KZN Series

- Adoption of innovative high stability electrolyte
- High ripple current and long endurance
- Rated voltage range : 6.3 to 100Vdc, Capacitance range : 8.2 to 22,000μF
- Endurance with ripple current : 6,000 to 10,000 hours at 105℃
- Non solvent resistant type
- RoHS2 Compliant

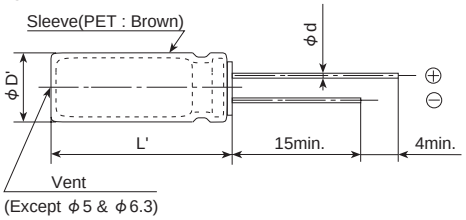
KZN
↑ Higher ripple
KZM

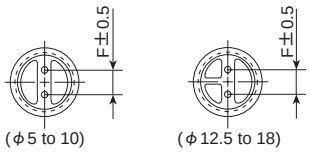
◆SPECIFICATIONS

Items	Characteristics									
Category Temperature Range	-40 to +105℃									
Rated Voltage Range	6.3 to 100Vdc									
Capacitance Tolerance	±20% (M) (at 20℃, 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℃ after 2 minutes)									
Dissipation Factor (tan δ)	Rated voltage (Vdc)	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℃, 120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Z (-25℃) / Z (+20℃)	2max.								
	Z (-40℃) / Z (+20℃)	3max.								
	(at 120Hz)									
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ 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℃.									
	Time	Case size	φ5&φ6.3	φ8×11.5L	φ10×12.5L	φ8×15L, 20L	φ10×16L, 20L, 25L φ12.5 to φ18			
		6.3Vdc	6,000 hours	8,000 hours	9,000 hours	9,000 hours	10,000 hours			
		10 to 50Vdc	7,000 hours	9,000 hours	9,000 hours	10,000 hours	10,000 hours			
		63 to 100Vdc	6,000 hours	8,000 hours	9,000 hours	9,000 hours	10,000 hours			
	Capacitance change	≦±25% of the initial value (6.3, 10Vdc : ≦±30%)								
	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℃ after exposing them for 500 hours at 105℃ 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, 10Vdc : ≦±30%)								
	D.F. (tan δ)	≦200% of the initial specified value								
	Leakage current	≦The initial specified value								

◆DIMENSIONS [mm]

