

KZM Series

- Long-Life version of KZH series
- Endurance : 105°C 6,000 to 10,000 hours with ripple current
- Newly innovative electrolyte is employed to minimize ESR
- Rated voltage range : 6.3 to 50V, Nominal capacitance range : 27 to 10,000 μ F
- Non solvent-proof
- RoHS Compliant

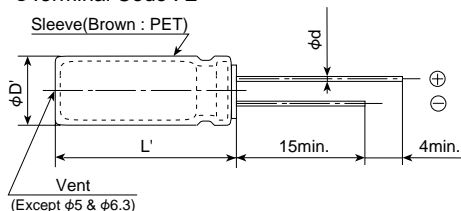


◆ SPECIFICATIONS

| Items | Characteristics | |
|------------------------------------|--|---|
| Category | -40 to +105°C | |
| Temperature Range | | |
| Rated Voltage Range | 6.3 to 50V _{dc} | |
| Capacitance Tolerance | ±20% (M) (at 20°C, 120Hz) | |
| Leakage Current | I=0.01CV Where, I : Max. leakage current (μ A), C : Nominal capacitance (μ F), V : Rated voltage (V) (at 20°C after 2 minutes) | |
| Dissipation Factor (tan δ) | Rated voltage (V _{dc}) | 6.3V 10V 16V 25V 35V 50V |
| | tan δ (Max.) | 0.22 0.19 0.16 0.14 0.12 0.10 |
| | When nominal capacitance exceeds 1,000 μ F, add 0.02 to the value above for each 1,000 μ F increase. (at 20°C, 120Hz) | |
| Low Temperature Characteristics | Z(-25°C)/Z(+20°C) | 2 max. (at 120Hz) |
| | Z(-40°C)/Z(+20°C) | 3 max. |
| 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 for the specified period of time at 105°C. | |
| | Time | ϕ 5 & ϕ 6.3 : 6,000hours ϕ 8 & ϕ 10 \times 12.5 : 8,000hours ϕ 10 \times 16 to ϕ 18 : 10,000hours |
| | Capacitance change | \leq ±25% of the initial value (6.3, 10V : \leq ±30%) |
| | D.F. (tan δ) | \leq 200% of the initial specified value |
| | Leakage current | \leq 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. | |
| | Capacitance change | \leq ±25% of the initial value (6.3, 10V : \leq ±30%) |
| | D.F. (tan δ) | \leq 200% of the initial specified value |
| | Leakage current | \leq The initial specified value |

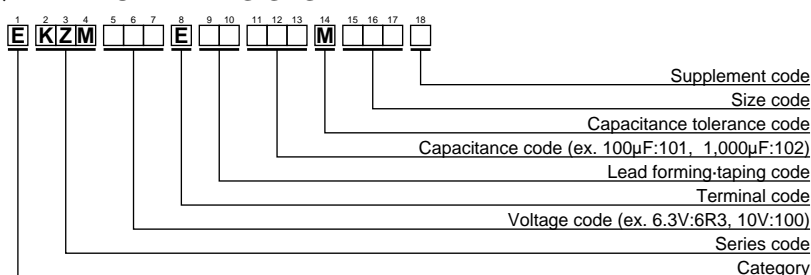
◆ DIMENSIONS [mm]

- 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 |
| ϕ D' | ϕ D+0.5max. | | | | | | |
| L' | L+1.5max. | | | | | | |

◆ PART NUMBERING SYSTEM



◆ RATED RIPPLE CURRENT MULTIPLIERS

- Frequency Multipliers

| Capacitance (μ F) | Frequency (Hz) | | | |
|------------------------|----------------|------|------|------|
| | 120 | 1k | 10k | 100k |
| 27 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 10,000 | 0.85 | 0.95 | 0.98 | 1.00 |

Note : The endurance of capacitors is shorted with internal heating produced by ripple currents 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.

