

**KZN** Upgrade!  
Series

- Adoption of innovative high stability electrolyte
- High ripple current and long endurance
- Rated voltage range : 6.3 to 100V<sub>dc</sub>, Capacitance range : 8.2 to 22,000μF
- Endurance with ripple current : 6,000 to 10,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant

KZN

Higher ripple  
KZM

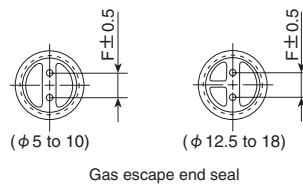
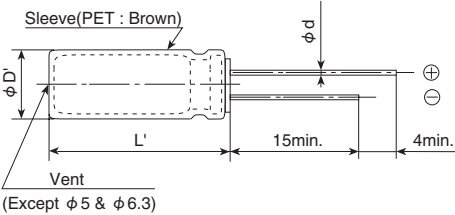


◆ SPECIFICATIONS

Items	Characteristics	
<b>Category 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	Case size φ 5& φ 6.3 φ 8×11.5L φ 10×12.5L φ 8×15L, 20L φ 10×16L, 20L, 25L φ 12.5 to φ 18
		6.3V <sub>dc</sub> 6,000 hours 8,000 hours 9,000 hours 9,000 hours 10,000 hours
		10 to 50V <sub>dc</sub> 7,000 hours 9,000 hours 9,000 hours 10,000 hours 10,000 hours
		63 to 100V <sub>dc</sub> 6,000 hours 8,000 hours 9,000 hours 9,000 hours 10,000 hours
	Capacitance change	≤ ±25% of the initial value (6.3, 10V <sub>dc</sub> : ≤ ±30%)
	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 (6.3, 10V <sub>dc</sub> : ≤ ±30%)
	D.F. (tan δ)	≤200% of the initial specified value
	Leakage current	≤The initial specified value

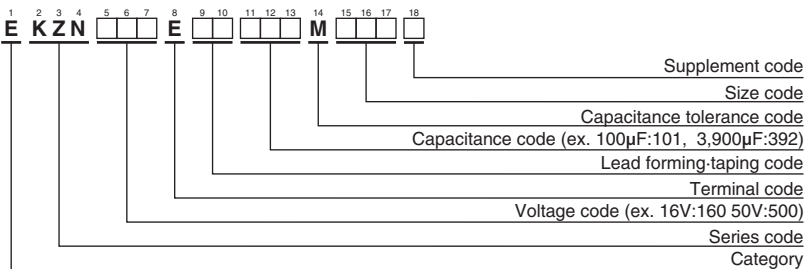
◆ DIMENSIONS [mm]

● Terminal Code : E



φ D	5	6.3	8	10	12.5	16	18
φ d	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
D'	φ D + 0.5max.						
L'	L + 1.5max.						