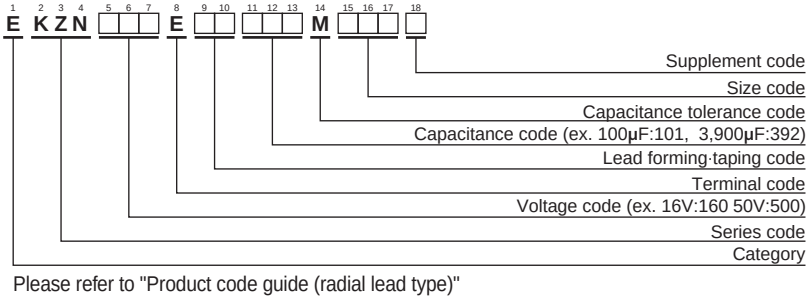
●Terminal Code : E





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

◆PART NUMBERING SYSTEM



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

KZN Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz) 20℃	Impedance (Ω max./100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
6.3	220	5×11	0.38	1.2	345	EKZN6R3E□□221ME11D
	470	6.3×11	0.17	0.51	540	EKZN6R3E□□471MF11D
	820	8×11.5	0.075	0.23	945	EKZN6R3E□□821MHB5D
	1,200	8×15	0.059	0.18	1,250	EKZN6R3E□□122MH15D
	1,200	10×12.5	0.053	0.16	1,330	EKZN6R3E□□122MJC5S
	1,500	8×20	0.041	0.13	1,500	EKZN6R3E□□152MH20D
	1,800	10×16	0.038	0.12	1,760	EKZN6R3E□□182MJ16S
	2,700	10×20	0.028	0.084	1,960	EKZN6R3E□□272MJ20S
	2,700	12.5×16	0.035	0.11	1,900	EKZN6R3E□□272MK16S
	3,300	10×25	0.026	0.072	2,250	EKZN6R3E□□332MJ25S
	3,900	12.5×20	0.025	0.075	2,480	EKZN6R3E□□392MK20S
	5,600	12.5×25	0.019	0.057	2,900	EKZN6R3E□□562MK25S
	6,800	12.5×30	0.018	0.054	3,450	EKZN6R3E□□682MK30S
	6,800	16×20	0.021	0.063	3,250	EKZN6R3E□□682ML20S
	8,200	12.5×35	0.016	0.048	3,570	EKZN6R3E□□822MK35S
	8,200	18×20	0.020	0.060	3,450	EKZN6R3E□□822MM20S
	10,000	16×25	0.017	0.051	3,630	EKZN6R3E□□103ML25S
	12,000	16×31.5	0.016	0.048	4,100	EKZN6R3E□□123MLN3S
	12,000	18×25	0.016	0.048	3,880	EKZN6R3E□□123MM25S
	15,000	16×35.5	0.014	0.042	4,280	EKZN6R3E□□153MLP1S
	15,000	18×31.5	0.014	0.042	4,190	EKZN6R3E□□153MMN3S
	18,000	16×40	0.013	0.039	4,580	EKZN6R3E□□183ML40S
	18,000	18×35.5	0.012	0.036	4,380	EKZN6R3E□□183MMP1S
	22,000	18×40	0.011	0.033	4,960	EKZN6R3E□□223MM40S
10	150	5×11	0.38	1.2	450	EKZN100E□□151ME11D
	330	6.3×11	0.17	0.51	700	EKZN100E□□331MF11D
	560	8×11.5	0.075	0.23	1,200	EKZN100E□□561MHB5D
	820	8×15	0.059	0.18	1,600	EKZN100E□□821MH15D
	1,000	8×20	0.041	0.13	1,960	EKZN100E□□102MH20D
	1,000	10×12.5	0.053	0.16	1,700	EKZN100E□□102MJC5S
	1,200	10×16	0.038	0.12	2,000	EKZN100E□□122MJ16S
	1,800	10×20	0.028	0.084	2,500	EKZN100E□□182MJ20S
	1,800	12.5×16	0.035	0.11	2,400	EKZN100E□□182MK16S
	2,200	10×25	0.026	0.072	2,900	EKZN100E□□222MJ25S
	2,700	12.5×20	0.025	0.075	2,600	EKZN100E□□272MK20S
	3,900	12.5×25	0.019	0.057	3,200	EKZN100E□□392MK25S
