

KZH Series

- Newly innovative electrolyte is employed to minimize impedance
- Endurance with ripple current: 5,000 to 6,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant

KZH
↑ Longer life
↑ Lower Z
KZE P5-29

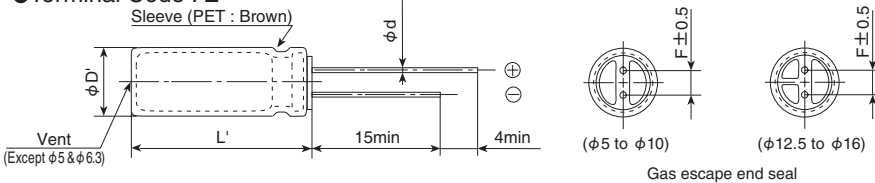


SPECIFICATIONS

| Items | Characteristics | | | | | |
|--|---|---|------|------|------|------|
| Category | -40 to +105°C | | | | | |
| Temperature Range | -40 to +105°C | | | | | |
| Rated Voltage Range | 6.3 to 35V _{dc} | | | | | |
| 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 _{dc}) | 6.3V | 10V | 16V | 25V | 35V |
| | tan δ (Max.) | 0.22 | 0.19 | 0.16 | 0.14 | 0.12 |
| | 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 : 5,000hours φ 8 to φ 16 : 6,000hours | | | | |
| | Capacitance change | ≤ ±25% of the initial value (6.3, 10V _{dc} : ≤ ±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°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 _{dc} : ≤ ±30%) | | | | |
| | D.F. (tan δ) | ≤200% of the initial specified value | | | | |
| | Leakage current | ≤The initial specified value | | | | |

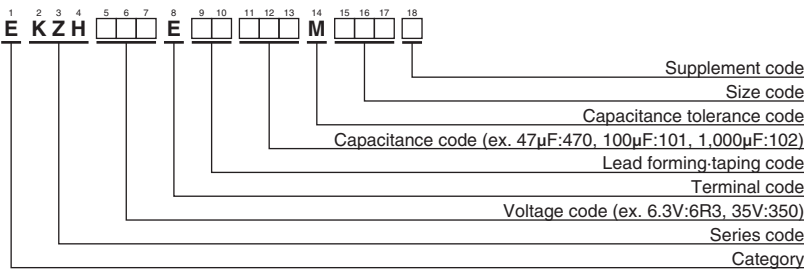
DIMENSIONS [mm]

Terminal Code : E



| φD | 5 | 6.3 | 8 | 10 | 12.5 | 16 |
|-----|------------|-----|-----|-----|------|-----|
| 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 (V _{dc}) | Cap (μF) | Case size φD×L(mm) | Impedance (Ω max./100kHz) | | Rated ripple current (mA _{rms} /105°C, 100kHz) | Part No. | WV (V _{dc}) | 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 | 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 | EKZH250E□□102MJ25S | |
| | 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.