◆ PART NUMBERING SYSTEM





◆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		
50	27	5×11	0.40	1.3	450	EKZN500E□□270ME11D	80	12	5×11	0.72	3.2	235	EKZN800E□□120ME11D
	56	6.3×11	0.18	0.54	700	EKZN500E□□560MF11D		27	6.3×11	0.34	1.5	390	EKZN800E□□270MF11D
	100	8×11.5	0.085	0.26	1,200	EKZN500E□□101MHB5D		47	8×11.5	0.20	0.90	650	EKZN800E□□470MHB5D
	120	8×15	0.065	0.20	1,600	EKZN500E□□121MH15D		68	8×15	0.14	0.63	820	EKZN800E□□680MH15D
	150	10×12.5	0.073	0.22	1,280	EKZN500E□□151MJC5S		82	8×20	0.12	0.54	1,090	EKZN800E□□820MH20D
	180	8×20	0.049	0.16	1,960	EKZN500E□□181MH20D		82	10×12.5	0.14	0.56	860	EKZN800E□□820MJC5S
	220	10×16	0.053	0.16	1,650	EKZN500E□□221MJ16S		120	10×16	0.090	0.36	1,150	EKZN800E□□121MJ16S
	330	10×20	0.038	0.12	2,060	EKZN500E□□331MJ20S		180	10×20	0.068	0.28	1,570	EKZN800E□□181MJ20S
	330	12.5×16	0.045	0.14	2,160	EKZN500E□□331MK16S		180	12.5×16	0.090	0.27	1,430	EKZN800E□□181MK16S
	390	10×25	0.032	0.10	2,420	EKZN500E□□391MJ25S		220	10×25	0.055	0.22	1,780	EKZN800E□□221MJ25S
	470	12.5×20	0.032	0.10	2,300	EKZN500E□□471MK20S		270	12.5×20	0.048	0.15	1,800	EKZN800E□□271MK20S
	680	12.5×25	0.025	0.080	2,800	EKZN500E□□681MK25S		390	12.5×25	0.038	0.12	2,210	EKZN800E□□391MK25S
	820	12.5×30	0.023	0.074	3,370	EKZN500E□□821MK30S		470	12.5×30	0.033	0.11	2,520	EKZN800E□□471MK30S
	820	16×20	0.026	0.084	3,070	EKZN500E□□821ML20S		470	16×20	0.036	0.12	2,150	EKZN800E□□471ML20S
	1,000	12.5×35	0.021	0.067	3,810	EKZN500E□□102MK35S		560	12.5×35	0.026	0.078	2,860	EKZN800E□□561MK35S
	1,200	16×25	0.022	0.070	3,510	EKZN500E□□122ML25S		680	16×25	0.028	0.084	2,620	EKZN800E□□681ML25S
	1,200	18×20	0.025	0.075	3,120	EKZN500E□□122MM20S		680	18×20	0.032	0.096	2,280	EKZN800E□□681MM20S
	1,500	16×31.5	0.019	0.057	4,030	EKZN500E□□152MLN3S		820	16×31.5	0.022	0.066	2,900	EKZN800E□□821MLN3S
	1,500	18×25	0.021	0.063	3,530	EKZN500E□□152MM25S		820	18×25	0.027	0.081	2,750	EKZN800E□□821MM25S
	1,800	16×35.5	0.016	0.048	4,220	EKZN500E□□182MLP1S		1,000	16×35.5	0.020	0.060	3,150	EKZN800E□□102MLP1S
2,200	16×40	0.014	0.042	4,500	EKZN500E□□222ML40S	1,200	16×40	0.018	0.054	3,710	EKZN800E□□122ML40S		
2,200	18×31.5	0.016	0.048	4,080	EKZN500E□□222MMN3S	1,200	18×31.5	0.020	0.060	3,150	EKZN800E□□122MMN3S		
2,700	18×35.5	0.013	0.039	4,270	EKZN500E□□272MMP1S	1,500	18×35.5	0.018	0.054	3,710	EKZN800E□□152MMP1S		
3,300	18×40	0.012	0.036	4,850	EKZN500E□□332MM40S	1,800	18×40	0.017	0.051	4,060	EKZN800E□□182MM40S		
63	18	5×11	0.52	2.3	240	EKZN630E□□180ME11D	100	8.2	5×11	0.72	3.2	235	EKZN101E□□8R2ME11D
	39	6.3×11	0.24	1.1	420	EKZN630E□□390MF11D		18	6.3×11	0.34	1.5	390	EKZN101E□□180MF11D
	68	8×11.5	0.15	0.68	720	EKZN630E□□680MHB5D		33	8×11.5	0.20	0.90	650	EKZN101E□□330MHB5D
	100	8×15	0.10	0.45	990	EKZN630E□□101MH15D		47	8×15	0.14	0.63	820	EKZN101E□□470MH15D
	120	8×20	0.077	0.35	1,200	EKZN630E□□121MH20D		56	8×20	0.12	0.54	1,090	EKZN101E□□560MH20D
	120	10×12.5	0.090	0.36	990	EKZN630E□□121MJC5S		56	10×12.5	0.14	0.56	860	EKZN101E□□560MJC5S
	180	10×16	0.061	0.25	1,200	EKZN630E□□181MJ16S		82	10×16	0.090	0.36	1,150	EKZN101E□□820MJ16S
	270	10×20	0.045	0.18	1,570	EKZN630E□□271MJ20S		100	10×20	0.068	0.28	1,570	EKZN101E□□101MJ20S
	270	12.5×16	0.058	0.18	1,570	EKZN630E□□271MK16S		120	12.5×16	0.090	0.27	1,430	EKZN101E□□121MK16S
	330	10×25	0.037	0.12	1,990	EKZN630E□□331MJ25S		150	10×25	0.055	0.22	1,780	EKZN101E□□151MJ25S
	390	12.5×20	0.033	0.10	1,990	EKZN630E□□391MK20S		180	12.5×20	0.048	0.15	1,800	EKZN101E□□181MK20S
	560	12.5×25	0.026	0.080	2,460	EKZN630E□□561MK25S		220	12.5×25	0.038	0.12	2,210	EKZN101E□□221MK25S
	680	12.5×30	0.024	0.075	2,760	EKZN630E□□681MK30S		270	12.5×30	0.033	0.11	2,520	EKZN101E□□271MK30S
	680	16×20	0.027	0.085	2,380	EKZN630E□□681ML20S		270	16×20	0.036	0.12	2,150	EKZN101E□□271ML20S
	820	12.5×35	0.022	0.068	3,040	EKZN630E□□821MK35S		390	12.5×35	0.026	0.078	2,860	EKZN101E□□391MK35S
	820	18×20	0.026	0.078	2,530	EKZN630E□□821MM20S		390	16×25	0.028	0.084	2,620	EKZN101E□□391ML25S
	1,000	16×25	0.024	0.072	2,890	EKZN630E□□102ML25S		390	18×20	0.032	0.096	2,280	EKZN101E□□391MM20S
	1,200	16×31.5	0.020	0.060	3,280	EKZN630E□□122MLN3S		470	16×31.5	0.022	0.066	2,900	EKZN101E□□471MLN3S
	1,200	18×25	0.022	0.066	2,930	EKZN630E□□122MM25S		560	16×35.5	0.020	0.060	3,150	EKZN101E□□561MLP1S
	1,500	16×35.5	0.018	0.054	3,440	EKZN630E□□152MLP1S		560	18×25	0.027	0.081	2,750	EKZN101E□□561MM25S
1,500	18×31.5	0.018	0.054	3,380	EKZN630E□□152MMN3S	680	16×40	0.018	0.054	3,710	EKZN101E□□681ML40S		
1,800	16×40	0.016	0.048	3,690	EKZN630E□□182ML40S	680	18×31.5	0.020	0.060	3,150	EKZN101E□□681MMN3S		
1,800	18×35.5	0.017	0.051	3,550	EKZN630E□□182MMP1S	820	18×35.5	0.018	0.054	3,710	EKZN101E□□821MMP1S		
2,200	18×40	0.015	0.045	3,930	EKZN630E□□222MM40S	1,000	18×40	0.017	0.051	4,060	EKZN101E□□102MM40S		

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

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

Capacitance(μF)	Frequency(Hz)			
	120	1k	10k	100k
8.2 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 22,000	0.85	0.95	0.98	1.00

Note : 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.