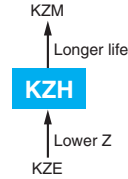


# KZH Series

- Ultra Low impedance for Personal Computers Storage Equipment
- Endurance with ripple current: 5,000 to 6,000 hours at 105°C
- Non solvent resistant type
- RoHS Compliant

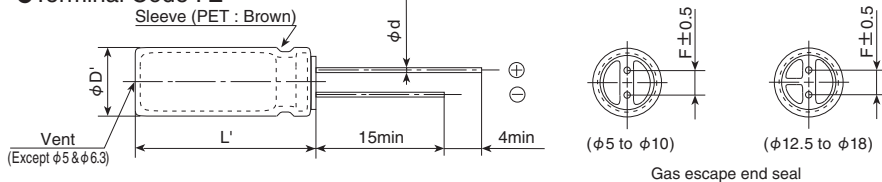


## ◆ SPECIFICATIONS

Items	Characteristics												
<b>Category</b> Temperature Range	-40 to +105°C												
<b>Rated Voltage Range</b>	6.3 to 35V <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 (tanδ)</b>	<table border="1"> <tr> <td>Rated voltage (V<sub>dc</sub>)</td> <td>6.3V</td> <td>10V</td> <td>16V</td> <td>25V</td> <td>35V</td> </tr> <tr> <td>tanδ (Max.)</td> <td>0.22</td> <td>0.19</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> </tr> </table> <p>When nominal capacitance exceeds 1,000µF, add 0.02 to the value above for each 1,000µF increase. (at 20°C, 120Hz)</p>	Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V	tanδ (Max.)	0.22	0.19	0.16	0.14	0.12
Rated voltage (V <sub>dc</sub> )	6.3V	10V	16V	25V	35V								
tanδ (Max.)	0.22	0.19	0.16	0.14	0.12								
<b>Low Temperature Characteristics (Max. Impedance Ratio)</b>	<table border="1"> <tr> <td>Z (-25°C) / Z (+20°C)</td> <td>2max.</td> </tr> <tr> <td>Z (-40°C) / Z (+20°C)</td> <td>3max.</td> </tr> </table> <p>(at 120Hz)</p>	Z (-25°C) / Z (+20°C)	2max.	Z (-40°C) / Z (+20°C)	3max.								
Z (-25°C) / Z (+20°C)	2max.												
Z (-40°C) / Z (+20°C)	3max.												
<b>Endurance</b>	<p>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.</p> <table border="1"> <tr> <td>Time</td> <td>φ5 &amp; φ6.3 : 5,000hours</td> <td>φ8 to φ16 : 6,000hours</td> </tr> <tr> <td>Capacitance change</td> <td colspan="2">≤ ±25% of the initial value (6.3, 10V<sub>dc</sub> : ≤ ±30%)</td> </tr> <tr> <td>D.F. (tanδ)</td> <td colspan="2">≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td colspan="2">≤The initial specified value</td> </tr> </table>	Time	φ5 & φ6.3 : 5,000hours	φ8 to φ16 : 6,000hours	Capacitance change	≤ ±25% of the initial value (6.3, 10V <sub>dc</sub> : ≤ ±30%)		D.F. (tanδ)	≤200% of the initial specified value		Leakage current	≤The initial specified value	
Time	φ5 & φ6.3 : 5,000hours	φ8 to φ16 : 6,000hours											
Capacitance change	≤ ±25% of the initial value (6.3, 10V <sub>dc</sub> : ≤ ±30%)												
D.F. (tanδ)	≤200% of the initial specified value												
Leakage current	≤The initial specified value												
<b>Shelf Life</b>	<p>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.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>≤ ±25% of the initial value (6.3, 10V<sub>dc</sub> : ≤ ±30%)</td> </tr> <tr> <td>D.F. (tanδ)</td> <td>≤200% of the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>≤The initial specified value</td> </tr> </table>	Capacitance change	≤ ±25% of the initial value (6.3, 10V <sub>dc</sub> : ≤ ±30%)	D.F. (tanδ)	≤200% of the initial specified value	Leakage current	≤The initial specified value						
Capacitance change	≤ ±25% of the initial value (6.3, 10V <sub>dc</sub> : ≤ ±30%)												
D.F. (tanδ)	≤200% of the initial specified value												
Leakage current	≤The initial specified value												