	4,700	12.5×30	0.018	0.054	3,660	EKZN100E□□472MK30S
	4,700	16×20	0.021	0.063	3,330	EKZN100E□□472ML20S
	5,600	12.5×35	0.016	0.048	4,120	EKZN100E□□562MK35S
	5,600	18×20	0.020	0.060	3,450	EKZN100E□□562MM20S
	6,800	16×25	0.017	0.051	3,810	EKZN100E□□682ML25S
	8,200	16×31.5	0.016	0.048	4,100	EKZN100E□□822MLN3S
	8,200	18×25	0.016	0.048	3,880	EKZN100E□□822MM25S
	10,000	16×35.5	0.014	0.042	4,280	EKZN100E□□103MLP1S
	10,000	18×31.5	0.014	0.042	4,190	EKZN100E□□103MMN3S
	12,000	16×40	0.013	0.039	4,580	EKZN100E□□123ML40S
	12,000	18×35.5	0.012	0.036	4,380	EKZN100E□□123MMP1S
	15,000	18×40	0.011	0.033	4,960	EKZN100E□□153MM40S
16	120	5×11	0.38	1.2	450	EKZN160E□□121ME11D
	270	6.3×11	0.17	0.51	700	EKZN160E□□271MF11D
	470	8×11.5	0.075	0.23	1,200	EKZN160E□□471MHB5D
	680	8×15	0.059	0.18	1,600	EKZN160E□□681MH15D
	680	10×12.5	0.053	0.16	1,700	EKZN160E□□681MJC5S
	820	8×20	0.041	0.13	1,960	EKZN160E□□821MH20D
	1,000	10×16	0.038	0.12	2,000	EKZN160E□□102MJ16S
	1,500	10×20	0.028	0.084	2,500	EKZN160E□□152MJ20S
	1,500	12.5×16	0.035	0.11	2,400	EKZN160E□□152MK16S
	1,800	10×25	0.026	0.072	2,900	EKZN160E□□182MJ25S
	2,200	12.5×20	0.025	0.075	2,600	EKZN160E□□222MK20S
	2,700	12.5×25	0.019	0.057	3,200	EKZN160E□□272MK25S
16	3,300	12.5×30	0.018	0.054	3,660	EKZN160E□□332MK30S
	3,900	12.5×35	0.016	0.048	4,120	EKZN160E□□392MK35S
	3,900	16×20	0.021	0.063	3,330	EKZN160E□□392ML20S
	4,700	18×20	0.020	0.060	3,450	EKZN160E□□472MM20S
	5,600	16×25	0.017	0.051	3,810	EKZN160E□□562ML25S
	6,800	16×31.5	0.016	0.048	4,100	EKZN160E□□682MLN3S
	6,800	18×25	0.016	0.048	3,880	EKZN160E□□682MM25S
	8,200	16×35.5	0.014	0.042	4,280	EKZN160E□□822MLP1S
	8,200	18×31.5	0.014	0.042	4,190	EKZN160E□□822MMN3S
	10,000	16×40	0.013	0.039	4,580	EKZN160E□□103ML40S
	10,000	18×35.5	0.012	0.036	4,380	EKZN160E□□103MMP1S
	12,000	18×40	0.011	0.033	4,960	EKZN160E□□123MM40S
25	68	5×11	0.38	1.2	450	EKZN250E□□680ME11D
	150	6.3×11	0.17	0.51	700	EKZN250E□□151MF11D
	270	8×11.5	0.075	0.23	1,200	EKZN250E□□271MHB5D
	470	8×15	0.059	0.18	1,600	EKZN250E□□471MH15D
	470	10×12.5	0.053	0.16	1,700	EKZN250E□□471MJC5S
	560	8×20	0.041	0.13	1,960	EKZN250E□□561MH20D