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◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Impedance (Ωmax/100kHz) | | Rated ripple current (mA rms/105°C,100kHz) | Part No. |
|-------------|-------------|-----------------------|-------|----------------------------|-------|---|--------------------|
| | | | | 20°C | -10°C | | |
| 6.3 | 220 | 5 × 11 | 0.22 | 0.22 | 0.80 | 345 | EKZM6R3E□□221ME11D |
| | 470 | 6.3 × 11 | 0.22 | 0.094 | 0.35 | 540 | EKZM6R3E□□471MF11D |
| | 820 | 8 × 11.5 | 0.22 | 0.056 | 0.19 | 945 | EKZM6R3E□□821MHB5D |
| | 1,200 | 8 × 15 | 0.22 | 0.045 | 0.15 | 1,250 | EKZM6R3E□□122MH15D |
| | 1,200 | 10 × 12.5 | 0.22 | 0.039 | 0.14 | 1,330 | EKZM6R3E□□122MJC5S |
| | 1,500 | 8 × 20 | 0.22 | 0.029 | 0.11 | 1,500 | EKZM6R3E□□152MH20D |
| | 1,800 | 10 × 16 | 0.22 | 0.028 | 0.10 | 1,760 | EKZM6R3E□□182MJ16S |
| | 2,200 | 10 × 20 | 0.24 | 0.020 | 0.060 | 1,960 | EKZM6R3E□□222MJ20S |
| | 2,700 | 10 × 25 | 0.24 | 0.018 | 0.054 | 2,250 | EKZM6R3E□□272MJ25S |
| | 3,900 | 12.5 × 20 | 0.26 | 0.017 | 0.043 | 2,480 | EKZM6R3E□□392MK20S |
| | 4,700 | 12.5 × 25 | 0.28 | 0.015 | 0.038 | 2,900 | EKZM6R3E□□472MK25S |
| | 5,600 | 12.5 × 30 | 0.30 | 0.013 | 0.033 | 3,450 | EKZM6R3E□□562MK30S |
| | 6,800 | 12.5 × 35 | 0.32 | 0.012 | 0.031 | 3,570 | EKZM6R3E□□682MK35S |
| | 6,800 | 16 × 20 | 0.32 | 0.015 | 0.038 | 3,250 | EKZM6R3E□□682ML20S |
| 8,200 | 16 × 25 | 0.36 | 0.013 | 0.035 | 3,630 | EKZM6R3E□□822ML25S | |
| 10,000 | 18 × 25 | 0.40 | 0.012 | 0.031 | 3,650 | EKZM6R3E□□103MM25S | |
| 10 | 150 | 5 × 11 | 0.19 | 0.22 | 0.80 | 345 | EKZM100E□□151ME11D |
| | 330 | 6.3 × 11 | 0.19 | 0.094 | 0.35 | 540 | EKZM100E□□331MF11D |
| | 680 | 8 × 11.5 | 0.19 | 0.056 | 0.19 | 945 | EKZM100E□□681MHB5D |
| | 1,000 | 8 × 15 | 0.19 | 0.045 | 0.15 | 1,250 | EKZM100E□□102MH15D |
| | 1,000 | 10 × 12.5 | 0.19 | 0.039 | 0.14 | 1,330 | EKZM100E□□102MJC5S |
| | 1,500 | 8 × 20 | 0.19 | 0.029 | 0.11 | 1,500 | EKZM100E□□152MH20D |