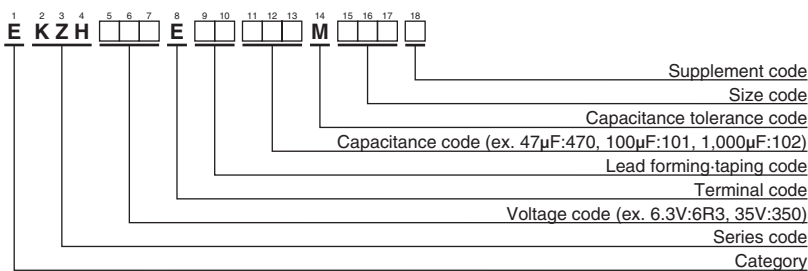
## ◆ DIMENSIONS [mm]

- Terminal Code : E



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

## ◆ PART NUMBERING SYSTEM



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

### ◆ STANDARD RATINGS

WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz)		Rated ripple current (mA rms/105°C, 100kHz)	Part No.	WV (Vdc)	Cap (μF)	Case size φD×L(mm)	Impedance (Ωmax/100kHz)		Rated ripple current (mA rms/105°C, 100kHz)	Part No.	
			20°C	-10°C						20°C	-10°C			
6.3	220	5×11	0.24	0.80	330	EKZH6R3E□□221ME11D	16	1,800	10×25	0.018	0.054	2,250	EKZH160E□□182MJ25S	
	470	6.3×11	0.11	0.35	500	EKZH6R3E□□471MF11D		2,200	12.5×20	0.017	0.043	2,480	EKZH160E□□222MK20S	
	820	8×11.5	0.062	0.19	900	EKZH6R3E□□821MHB5D		2,700	12.5×25	0.015	0.038	2,900	EKZH160E□□272MK25S	
	1,200	8×15	0.048	0.15	1,210	EKZH6R3E□□122MH15D		3,300	12.5×30	0.013	0.033	3,450	EKZH160E□□332MK30S	
	1,200	10×12.5	0.045	0.14	1,240	EKZH6R3E□□122MJC5S		3,300	16×20	0.015	0.038	3,250	EKZH160E□□332ML20S	
	1,500	8×20	0.033	0.11	1,410	EKZH6R3E□□152MH20D		3,900	12.5×35	0.012	0.031	3,570	EKZH160E□□392MK35S	
	1,800	10×16	0.032	0.10	1,650	EKZH6R3E□□182MJ16S		4,700	16×25	0.013	0.035	3,630	EKZH160E□□472ML25S	
	2,200	10×20	0.020	0.060	1,960	EKZH6R3E□□222MJ20S		25	68	5×11	0.24	0.80	330	EKZH250E□□680ME11D
	2,700	10×25	0.018	0.054	2,250	EKZH6R3E□□272MJ25S			150	6.3×11	0.11	0.35	500	EKZH250E□□151MF11D
	3,900	12.5×20	0.017	0.043	2,480	EKZH6R3E□□392MK20S			330	8×11.5	0.062	0.19	900	EKZH250E□□331MHB5D
	4,700	12.5×25	0.015	0.038	2,900	EKZH6R3E□□472MK25S			390	8×15	0.048	0.15	1,210	EKZH250E□□391MH15D
	5,600	12.5×30	0.013	0.033	3,450	EKZH6R3E□□562MK30S			470	10×12.5	0.045	0.14	1,240	EKZH250E□□471MJC5S
	6,800	12.5×35	0.012	0.031	3,570	EKZH6R3E□□682MK35S			560	8×20	0.033	0.11	1,410	EKZH250E□□561MH20D
	6,800	16×20	0.015	0.038	3,250	EKZH6R3E□□682ML20S			680	10×16	0.032	0.10	1,650	EKZH250E□□681MJ16S
	8,200	16×25	0.013	0.035	3,630	EKZH6R3E□□822ML25S			820	10×20	0.020	0.060	1,960	EKZH250E□□821MJ20S
	10	150	5×11	0.24	0.80	330			EKZH100E□□151ME11D	1,000	10×25	0.018	0.054	2,250
330		6.3×11	0.11	0.35	500	EKZH100E□□331MF11D	1,500		12.5×20	0.017	0.043	2,480	EKZH250E□□152MK20S	
680		8×11.5	0.062	0.19	900	EKZH100E□□681MHB5D	1,800		12.5×25	0.015	0.038	2,900	EKZH250E□□182MK25S	
