

# KZE Series

- Newly innovative electrolyte is employed to minimize impedance
- Endurance with ripple current: 2,000 to 5,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant



## SPECIFICATIONS

Items	Characteristics									
Category	-40 to +105°C									
Temperature Range	-40 to +105°C									
Rated Voltage Range	6.3 to 100V <sub>dc</sub>									
Capacitance Tolerance	±20% (M) (at 20°C, 120Hz)									
Leakage Current	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)									
Dissipation Factor (tan δ)	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)									
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25°C) / Z (+20°C)	2max.								
	Z (-40°C) / Z (+20°C)	3max.								
Endurance	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	φ 5 & φ 6.3 : 2,000hours	φ 8 : 3,000hours	φ 10 : 4,000hours	φ 12.5 to φ 18 : 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								
Shelf Life	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	0.5	0.5	0.6	0.6	0.8
F	2.0	2.5	3.5	5.0	7.5
φD'	φ D+0.5max.				
L'	L+1.5max.				

## 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 rms/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 rms/105°C, 100kHz)	Part No.	
			20°C	-10°C						20°C	-10°C			
6.3	150	5×11	0.30	1.0	250	EKZE6R3E□□151ME11D	35	270	8×20	0.041	0.13	1,250	EKZE350E□□271MH20D	
	330	6.3×11	0.13	0.41	405	EKZE6R3E□□331MF11D		330	10×16	0.038	0.12	1,430	EKZE350E□□331MJ16S	
	560	8×11.5	0.072	0.22	760	EKZE6R3E□□561MHB5D		470	10×20	0.023	0.069	1,820	EKZE350E□□471MJ20S	
	820	8×15	0.056	0.17	995	EKZE6R3E□□821MH15D		560	10×25	0.022	0.066	2,150	EKZE350E□□561MJ25S	
	1,000	10×12.5	0.053	0.16	1,030	EKZE6R3E□□102MJC5S		680	12.5×20	0.021	0.053	2,360	EKZE350E□□681MK20S	
	1,200	8×20	0.041	0.13	1,250	EKZE6R3E□□122MH20D		1,000	12.5×25	0.018	0.045	2,770	EKZE350E□□102MK25S	
	1,200	10×16	0.038	0.12	1,430	EKZE6R3E□□122MJ16S		1,200	12.5×30	0.016	0.041	3,290	EKZE350E□□122MK30S	
	1,500	10×20	0.023	0.069	1,820	EKZE6R3E□□152MJ20S		1,200	16×20	0.018	0.045	3,140	EKZE350E□□122ML20S	
	2,200	10×25	0.022	0.066	2,150	EKZE6R3E□□222MJ25S		1,500	12.5×35	0.015	0.039	3,400	EKZE350E□□152MK35S	
	3,300	12.5×20	0.021	0.053	2,360	EKZE6R3E□□332MK20S		1,800	16×25	0.016	0.043	3,460	EKZE350E□□182ML25S	
	3,900	12.5×25	0.018	0.045	2,770	EKZE6R3E□□392MK25S		50	22	5×11	0.34	1.18	238	EKZE500E□□220ME11D
	4,700	12.5×30	0.016	0.041	3,290	EKZE6R3E□□472MJ20S			56	6.3×11	0.14	0.50	385	EKZE500E□□560MF11D
	5,600	12.5×35	0.015	0.039	3,400	EKZE6R3E□□562MK35S			100	8×11.5	0.074	0.22	724	EKZE500E□□101MHB5D
	5,600	16×20	0.018	0.045	3,140	EKZE6R3E□□562ML20S			120	8×15	0.061	0.18	950	EKZE500E□□121MH15D
6,800	16×25	0.016	0.043	3,460	EKZE6R3E□□682ML25S	150	10×12.5		0.061	0.18	979	EKZE500E□□151MJC5S		
100	5×11	0.30	1.0	250	EKZE100E□□101ME11D	180	8×20		0.046	0.14	1,190	EKZE500E□□181MH20D		
220	6.3×11	0.13	0.41	405	EKZE100E□□221MF11D	220	10×16		0.042	0.12	1,370	EKZE500E□□221MJ16S		
470	8×11.5	0.072	0.22	760	EKZE100E□□471MHB5D	270	10×20		0.030	0.090	1,580	EKZE500E□□271MJ20S		
680	8×15	0.056	0.17	995	EKZE100E□□681MH15D	330	10×25		0.028	0.085	1,870	EKZE500E□□331MJ25S		
680	10×12.5	0.053	0.16	1,030	EKZE100E□□681MJC5S	470	12.5×20		0.027	0.068	2,050	EKZE500E□□471MK20S		
1,000	8×20	0.041	0.13	1,250	EKZE100E□□102MH20D	560	12.5×25		0.023	0.059	2,410	EKZE500E□□561MK25S		
1,000	10×16	0.038	0.12	1,430	EKZE100E□□102MJ16S	680	12.5×30		0.021	0.052	2,860	EKZE500E□□681MK30S		
1,200	10×20	0.023	0.069	1,820	EKZE100E□□122MJ20S	820	12.5×35		0.019	0.051	2,960	EKZE500E□□821MK35S		
1,500	10×25	0.022	0.066	2,150	EKZE100E□□152MJ25S	820	16×20		0.023	0.059	2,730	EKZE500E□□821ML20S		
2,200	12.5×20	0.021	0.053	2,360	EKZE100E□□222MK20S	1,000	16×25	0.021	0.056	3,010	EKZE500E□□102ML25S			
3,300	12.5×25	0.018	0.045	2,770	EKZE100E□□332MK25S	63	15	5×11	0.88	3.5	165	EKZE630E□□150ME11D		