| | 1,500 | 10 × 16 | 0.19 | 0.028 | 0.10 | 1,760 | EKZM100E□□152MJ16S |
| | 1,800 | 10 × 20 | 0.19 | 0.020 | 0.060 | 1,960 | EKZM100E□□182MJ20S |
| | 2,200 | 10 × 25 | 0.19 | 0.018 | 0.054 | 2,250 | EKZM100E□□222MJ25S |
| | 2,700 | 12.5 × 20 | 0.21 | 0.017 | 0.043 | 2,480 | EKZM100E□□272MK20S |
| | 3,900 | 12.5 × 25 | 0.21 | 0.015 | 0.038 | 2,900 | EKZM100E□□392MK25S |
| | 4,700 | 12.5 × 30 | 0.23 | 0.013 | 0.033 | 3,450 | EKZM100E□□472MK30S |
| | 4,700 | 12.5 × 35 | 0.23 | 0.012 | 0.031 | 3,570 | EKZM100E□□472MK35S |
| | 5,600 | 16 × 20 | 0.23 | 0.015 | 0.038 | 3,250 | EKZM100E□□562ML20S |
| 6,800 | 16 × 25 | 0.25 | 0.013 | 0.035 | 3,630 | EKZM100E□□682ML25S | |
| 8,200 | 18 × 25 | 0.29 | 0.012 | 0.031 | 3,650 | EKZM100E□□822MM25S | |
| 16 | 100 | 5 × 11 | 0.16 | 0.22 | 0.80 | 345 | EKZM160E□□101ME11D |
| | 220 | 6.3 × 11 | 0.16 | 0.094 | 0.35 | 540 | EKZM160E□□221MF11D |
| | 470 | 8 × 11.5 | 0.16 | 0.056 | 0.19 | 945 | EKZM160E□□471MHB5D |
| | 680 | 8 × 15 | 0.16 | 0.045 | 0.15 | 1,250 | EKZM160E□□681MH15D |
| | 680 | 10 × 12.5 | 0.16 | 0.039 | 0.14 | 1,330 | EKZM160E□□681MJC5S |
| | 1,000 | 8 × 20 | 0.16 | 0.029 | 0.11 | 1,500 | EKZM160E□□102MH20D |
| | 1,000 | 10 × 16 | 0.16 | 0.028 | 0.10 | 1,760 | EKZM160E□□102MJ16S |
| | 1,500 | 10 × 20 | 0.16 | 0.020 | 0.060 | 1,960 | EKZM160E□□152MJ20S |
| | 1,800 | 10 × 25 | 0.16 | 0.018 | 0.054 | 2,250 | EKZM160E□□182MJ25S |
| | 2,200 | 12.5 × 20 | 0.18 | 0.017 | 0.043 | 2,480 | EKZM160E□□222MK20S |
| | 2,700 | 12.5 × 25 | 0.18 | 0.015 | 0.038 | 2,900 | EKZM160E□□272MK25S |
| | 3,300 | 12.5 × 30 | 0.20 | 0.013 | 0.033 | 3,450 | EKZM160E□□332MK30S |
| | 3,300 | 12.5 × 35 | 0.20 | 0.012 | 0.031 | 3,570 | EKZM160E□□332MK35S |
| | 3,900 | 16 × 20 | 0.20 | 0.015 | 0.038 | 3,250 | EKZM160E□□392ML20S |
| | 4,700 | 16 × 25 | 0.22 | 0.013 | 0.035 | 3,630 | EKZM160E□□472ML25S |
| | 5,600 | 18 × 25 | 0.24 | 0.012 | 0.031 | 3,650 | EKZM160E□□562MM25S |