1,000		8×15	0.048	0.15	1,210	EKZH100E□□102MH15D	2,200		12.5×30	0.013	0.033	3,450	EKZH250E□□222MK30S	
1,000		10×12.5	0.045	0.14	1,240	EKZH100E□□102MJC5S	2,200		16×20	0.015	0.038	3,250	EKZH250E□□222ML20S	
1,500		8×20	0.033	0.11	1,410	EKZH100E□□152MH20D	2,700		12.5×35	0.012	0.031	3,570	EKZH250E□□272MK35S	
1,500		10×16	0.032	0.10	1,650	EKZH100E□□152MJ16S	3,300		16×25	0.013	0.035	3,630	EKZH250E□□332ML25S	
1,800		10×20	0.020	0.060	1,960	EKZH100E□□182MJ20S	35		47	5×11	0.24	0.80	330	EKZH350E□□470ME11D
2,200		10×25	0.018	0.054	2,250	EKZH100E□□222MJ25S		100	6.3×11	0.11	0.35	500	EKZH350E□□101MF11D	
3,300		12.5×20	0.017	0.043	2,480	EKZH100E□□332MK20S		220	8×11.5	0.062	0.19	900	EKZH350E□□221MHB5D	
3,900		12.5×25	0.015	0.038	2,900	EKZH100E□□392MK25S		270	8×15	0.048	0.15	1,210	EKZH350E□□271MH15D	
4,700		12.5×30	0.013	0.033	3,450	EKZH100E□□472MK30S		330	10×12.5	0.045	0.14	1,240	EKZH350E□□331MJC5S	
4,700		16×20	0.015	0.038	3,250	EKZH100E□□472ML20S		390	8×20	0.033	0.11	1,410	EKZH350E□□391MH20D	
5,600		12.5×35	0.012	0.031	3,570	EKZH100E□□562MK35S		470	10×16	0.032	0.10	1,650	EKZH350E□□471MJ16S	
6,800		16×25	0.013	0.035	3,630	EKZH100E□□682ML25S		560	10×20	0.020	0.060	1,960	EKZH350E□□561MJ20S	
16		100	5×11	0.24	0.80	330		EKZH160E□□101ME11D	680	10×25	0.018	0.054	2,250	EKZH350E□□681MJ25S
	220	6.3×11	0.11	0.35	500	EKZH160E□□221MF11D		1,000	12.5×20	0.017	0.043	2,480	EKZH350E□□102MK20S	
	470	8×11.5	0.062	0.19	900	EKZH160E□□471MHB5D		1,200	12.5×25	0.015	0.038	2,900	EKZH350E□□122MK25S	
	680	8×15	0.048	0.15	1,210	EKZH160E□□681MH15D		1,500	12.5×30	0.013	0.033	3,450	EKZH350E□□152MK30S	
	680	10×12.5	0.045	0.14	1,240	EKZH160E□□681MJC5S		1,500	16×20	0.015	0.038	3,250	EKZH350E□□152ML20S	
	1,000	8×20	0.033	0.11	1,410	EKZH160E□□102MH20D		1,800	12.5×35	0.012	0.031	3,570	EKZH350E□□182MK35S	
	1,000	10×16	0.032	0.10	1,650	EKZH160E□□102MJ16S		2,200	16×25	0.013	0.035	3,630	EKZH350E□□222ML25S	
	1,500	10×20	0.020	0.060	1,960	EKZH160E□□152MJ20S								

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

### ◆ RATED RIPPLE CURRENT MULTIPLIERS

#### ● Frequency Multipliers

Capacitance (μF)	Frequency (Hz)			
	120	1k	10k	100k
0.47 to 150	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 8,200	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.