	680	10×16	0.038	0.12	2,000	EKZN250E□□681MJ16S
	820	10×20	0.028	0.084	2,500	EKZN250E□□821MJ20S
	1,000	12.5×16	0.035	0.11	2,400	EKZN250E□□102MK16S
	1,200	10×25	0.026	0.072	2,900	EKZN250E□□122MJ25S
	1,500	12.5×20	0.025	0.075	2,600	EKZN250E□□152MK20S
	1,800	12.5×25	0.019	0.057	3,200	EKZN250E□□182MK25S
	2,200	12.5×30	0.018	0.054	3,660	EKZN250E□□222MK30S
	2,200	16×20	0.021	0.063	3,330	EKZN250E□□222ML20S
	2,700	12.5×35	0.016	0.048	4,120	EKZN250E□□272MK35S
	3,300	16×25	0.017	0.051	3,810	EKZN250E□□332ML25S
	3,300	18×20	0.020	0.060	3,450	EKZN250E□□332MM20S
	4,700	16×31.5	0.016	0.048	4,100	EKZN250E□□472MLN3S
	4,700	18×25	0.016	0.048	3,880	EKZN250E□□472MM25S
	5,600	16×35.5	0.014	0.042	4,280	EKZN250E□□562MLP1S
	5,600	18×31.5	0.014	0.042	4,190	EKZN250E□□562MMN3S
	6,800	16×40	0.013	0.039	4,580	EKZN250E□□682ML40S
	6,800	18×35.5	0.012	0.036	4,380	EKZN250E□□682MMP1S
	8,200	18×40	0.011	0.033	4,960	EKZN250E□□822MM40S
35	47	5×11	0.38	1.2	450	EKZN350E□□470ME11D
	100	6.3×11	0.17	0.51	700	EKZN350E□□101MF11D
	180	8×11.5	0.075	0.23	1,200	EKZN350E□□181MHB5D
	220	8×15	0.059	0.18	1,600	EKZN350E□□221MH15D
	270	10×12.5	0.053	0.16	1,700	EKZN350E□□271MJC5S
	330	8×20	0.041	0.13	1,960	EKZN350E□□331MH20D
	390	10×16	0.038	0.12	2,000	EKZN350E□□391MJ16S
	470	10×20	0.028	0.084	2,500	EKZN350E□□471MJ20S
	560	12.5×16	0.035	0.11	2,400	EKZN350E□□561MK16S
	680	10×25	0.026	0.072	2,900	EKZN350E□□681MJ25S
	820	12.5×20	0.025	0.075	2,600	EKZN350E□□821MK20S
	1,200	12.5×25	0.019	0.057	3,200	EKZN350E□□122MK25S
	1,500	12.5×30	0.018	0.054	3,660	EKZN350E□□152MK30S
	1,500	16×20	0.021	0.063	3,330	EKZN350E□□152ML20S
	1,800	12.5×35	0.016	0.048	4,120	EKZN350E□□182MK35S
	1,800	16×25	0.017	0.051	3,810	EKZN350E□□182ML25S
	1,800	18×20	0.020	0.060	3,450	EKZN350E□□182MM20S
	2,700	16×31.5	0.016	0.048	4,100	EKZN350E□□272MLN3S
	2,700	18×25	0.016	0.048	3,880	EKZN350E□□272MM25S
	3,300	16×35.5	0.014	0.042	4,280	EKZN350E□□332MLP1S
	3,300	18×31.5	0.014	0.042	4,190	EKZN350E□□332MMN3S
	3,900	16×40	0.013	0.039	4,580	EKZN350E□□392ML40S
	3,900	18×35.5	0.012	0.036	4,380	EKZN350E□□392MMP1S
	4,700	18×40	0.011	0.033	4,960	EKZN350E□□472MM40S

