# KHE Series

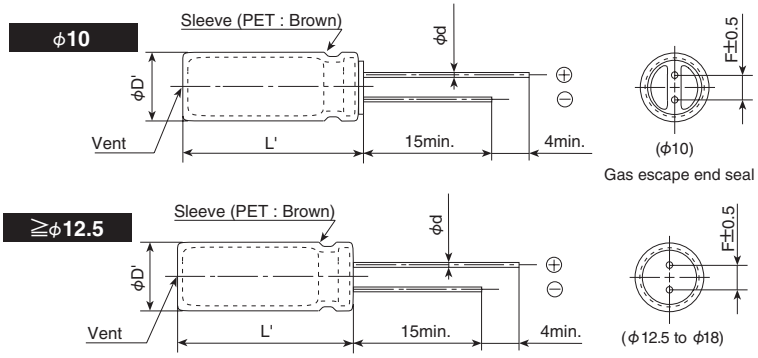
- Ideal for low profile power supply applications
- Downsize, high ripple design
- Rated voltage range : 400 to 450Vdc, Capacitance range : 27 to 120μF
- Endurance with ripple current : 2,000 hours at 105℃
- Non solvent resistant type
- RoHS2 Compliant


## ◆SPECIFICATIONS

| Items | Characteristics | | | | |
|---|---|---|---|---|---|
| Category Temperature Range | -40 to +105℃ | | | | |
| Rated Voltage Range | 400 to 450Vdc | | | | |
| Capacitance Tolerance | ±20% (M) | | | | (at 20℃, 120Hz) |
| Leakage Current | | After 1 minute | | After 5 minutes | |
| | CV≦1,000 | I=0.1CV+40 | | I=0.03CV+15 | |
| | CV>1,000 | I=0.04CV+100 | | I=0.02CV+25 | |
| | Where, I : Max. leakage current(μA), C : Nominal capacitance (μF), V : Rated voltage (V) | | | | (at 20℃) |
| Dissipation Factor (tan δ) | Rated voltage (Vdc) | 400V | 420V | 450V | |
| | tan δ (Max.) | 0.15 | 0.20 | 0.20 | (at 20℃, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (Vdc) | 400V | 420V | 450V | |
| | Z(-25℃)/Z(+20℃) | 5 | 6 | 6 | |
| | Z(-40℃)/Z(+20℃) | 6 | — | — | (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 2,000 hours at 105℃. | | | | |
| | Capacitance change | ≦±20% of the initial value | | | |
| | 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 1,000 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 | ≦±20% of the initial value | | | |
| | D.F. (tan δ) | ≦200% of the initial specified value | | | |
| | Leakage current | ≦500% of the initial specified value | | | |

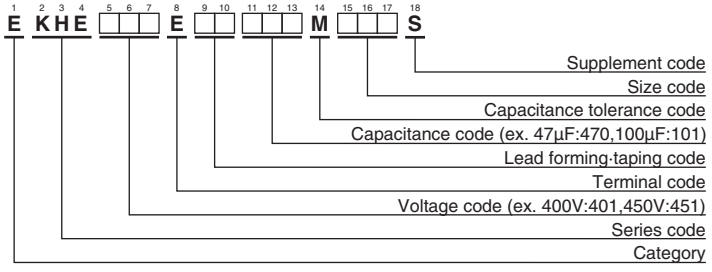
## ◆DIMENSIONS [mm]

●Terminal Code : E




| φD | 10 | 12.5 | 14.5 | 16 | 18 |
|---|---|---|---|---|---|
| φd | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |
| F | 5.0 | 5.0 | 7.5 | 7.5 | 7.5 |
| φD' | φD+0.5 max. | | | | |
| L' | L+2.0 max. | | | | |