3,900	12.5×30	0.016	0.041	3,290	EKZE100E□□392MK30S		33	6.3×11	0.35	1.4	265	EKZE630E□□330MF11D		
3,900	16×20	0.018	0.045	3,140	EKZE100E□□392ML20S		56	8×11.5	0.22	0.88	500	EKZE630E□□560MHB5D		
4,700	12.5×35	0.015	0.039	3,400	EKZE100E□□472MK35S		82	8×15	0.16	0.64	665	EKZE630E□□820MH15D		
5,600	16×25	0.016	0.043	3,460	EKZE100E□□562ML25S		82	10×12.5	0.11	0.44	690	EKZE630E□□820MJC5S		
56	5×11	0.30	1.0	250	EKZE160E□□560ME11D		120	8×20	0.12	0.48	820	EKZE630E□□121MH20D		
120	6.3×11	0.13	0.41	405	EKZE160E□□121MF11D		120	10×16	0.076	0.31	950	EKZE630E□□121MJ16S		
330	8×11.5	0.072	0.22	760	EKZE160E□□331MHB5D		180	10×20	0.056	0.23	1,150	EKZE630E□□181MJ20S		
470	8×15	0.056	0.17	995	EKZE160E□□471MH15D		180	12.5×16	0.072	0.29	1,150	EKZE630E□□181MK16S		
470	10×12.5	0.053	0.16	1,030	EKZE160E□□471MJC5S		220	10×25	0.046	0.19	1,350	EKZE630E□□221MJ25S		
680	8×20	0.041	0.13	1,250	EKZE160E□□681MH20D		270	12.5×20	0.041	0.13	1,500	EKZE630E□□271MK20S		
680	10×16	0.038	0.12	1,430	EKZE160E□□681MJ16S		390	12.5×25	0.031	0.093	1,900	EKZE630E□□391MK25S		
1,000	10×20	0.023	0.069	1,820	EKZE160E□□102MJ20S		470	12.5×30	0.028	0.084	2,300	EKZE630E□□471MK30S		
1,200	10×25	0.022	0.066	2,150	EKZE160E□□122MJ25S		470	16×20	0.032	0.096	2,000	EKZE630E□□471ML20S		
1,500	12.5×20	0.021	0.053	2,360	EKZE160E□□152MK20S	560	12.5×35	0.024	0.072	2,500	EKZE630E□□561MK35S			
2,200	12.5×25	0.018	0.045	2,770	EKZE160E□□222MK25S	680	12.5×40	0.021	0.063	2,800	EKZE630E□□681MK40S			
2,700	12.5×30	0.016	0.041	3,290	EKZE160E□□272MK30S	680	16×25	0.025	0.075	2,600	EKZE630E□□681ML25S			
2,700	16×20	0.018	0.045	3,140	EKZE160E□□272ML20S	680	18×20	0.030	0.090	2,500	EKZE630E□□681MM20S			
3,300	12.5×35	0.015	0.039	3,400	EKZE160E□□332MK35S	820	16×31.5	0.021	0.063	2,850	EKZE630E□□821MLN3S			
3,900	16×25	0.016	0.043	3,460	EKZE160E□□392ML25S	820	18×25	0.024	0.072	2,800	EKZE630E□□821MM25S			
25	47	5×11	0.30	1.0	250	EKZE250E□□470ME11D	1,000	16×35.5	0.019	0.057	2,900	EKZE630E□□102MLP1S		
	100	6.3×11	0.13	0.41	405	EKZE250E□□101MF11D	1,200	16×40	0.018	0.054	3,400	EKZE630E□□122ML40S		
	220	8×11.5	0.072	0.22	760	EKZE250E□□221MHB5D	1,200	18×31.5	0.020	0.060	3,300	EKZE630E□□122MMN3S		
	330	8×15	0.056	0.17	995	EKZE250E□□331MH15D	1,500	18×35.5	0.018	0.054	3,400	EKZE630E□□152MMP1S		
	330	10×12.5	0.053	0.16	1,030	EKZE250E□□331MJC5S	1,800	18×40	0.017	0.051	3,500	EKZE630E□□182MM40S		
	470	8×20	0.041	0.13	1,250	EKZE250E□□471MH20D	80	68	10×12.5	0.17	0.66	480	EKZE800E□□680MJC5S	
	470	10×16	0.038	0.12	1,430	EKZE250E□□471MJ16S		100	10×16	0.11	0.47	600	EKZE800E□□101MJ16S	
	680	10×20	0.023	0.069	1,820	EKZE250E□□681MJ20S		120	10×20	0.084	0.34	800	EKZE800E□□121MJ20S	
	820	10×25	0.022	0.066	2,150	EKZE250E□□821MJ25S		150	10×25	0.069	0.28	900	EKZE800E□□151MJ25S	
	1,000	12.5×20	0.021	0.053	2,360	EKZE250E□□102MK20S		150	12.5×16	0.11	0.34	750	EKZE800E□□151MK16S	
	1,500	12.5×25	0.018	0.045	2,770	EKZE250E□□152MK25S		220	12.5×20	0.062	0.18	1,100	EKZE800E□□221MK20S	
	1,800	12.5×30	0.016	0.041	3,290	EKZE250E□□182MK30S		330	12.5×25	0.047	0.14	1,250	EKZE800E□□331MK25S	
	1,800	16×20	0.018	0.045	3,140	EKZE250E□□182ML20S		330	16×20	0.048	0.15	1,350	EKZE800E□□331ML20S	
	2,200	12.5×35	0.015	0.039	3,400	EKZE250E□□222MK35S		390	12.5×30	0.042	0.13	1,500	EKZE800E□□391MK30S	
2,700	16×25	0.016	0.043	3,460	EKZE250E□□272ML25S	470		12.5×35	0.036	0.11	1,650	EKZE800E□□471MK35S		
35	33	5×11	0.30	1.0	250	EKZE350E□□330ME11D		470	16×25	0.038	0.12	1,700	EKZE800E□□471ML25S	
	56	6.3×11	0.13	0.41	405	EKZE350E□□560MF11D		470	18×20	0.045	0.14	1,500	EKZE800E□□471MM20S	
	150	8×11.5	0.072	0.22	760	EKZE350E□□151MHB5D		560	12.5×40	0.032	0.095	1,800	EKZE800E□□561MK40S	
	220	8×15	0.056	0.17	995	EKZE350E□□221MH15D		680	16×31.5	0.032	0.095	1,850	EKZE800E□□681MLN3S	
	220	10×12.5	0.053	0.16	1,030	EKZE350E□□221MJC5S	680	18×25	0.036	0.11	1,750	EKZE800E□□681MM25S		