□□ : Lead forming / Taping code

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◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ | Impedance (Ωmax/100kHz) | | Rated ripple current (mA rms/105°C,100kHz) | Part No. |
|-------------|-------------|-----------------------|-------|----------------------------|-------|---|--------------------|
| | | | | 20°C | -10°C | | |
| 25 | 68 | 5 × 11 | 0.14 | 0.22 | 0.80 | 345 | EKZM250E□□680ME11D |
| | 150 | 6.3 × 11 | 0.14 | 0.094 | 0.35 | 540 | EKZM250E□□151MF11D |
| | 330 | 8 × 11.5 | 0.14 | 0.056 | 0.19 | 945 | EKZM250E□□331MHB5D |
| | 390 | 8 × 15 | 0.14 | 0.045 | 0.15 | 1,250 | EKZM250E□□391MH15D |
| | 470 | 10 × 12.5 | 0.14 | 0.039 | 0.14 | 1,330 | EKZM250E□□471MJC5S |
| | 560 | 8 × 20 | 0.14 | 0.029 | 0.11 | 1,500 | EKZM250E□□561MH20D |
| | 680 | 10 × 16 | 0.14 | 0.028 | 0.10 | 1,760 | EKZM250E□□681MJ16S |
| | 820 | 10 × 20 | 0.14 | 0.020 | 0.060 | 1,960 | EKZM250E□□821MJ20S |
| | 1,000 | 10 × 25 | 0.14 | 0.018 | 0.054 | 2,250 | EKZM250E□□102MJ25S |
| | 1,500 | 12.5 × 20 | 0.14 | 0.017 | 0.043 | 2,480 | EKZM250E□□152MK20S |
| | 1,800 | 12.5 × 25 | 0.14 | 0.015 | 0.038 | 2,900 | EKZM250E□□182MK25S |
| | 2,200 | 12.5 × 30 | 0.16 | 0.013 | 0.033 | 3,450 | EKZM250E□□222MK30S |
| | 2,200 | 12.5 × 35 | 0.16 | 0.012 | 0.031 | 3,570 | EKZM250E□□222MK35S |
| | 2,700 | 16 × 20 | 0.16 | 0.015 | 0.038 | 3,250 | EKZM250E□□272ML20S |
| 3,300 | 16 × 25 | 0.18 | 0.013 | 0.035 | 3,630 | EKZM250E□□332ML25S | |
| 3,900 | 18 × 25 | 0.18 | 0.012 | 0.031 | 3,650 | EKZM250E□□392MM25S | |
| 35 | 47 | 5 × 11 | 0.12 | 0.22 | 0.80 | 345 | EKZM350E□□470ME11D |
| | 100 | 6.3 × 11 | 0.12 | 0.094 | 0.35 | 540 | EKZM350E□□101MF11D |
| | 220 | 8 × 11.5 | 0.12 | 0.056 | 0.19 | 945 | EKZM350E□□221MHB5D |
| | 270 | 8 × 15 | 0.12 | 0.045 | 0.15 | 1,250 | EKZM350E□□271MH15D |
| | 330 | 10 × 12.5 | 0.12 | 0.039 | 0.14 | 1,330 | EKZM350E□□331MJC5S |
| | 390 | 8 × 20 | 0.12 | 0.029 | 0.11 | 1,500 | EKZM350E□□391MH20D |
| | 470 | 10 × 16 | 0.12 | 0.028 | 0.10 | 1,760 | EKZM350E□□471MJ16S |
| | 560 | 10 × 20 | 0.12 | 0.020 | 0.060 | 1,960 | EKZM350E□□561MJ20S |
| | 680 | 10 × 25 | 0.12 | 0.018 | 0.054 | 2,250 | EKZM350E□□681MJ25S |
| | 1,000 | 12.5 × 20 | 0.12 | 0.017 | 0.043 | 2,480 | EKZM350E□□102MK20S |
| | 1,200 | 12.5 × 25 | 0.12 | 0.015 | 0.038 | 2,900 | EKZM350E□□122MK25S |
| | 1,500 | 12.5 × 30 | 0.12 | 0.013 | 0.033 | 3,450 | EKZM350E□□152MK30S |
| | 1,500 | 16 × 20 | 0.12 | 0.015 | 0.038 | 3,250 | EKZM350E□□152ML20S |
| | 1,800 | 12.5 × 35 | 0.12 | 0.012 | 0.031 | 3,570 | EKZM350E□□182MK35S |
| 2,200 | 16 × 25 | 0.14 | 0.013 | 0.035 | 3,630 | EKZM350E□□222ML25S | |
| 2,700 | 18 × 25 | 0.14 | 0.012 | 0.031 | 3,650 | EKZM350E□□272MM25S | |
| 50 | 27 | 5 × 11 | 0.10 | 0.34 | 1.18 | 238 | EKZM500E□□270ME11D |
| | 56 | 6.3 × 11 | 0.10 | 0.14 | 0.50 | 385 | EKZM500E□□560MF11D |
| | 100 | 8 × 11.5 | 0.10 | 0.074 | 0.22 | 724 | EKZM500E□□101MHB5D |
| | 150 | 8 × 15 | 0.10 | 0.061 | 0.18 | 950 | EKZM500E□□151MH15D |
| | 150 | 10 × 12.5 | 0.10 | 0.061 | 0.18 | 979 | EKZM500E□□151MJC5S |
| | 180 | 8 × 20 | 0.10 | 0.046 | 0.14 | 1,190 | EKZM500E□□181MH20D |
| | 220 | 10 × 16 | 0.10 | 0.042 | 0.12 | 1,370 | EKZM500E□□221MJ16S |
| | 270 | 10 × 20 | 0.10 | 0.030 | 0.090 | 1,580 | EKZM500E□□271MJ20S |
| | 330 | 10 × 25 | 0.10 | 0.028 | 0.085 | 1,870 | EKZM500E□□331MJ25S |
| | 470 | 12.5 × 20 | 0.10 | 0.027 | 0.068 | 2,050 | EKZM500E□□471MK20S |
| | 680 | 12.5 × 25 | 0.10 | 0.023 | 0.059 | 2,410 | EKZM500E□□681MK25S |
| | 820 | 12.5 × 30 | 0.10 | 0.021 | 0.052 | 2,860 | EKZM500E□□821MK30S |
| | 820 | 12.5 × 35 | 0.10 | 0.019 | 0.051 | 2,960 | EKZM500E□□821MK35S |
| | 1,000 | 16 × 20 | 0.10 | 0.023 | 0.059 | 2,730 | EKZM500E□□102ML20S |
| 1,200 | 16 × 25 | 0.10 | 0.021 | 0.056 | 3,010 | EKZM500E□□122ML25S | |
| 1,500 | 18 × 25 | 0.10 | 0.019 | 0.051 | 3,290 | EKZM500E□□152MM25S | |

□□ : Lead forming / Taping code

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