□□ : Enter the appropriate lead forming or taping code.
Production of the products shown in [ ] is scheduled to be discontinued.

KZN Series

◆STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz) 20℃	Impedance (Ω max./100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
50	27	5×11	0.40	1.3	450	EKZN500E□□270ME11D
	56	6.3×11	0.18	0.54	700	EKZN500E□□560MF11D
	100	8×11.5	0.085	0.26	1,200	EKZN500E□□101MHB5D
	120	8×15	0.065	0.20	1,600	EKZN500E□□121MH15D
	150	10×12.5	0.073	0.22	1,280	EKZN500E□□151MJC5S
	180	8×20	0.049	0.16	1,960	EKZN500E□□181MH20D
	220	10×16	0.053	0.16	1,650	EKZN500E□□221MJ16S
	330	10×20	0.038	0.12	2,060	EKZN500E□□331MJ20S
	330	12.5×16	0.045	0.14	2,160	EKZN500E□□331MK16S
	390	10×25	0.032	0.10	2,420	EKZN500E□□391MJ25S
	470	12.5×20	0.032	0.10	2,300	EKZN500E□□471MK20S
	680	12.5×25	0.025	0.080	2,800	EKZN500E□□681MK25S
	820	12.5×30	0.023	0.074	3,370	EKZN500E□□821MK30S
	820	16×20	0.026	0.084	3,070	EKZN500E□□821ML20S
	1,000	12.5×35	0.021	0.067	3,810	EKZN500E□□102MK35S
	1,200	16×25	0.022	0.070	3,510	EKZN500E□□122ML25S
	1,200	18×20	0.025	0.075	3,120	EKZN500E□□122MM20S
	1,500	16×31.5	0.019	0.057	4,030	EKZN500E□□152MLN3S
	1,500	18×25	0.021	0.063	3,530	EKZN500E□□152MM25S
	1,800	16×35.5	0.016	0.048	4,220	EKZN500E□□182MLP1S
	2,200	16×40	0.014	0.042	4,500	EKZN500E□□222ML40S
	2,200	18×31.5	0.016	0.048	4,080	EKZN500E□□222MMN3S
	2,700	18×35.5	0.013	0.039	4,270	EKZN500E□□272MMP1S
	3,300	18×40	0.012	0.036	4,850	EKZN500E□□332MM40S
63	18	5×11	0.52	2.3	240	EKZN630E□□180ME11D
	39	6.3×11	0.24	1.1	420	EKZN630E□□390MF11D
	68	8×11.5	0.15	0.68	720	EKZN630E□□680MHB5D
	100	8×15	0.10	0.45	990	EKZN630E□□101MH15D
	120	8×20	0.077	0.35	1,200	EKZN630E□□121MH20D
	120	10×12.5	0.090	0.36	990	EKZN630E□□121MJC5S
	180	10×16	0.061	0.25	1,200	EKZN630E□□181MJ16S
	270	10×20	0.045	0.18	1,570	EKZN630E□□271MJ20S
	270	12.5×16	0.058	0.18	1,570	EKZN630E□□271MK16S
	330	10×25	0.037	0.12	1,990	EKZN630E□□331MJ25S
	390	12.5×20	0.033	0.10	1,990	EKZN630E□□391MK20S
	560	12.5×25	0.026	0.080	2,460	EKZN630E□□561MK25S
	680	12.5×30	0.024	0.075	2,760	EKZN630E□□681MK30S
	680	16×20	0.027	0.085	2,380	EKZN630E□□681ML20S
	820	12.5×35	0.022	0.068	3,040	EKZN630E□□821MK35S
	820	18×20	0.026	0.078	2,530	EKZN630E□□821MM20S
	1,000	16×25	0.024	0.072	2,890	EKZN630E□□102ML25S
	1,200	16×31.5	0.020	0.060	3,280	EKZN630E□□122MLN3S
	1,200	18×25	0.022	0.066	2,930	EKZN630E□□122MM25S
	1,500	16×35.5	0.018	0.054	3,440	EKZN630E□□152MLP1S
	1,500	18×31.5	0.018	0.054	3,380	EKZN630E□□152MMN3S
	1,800	16×40	0.016	0.048	3,690	EKZN630E□□182ML40S
	1,800	18×35.5	0.017	0.051	3,550	EKZN630E□□182MMP1S
	2,200	18×40	0.015	0.045	3,930	EKZN630E□□222MM40S
80	12	5×11	0.72	3.2	235	EKZN800E□□120ME11D
	27	6.3×11	0.34	1.5	390	EKZN800E□□270MF11D
	47	8×11.5	0.20	0.90	650	EKZN800E□□470MHB5D
	68	8×15	0.14	0.63	820	EKZN800E□□680MH15D
	82	8×20	0.12	0.54	1,090	EKZN800E□□820MH20D
	82	10×12.5	0.14	0.56	860	EKZN800E□□820MJC5S
	100	10×12.5	0.14	0.56	860	EKZN800E□□101MJC5S