## ◆PART NUMBERING SYSTEM




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

# KHE Series

## ◆STANDARD RATINGS

| WV ($V_{dc}$) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (mArms/ 105℃, 120Hz) | Part No. |
|---|---|---|---|---|---|
| 400 | 33 | 10×30 | 0.15 | 335 | EKHE401E□□330MJ30S |
| | 39 | 10×35 | 0.15 | 385 | EKHE401E□□390MJ35S |
| | 47 | 10×40 | 0.15 | 445 | EKHE401E□□470MJ40S |
| | 56 | 10×45 | 0.15 | 505 | EKHE401E□□560MJ45S |
| | 56 | 12.5×30 | 0.15 | 480 | EKHE401E□□560MK30S |
| | 68 | 12.5×35 | 0.15 | 560 | EKHE401E□□680MK35S |
| | 82 | 12.5×40 | 0.15 | 640 | EKHE401E□□820MK40S |
| | 82 | 14.5×31.5 | 0.15 | 625 | EKHE401E□□820MUN3S |
| | 100 | 12.5×45 | 0.15 | 730 | EKHE401E□□101MK45S |
| | 100 | 14.5×35 | 0.15 | 715 | EKHE401E□□101MU35S |
| | 100 | 16×31.5 | 0.15 | 720 | EKHE401E□□101MLN3S |
| | 120 | 14.5×40 | 0.15 | 810 | EKHE401E□□121MU40S |
| | 120 | 16×35 | 0.15 | 810 | EKHE401E□□121ML35S |
| | 120 | 18×31.5 | 0.15 | 815 | EKHE401E□□121MMN3S |
| 420 | 33 | 10×30 | 0.20 | 335 | EKHE421E□□330MJ30S |
| | 39 | 10×35 | 0.20 | 385 | EKHE421E□□390MJ35S |
| | 47 | 10×40 | 0.20 | 445 | EKHE421E□□470MJ40S |
| | 56 | 10×50 | 0.20 | 520 | EKHE421E□□560MJ50S |
| | 56 | 12.5×30 | 0.20 | 480 | EKHE421E□□560MK30S |
| | 68 | 12.5×35 | 0.20 | 560 | EKHE421E□□680MK35S |
| | 82 | 12.5×40 | 0.20 | 640 | EKHE421E□□820MK40S |
| | 82 | 14.5×31.5 | 0.20 | 625 | EKHE421E□□820MUN3S |
| | 100 | 12.5×50 | 0.20 | 750 | EKHE421E□□101MK50S |
| | 100 | 14.5×40 | 0.20 | 740 | EKHE421E□□101MU40S |
| | 100 | 16×31.5 | 0.20 | 720 | EKHE421E□□101MLN3S |
| | 120 | 14.5×45 | 0.20 | 835 | EKHE421E□□121MU45S |
| | 120 | 16×35 | 0.20 | 810 | EKHE421E□□121ML35S |
| | 120 | 18×31.5 | 0.20 | 815 | EKHE421E□□121MMN3S |

| WV ($V_{dc}$) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (mArms/ 105℃, 120Hz) | Part No. |
|---|---|---|---|---|---|
| 450 | 27 | 10×30 | 0.20 | 305 | EKHE451E□□270MJ30S |
| | 33 | 10×35 | 0.20 | 355 | EKHE451E□□330MJ35S |
| | 39 | 10×40 | 0.20 | 405 | EKHE451E□□390MJ40S |
| | 47 | 10×45 | 0.20 | 460 | EKHE451E□□470MJ45S |
| | 47 | 12.5×30 | 0.20 | 440 | EKHE451E□□470MK30S |
| | 56 | 12.5×35 | 0.20 | 505 | EKHE451E□□560MK35S |
| | 68 | 12.5×40 | 0.20 | 580 | EKHE451E□□680MK40S |
| | 68 | 14.5×31.5 | 0.20 | 570 | EKHE451E□□680MUN3S |
| | 82 | 12.5×45 | 0.20 | 660 | EKHE451E□□820MK45S |
| | 82 | 14.5×35 | 0.20 | 650 | EKHE451E□□820MU35S |
| | 82 | 16×31.5 | 0.20 | 655 | EKHE451E□□820MLN3S |
| | 100 | 14.5×40 | 0.20 | 740 | EKHE451E□□101MU40S |
| | 100 | 16×35 | 0.20 | 740 | EKHE451E□□101ML35S |
| | 120 | 18×31.5 | 0.20 | 815 | EKHE451E□□121MMN3S |

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

## ◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Capacitance(μF) \ Frequency(Hz) | 120 | 1k | 10k | 100k |
|---|---|---|---|---|
| 27 to 82 | 1.00 | 1.50 | 1.75 | 1.80 |
| 100 to 120 | 1.00 | 1.30 | 1.40 | 1.50 |

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.

■ Always read "Notes on Use" before using the product in order to enable you to use the product correctly and prevent any faults and accidents from occurring.

■ Request the Product Specification on the product of NIPPON CHEMI-CON CORPORATION to refer to it as well as this brochure prior to the order of the products. Some specific notes on use of the ordered product may be described in the specifications.

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