.75	300	EKZE350E□□390MF07D
	1,500	10×20	0.023	0.069	1,820	EKZE6R3E□□152MJ20S			56	6.3×11	0.13	0.41	405	EKZE350E□□560MF11D
	2,200	10×25	0.022	0.066	2,150	EKZE6R3E□□222MJ25S			56	8×7	0.16	0.48	380	EKZE350E□□561MH07D
	3,300	12.5×20	0.021	0.053	2,360	EKZE6R3E□□332MK20S			150	8×11.5	0.072	0.22	760	EKZE350E□□151MHB5D
	3,900	12.5×25	0.018	0.045	2,770	EKZE6R3E□□392MK25S			220	8×15	0.056	0.17	995	EKZE350E□□221MH15D
	4,700	12.5×30	0.016	0.041	3,290	EKZE6R3E□□472MK30S			220	10×12.5	0.053	0.16	1,030	EKZE350E□□221MJC5S
	5,600	12.5×35	0.015	0.039	3,400	EKZE6R3E□□562MK35S			270	8×20	0.041	0.13	1,250	EKZE350E□□271MH20D
	5,600	16×20	0.018	0.045	3,140	EKZE6R3E□□562ML20S			330	10×16	0.038	0.12	1,430	EKZE350E□□331MJ16S
	6,800	16×25	0.016	0.043	3,460	EKZE6R3E□□682ML25S			470	10×20	0.023	0.069	1,820	EKZE350E□□471MJ20S
10	56	5×7	0.44	1.4	210	EKZE100E□□560ME07D	560		10×25	0.022	0.066	2,150	EKZE350E□□561MJ25S	
	100	5×11	0.30	1.0	250	EKZE100E□□101ME11D	680		12.5×20	0.021	0.053	2,360	EKZE350E□□681MK20S	
	120	6.3×7	0.23	0.69	300	EKZE100E□□121MF07D	1,000		12.5×25	0.018	0.045	2,770	EKZE350E□□102MK25S	
	180	8×7	0.15	0.45	380	EKZE100E□□181MH07D	1,200		12.5×30	0.016	0.041	3,290	EKZE350E□□122MK30S	
	220	6.3×11	0.13	0.41	405	EKZE100E□□221MF11D	1,200		16×20	0.018	0.045	3,140	EKZE350E□□122ML20S	
	470	8×11.5	0.072	0.22	760	EKZE100E□□471MHB5D	1,500		12.5×35	0.015	0.039	3,400	EKZE350E□□152MK35S	
	680	8×15	0.056	0.17	995	EKZE100E□□681MH15D	1,800		16×25	0.016	0.043	3,460	EKZE350E□□182ML25S	
	680	10×12.5	0.053	0.16	1,030	EKZE100E□□681MJC5S	50	10	5×7	0.50	1.5	210	EKZE500E□□100ME07D	
	1,000	8×20	0.041	0.13	1,250	EKZE100E□□102MH20D		22	5×11	0.34	1.18	238	EKZE500E□□220ME11D	
	1,000	10×16	0.038	0.12	1,430	EKZE100E□□102MJ16S		22	6.3×7	0.26	0.78	300	EKZE500E□□220MF07D	
	1,200	10×20	0.023	0.069	1,820	EKZE100E□□122MJ20S		33	8×7	0.17	0.51	380	EKZE500E□□330MH07D	
	1,500	10×25	0.022	0.066	2,150	EKZE100E□□152MJ25S		56	6.3×11	0.14	0.50	385	EKZE500E□□560MF11D	
	2,200	12.5×20	0.021	0.053	2,360	EKZE100E□□222MK20S		100	8×11.5	0.074	0.22	724	EKZE500E□□101MHB5D	
	3,300	12.5×25	0.018	0.045	2,770	EKZE100E□□332MK25S		120	8×15	0.061	0.18	950	EKZE500E□□121MH15D	
	3,900	12.5×30	0.016	0.041	3,290	EKZE100E□□392MK30S		150	10×12.5	0.061	0.18	979	EKZE500E□□151MJC5S	
	3,900	16×20	0.018	0.045	3,140	EKZE100E□□392ML20S		180	8×20	0.046	0.14	1,190	EKZE500E□□181MH20D	
	4,700	12.5×35	0.015	0.039	3,400	EKZE100E□□472MK35S		220	10×16	0.042	0.12	1,370	EKZE500E□□221MJ16S	
	5,600	16×25	0.016	0.043	3,460	EKZE100E□□562ML25S		270	10×20	0.030	0.090	1,580	EKZE500E□□271MJ20S	
16	33	5×7	0.45	1.4	210	EKZE160E□□330ME07D		330	10×25	0.028	0.085	1,870	EKZE500E□□331MJ25S	