□ □ : 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		
80	820	16×35.5	0.029	0.086	2,000	EKZE800E□□821MLP1S	100	150	12.5×20	0.062	0.18	1,100	EKZE101E□□151MK20S
	820	18×31.5	0.030	0.090	1,900	EKZE800E□□821MMN3S		220	12.5×25	0.047	0.14	1,250	EKZE101E□□221MK25S
	1,000	16×40	0.027	0.081	2,200	EKZE800E□□102ML40S		220	16×20	0.048	0.15	1,350	EKZE101E□□221ML20S
	1,000	18×35.5	0.027	0.081	2,200	EKZE800E□□102MMP1S		270	12.5×30	0.042	0.13	1,500	EKZE101E□□271MK30S
	1,200	18×40	0.026	0.077	2,700	EKZE800E□□122MM40S		330	12.5×35	0.036	0.11	1,650	EKZE101E□□331MK35S
100	6.8	5×11	1.4	5.6	125	EKZE101E□□6R8ME11D		330	16×25	0.038	0.12	1,700	EKZE101E□□331ML25S
	15	6.3×11	0.57	2.3	205	EKZE101E□□150MF11D		330	18×20	0.045	0.14	1,500	EKZE101E□□331MM20S
	27	8×11.5	0.36	1.4	355	EKZE101E□□270MHB5D		390	12.5×40	0.032	0.095	1,800	EKZE101E□□391MK40S
	39	8×15	0.25	1.0	450	EKZE101E□□390MH15D		470	16×31.5	0.032	0.095	1,850	EKZE101E□□471MLN3S
	47	10×12.5	0.17	0.66	480	EKZE101E□□470MJC5S		470	18×25	0.036	0.11	1,750	EKZE101E□□471MM25S
	56	8×20	0.19	0.76	565	EKZE101E□□560MH20D		560	16×35.5	0.029	0.086	2,000	EKZE101E□□561MLP1S
	68	10×16	0.11	0.47	600	EKZE101E□□680MJ16S		560	18×31.5	0.030	0.090	1,900	EKZE101E□□561MMN3S
	82	10×20	0.084	0.34	800	EKZE101E□□820MJ20S		680	16×40	0.027	0.081	2,200	EKZE101E□□681ML40S
	100	12.5×16	0.11	0.34	750	EKZE101E□□101MK16S		680	18×35.5	0.027	0.081	2,200	EKZE101E□□681MMP1S
	120	10×25	0.069	0.28	900	EKZE101E□□121MJ25S		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

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.