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ω max./100kHz) 20℃	Impedance (Ω max./100kHz) -10℃	Rated ripple current (mArms/105℃, 100kHz)	Part No.
80	120	10×16	0.090	0.36	1,150	EKZN800E□□121MJ16S
	150	10×16	0.090	0.36	1,150	EKZN800E□□151MJ16S
	180	10×20	0.068	0.28	1,570	EKZN800E□□181MJ20S
	180	12.5×16	0.090	0.27	1,430	EKZN800E□□181MK16S
	220	10×20	0.068	0.28	1,570	EKZN800E□□221MJ20S
	220	10×25	0.055	0.22	1,780	EKZN800E□□221MJ25S
	220	12.5×16	0.090	0.27	1,430	EKZN800E□□221MK16S
	270	10×25	0.055	0.22	1,780	EKZN800E□□271MJ25S
	270	12.5×20	0.048	0.15	1,800	EKZN800E□□271MK20S
	330	12.5×20	0.048	0.15	1,800	EKZN800E□□331MK20S
	390	12.5×25	0.038	0.12	2,210	EKZN800E□□391MK25S
	470	12.5×30	0.033	0.11	2,520	EKZN800E□□471MK30S
	470	16×20	0.036	0.12	2,150	EKZN800E□□471ML20S
	560	12.5×35	0.026	0.078	2,860	EKZN800E□□561MK35S
	680	12.5×40	0.026	0.078	3,150	EKZN800E□□681MK40S
	680	16×25	0.028	0.084	2,620	EKZN800E□□681ML25S
	680	18×20	0.032	0.096	2,280	EKZN800E□□681MM20S
	820	16×31.5	0.022	0.066	2,900	EKZN800E□□821MLN3S
	820	18×25	0.027	0.081	2,750	EKZN800E□□821MM25S
	1,000	18×25	0.027	0.081	2,750	EKZN800E□□102MM25S
	1,000	16×35.5	0.020	0.060	3,150	EKZN800E□□102MLP1S
	1,200	16×40	0.018	0.054	3,710	EKZN800E□□122ML40S
	1,200	18×31.5	0.020	0.060	3,150	EKZN800E□□122MMN3S
	1,500	18×35.5	0.018	0.054	3,710	EKZN800E□□152MMP1S
	1,800	18×40	0.017	0.051	4,060	EKZN800E□□182MM40S
100	8.2	5×11	0.72	3.2	235	EKZN101E□□8R2ME11D
	18	6.3×11	0.34	1.5	390	EKZN101E□□180MF11D
	33	8×11.5	0.20	0.90	650	EKZN101E□□330MHB5D
	47	8×15	0.14	0.63	820	EKZN101E□□470MH15D
	56	8×20	0.12	0.54	1,090	EKZN101E□□560MH20D
	56	10×12.5	0.14	0.56	860	EKZN101E□□560MJC5S
	82	10×16	0.090	0.36	1,150	EKZN101E□□820MJ16S
	100	10×20	0.068	0.28	1,570	EKZN101E□□101MJ20S
	120	10×20	0.068	0.28	1,570	EKZN101E□□121MJ20S
	120	12.5×16	0.090	0.27	1,430	EKZN101E□□121MK16S
	150	10×25	0.055	0.22	1,780	EKZN101E□□151MJ25S
	180	12.5×20	0.048	0.15	1,800	EKZN101E□□181MK20S
	220	12.5×25	0.038	0.12	2,210	EKZN101E□□221MK25S
	270	12.5×30	0.033	0.11	2,520	EKZN101E□□271MK30S
	270	16×20	0.036	0.12	2,150	EKZN101E□□271ML20S
	330	16×20	0.036	0.12	2,150	EKZN101E□□331ML20S
	390	12.5×35	0.026	0.078	2,860	EKZN101E□□391MK35S
	390	16×25	0.028	0.084	2,620	EKZN101E□□391ML25S
	390	18×20	0.032	0.096	2,280	EKZN101E□□391MM20S
	470	12.5×40	0.026	0.078	3,150	EKZN101E□□471MK40S
	470	16×31.5	0.022	0.066	2,900	EKZN101E□□471MLN3S
	560	16×31.5	0.022	0.066	2,900	EKZN101E□□561MLN3S
	560	16×35.5	0.020	0.060	3,150	EKZN101E□□561MLP1S
	560	18×25	0.027	0.081	2,750	EKZN101E□□561MM25S
	680	16×35.5	0.020	0.060	3,150	EKZN101E□□681MLP1S
	680	16×40	0.018	0.054	3,710	EKZN101E□□681ML40S
	680	18×31.5	0.020	0.060	3,150	EKZN101E□□681MMN3S
	820	16×40	0.018	0.054	3,710	EKZN101E□□821ML40S
	820	18×35.5	0.018	0.054	3,710	EKZN101E□□821MMP1S
	1,000	18×40	0.017	0.051	4,060	EKZN101E□□102MM40S

□□ : Enter the appropriate lead forming or taping code.
Production of the products shown in [ ] is scheduled to be discontinued.

KZN Series

◆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

The deterioration of aluminum electrolytic capacitors accelerates their life due to the internal heating produced by ripple current. For details, refer to Section "5-3 Ripple Current Effect on Lifetime" in the catalog, Technical Note.