	56	5×11	0.30	1.0	250	EKZE160E□□560ME11D		470	12.5×20	0.027	0.068	2,050	EKZE500E□□471MK20S	
	68	6.3×7	0.24	0.72	300	EKZE160E□□680MF07D		560	12.5×25	0.023	0.059	2,410	EKZE500E□□561MK25S	
	120	6.3×11	0.13	0.41	405	EKZE160E□□121MF11D		680	12.5×30	0.021	0.052	2,860	EKZE500E□□681MK30S	
	120	8×7	0.15	0.45	380	EKZE160E□□121MH07D		820	12.5×35	0.019	0.051	2,960	EKZE500E□□821MK35S	
	330	8×11.5	0.072	0.22	760	EKZE160E□□331MHB5D		820	16×20	0.023	0.059	2,730	EKZE500E□□821ML20S	
	470	8×15	0.056	0.17	995	EKZE160E□□471MH15D		1,000	16×25	0.021	0.056	3,010	EKZE500E□□102ML25S	
	470	10×12.5	0.053	0.16	1,030	EKZE160E□□471MJC5S	63	15	5×11	0.88	3.5	165	EKZE630E□□150ME11D	
	680	8×20	0.041	0.13	1,250	EKZE160E□□681MH20D		33	6.3×11	0.35	1.4	265	EKZE630E□□330MF11D	
	680	10×16	0.038	0.12	1,430	EKZE160E□□681MJ16S		56	8×11.5	0.22	0.88	500	EKZE630E□□560MHB5D	
	1,000	10×20	0.023	0.069	1,820	EKZE160E□□102MJ20S		82	8×15	0.16	0.64	665	EKZE630E□□820MH15D	
	1,200	10×25	0.022	0.066	2,150	EKZE160E□□122MJ25S		82	10×12.5	0.11	0.44	690	EKZE630E□□820MJC5S	
	1,500	12.5×20	0.021	0.053	2,360	EKZE160E□□152MK20S		120	8×20	0.12	0.48	820	EKZE630E□□121MH20D	
	2,200	12.5×25	0.018	0.045	2,770	EKZE160E□□222MK25S		120	10×16	0.076	0.31	950	EKZE630E□□121MJ16S	
	2,700	12.5×30	0.016	0.041	3,290	EKZE160E□□272MK30S		180	10×20	0.056	0.23	1,150	EKZE630E□□181MJ20S	
	2,700	16×20	0.018	0.045	3,140	EKZE160E□□272ML20S		180	12.5×16	0.072	0.29	1,150	EKZE630E□□181MK16S	
	3,300	12.5×35	0.015	0.039	3,400	EKZE160E□□332MK35S		220	10×25	0.046	0.19	1,350	EKZE630E□□221MJ25S	
	3,900	16×25	0.016	0.043	3,460	EKZE160E□□392ML25S		270	12.5×20	0.041	0.13	1,500	EKZE630E□□271MK20S	
25	27	5×7	0.46	1.4	210	EKZE250E□□270ME07D		390	12.5×25	0.031	0.093	1,900	EKZE630E□□391MK25S	
	47	5×11	0.30	1.0	250	EKZE250E□□470ME11D		470	12.5×30	0.028	0.084	2,300	EKZE630E□□471MK30S	
	56	6.3×7	0.24	0.72	300	EKZE250E□□560MF07D		470	16×20	0.032	0.096	2,000	EKZE630E□□471ML20S	
	100	6.3×11	0.13	0.41	405	EKZE250E□□101MF11D		560	12.5×35	0.024	0.072	2,500	EKZE630E□□561MK35S	
	100	8×7	0.15	0.45	380	EKZE250E□□101MH07D		680	12.5×40	0.021	0.063	2,800	EKZE630E□□681MK40S	
	220	8×11.5	0.072	0.22	760	EKZE250E□□221MHB5D		680	16×25	0.025	0.075	2,600	EKZE630E□□681ML25S	
	330	8×15	0.056	0.17	995	EKZE250E□□331MH15D		680	18×20	0.030	0.090	2,500	EKZE630E□□681MM20S	
	330	10×12.5	0.053	0.16	1,030	EKZE250E□□331MJC5S	820	16×31.5	0.021	0.063	2,850	EKZE630E□□821MLN3S		
	470	8×20	0.041	0.13	1,250	EKZE250E□□471MH20D	820	18×25	0.024	0.072	2,800	EKZE630E□□821MM25S		
	470	10×16	0.038	0.12	1,430	EKZE250E□□471MJ16S	1,000	16×35.5	0.019	0.057	2,900	EKZE630E□□102MLP1S		
	680	10×20	0.023	0.069	1,820	EKZE250E□□681MJ20S	1,200	16×40	0.018	0.054	3,400	EKZE630E□□122ML40S		

□ □ : Enter the appropriate lead forming or taping code.

◆STANDARD RATINGS

WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA <sub>rms</sub> / 105°C, 100kHz)	Part No.	WV (V <sub>dc</sub> )	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz)		Rated ripple current (mA <sub>rms</sub> / 105°C, 100kHz)	Part No.
			20°C	-10°C						20°C	-10°C		
63	1,200	18×31.5	0.020	0.060	3,300	EKZE630E□□122MMN3S	100	6.8	5×11	1.4	5.6	125	EKZE101E□□6R8ME11D
	1,500	18×35.5	0.018	0.054	3,400	EKZE630E□□152MMP1S		15	6.3×11	0.57	2.3	205	EKZE101E□□150MF11D
	1,800	18×40	0.017	0.051	3,500	EKZE630E□□182MM40S		27	8×11.5	0.36	1.4	355	EKZE101E□□270MHB5D
80	68	10×12.5	0.17	0.66	480	EKZE800E□□680MJC5S		39	8×15	0.25	1.0	450	EKZE101E□□390MH15D
	100	10×16	0.11	0.47	600	EKZE800E□□101MJ16S		47	10×12.5	0.17	0.66	480	EKZE101E□□470MJC5S
	120	10×20	0.084	0.34	800	EKZE800E□□121MJ20S		56	8×20	0.19	0.76	565	EKZE101E□□560MH20D
	150	10×25	0.069	0.28	900	EKZE800E□□151MJ25S		68	10×16	0.11	0.47	600	EKZE101E□□680MJ16S
	150	12.5×16	0.11	0.34	750	EKZE800E□□151MK16S		82	10×20	0.084	0.34	800	EKZE101E□□820MJ20S
	220	12.5×20	0.062	0.18	1,100	EKZE800E□□221MK20S		100	12.5×16	0.11	0.34	750	EKZE101E□□101MK16S
	330	12.5×25	0.047	0.14	1,250	EKZE800E□□331MK25S		120	10×25	0.069	0.28	900	EKZE101E□□121MJ25S
	330	16×20	0.048	0.15	1,350	EKZE800E□□331ML20S		150	12.5×20	0.062	0.18	1,100	EKZE101E□□151MK20S
	390	12.5×30	0.042	0.13	1,500	EKZE800E□□391MK30S		220	12.5×25	0.042	0.14	1,250	EKZE101E□□221MK25S
	470	12.5×35	0.036	0.11	1,650	EKZE800E□□471MK35S		220	16×20	0.048	0.15	1,350	EKZE101E□□221ML20S
	470	16×25	0.038	0.12	1,700	EKZE800E□□471ML25S		270	12.5×30	0.042	0.13	1,500	EKZE101E□□271MK30S
	470	18×20	0.045	0.14	1,500	EKZE800E□□471MM20S		330	12.5×35	0.036	0.11	1,650	EKZE101E□□331MK35S
	560	12.5×40	0.032	0.095	1,800	EKZE800E□□561MK40S		330	16×25	0.038	0.12	1,700	EKZE101E□□331ML25S
	680	16×31.5	0.032	0.095	1,850	EKZE800E□□681MLN3S		330	18×20	0.045	0.14	1,500	EKZE101E□□331MM20S
	680	18×25	0.036	0.11	1,750	EKZE800E□□681MM25S		390	12.5×40	0.032	0.095	1,800	EKZE101E□□391MK40S
	820	16×35.5	0.029	0.086	2,000	EKZE800E□□821MLP1S		470	16×31.5	0.032	0.095	1,850	EKZE101E□□471MLN3S
	820	18×31.5	0.030	0.090	1,900	EKZE800E□□821MMN3S		470	18×25	0.036	0.11	1,750	EKZE101E□□471MM25S
	1,000	16×40	0.027	0.081	2,200	EKZE800E□□102ML40S		560	16×35.5	0.029	0.086	2,000	EKZE101E□□561MLP1S
	1,000	18×35.5	0.027	0.081	2,200	EKZE800E□□102MMP1S		560	18×31.5	0.030	0.090	1,900	EKZE101E□□561MMN3S
	1,200	18×40	0.026	0.077	2,700	EKZE800E□□122MM40S		680	16×40	0.027	0.081	2,200	EKZE101E□□681ML40S
						680		18×35.5	0.027	0.081	2,200	EKZE101E□□681MMP1S	
						820		18×40	0.026	0.077	2,700	EKZE101E□□821MM40S	

□ □ : Enter the appropriate lead forming or taping code.

◆RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

7L

Capacitance(μF)	Frequency(Hz)	120	1k	10k	100k
10 to 33		0.42	0.70	0.90	1.00
39 to 220		0.50	0.73	0.92	1.00

11L to 40L

Capacitance(μF)	Frequency(Hz)	120	1k	10k	100k
6.8 to 180		0.40	0.75	0.90	1.00
220 to 560		0.50	0.85	0.94	1.00
680 to 1,800		0.60	0.87	0.95	1.00
2,200 to 3,900		0.75	0.90	0.95	1.00
4,700 to		0.85	0.95	0.98	1.00

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.