

# KMH Series

- Endurance with ripple current : 2,000 hours at 105°C
- Non solvent resistant type
- RoHS2 Compliant

KMM P6-35

Downsized  
Longer life

KMH



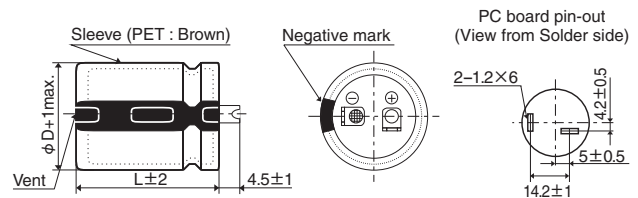
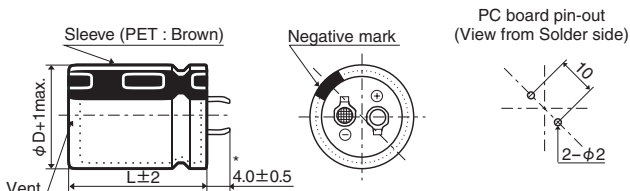
## ◆ SPECIFICATIONS

| Items  | Characteristics   |                                       |      |      |      |      |      |      |      |      |                  |
|--|---|---------------------------------------|------|------|------|------|------|------|------|------|------------------|
| Category   | -40 to +105°C   |                                       |      |      |      |      |      |      |      |      |                  |
| Temperature Range                                      |   |                                       |      |      |      |      |      |      |      |      |                  |
| Rated Voltage Range                                    | 6.3 to 100V <sub>dc</sub>   |                                       |      |      |      |      |      |      |      |      |                  |
| Capacitance Tolerance                                  | ±20% (M) (at 20°C, 120Hz)   |                                       |      |      |      |      |      |      |      |      |                  |
| Leakage Current  | I=0.02CV or 3mA, whichever is smaller<br>Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 5 minutes)  |                                       |      |      |      |      |      |      |      |      |                  |
| Dissipation Factor (tan δ)                             | Rated voltage (V <sub>dc</sub> )  | 6.3V                                  | 10V  | 16V  | 25V  | 35V  | 50V  | 63V  | 80V  | 100V |                  |
|  | tan δ (Max.)  | 0.60                                  | 0.50 | 0.40 | 0.30 | 0.25 | 0.20 | 0.15 | 0.15 | 0.15 | (at 20°C, 120Hz) |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (V <sub>dc</sub> )  | 6.3V                                  | 10V  | 16V  | 25V  | 35V  | 50V  | 63V  | 80V  | 100V |                  |
|  | Z(-25°C)/Z(+20°C)   | 4                                     | 4    | 4    | 3    | 3    | 2    | 2    | 2    | 2    |                  |
|  | Z(-45°C)/Z(+20°C)   | 15                                    | 15   | 15   | 10   | 8    | 6    | 6    | 5    | 5    | (at 120Hz)       |
| 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 2,000 hours at 105°C  |                                       |      |      |      |      |      |      |      |      |                  |
|  | 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°C after exposing them for 1,000 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  | ≤ ±20% of the initial value           |      |      |      |      |      |      |      |      |                  |
|  | D.F. (tan δ)  | ≤ 150% of the initial specified value |      |      |      |      |      |      |      |      |                  |
|  | Leakage current   | ≤ The initial specified value         |      |      |      |      |      |      |      |      |                  |

## ◆ DIMENSIONS [mm]

● Terminal Code : VS (φ22 to φ35) : Standard

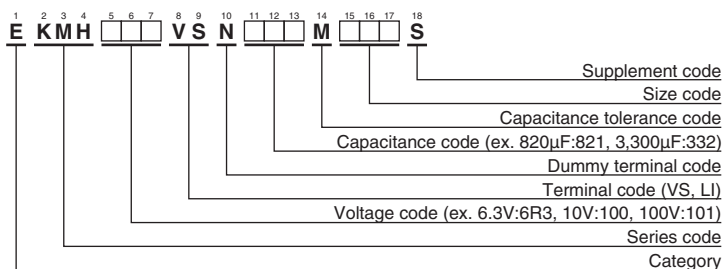
● Terminal Code : LI (φ35)



\* φD=35mm : 3.5±0.5mm

The standard design has no plastic disc.

## ◆ PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"



◆STANDARD RATINGS

| WV (V <sub>dc</sub> ) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/105°C, 120Hz) | Part No.           | WV (V <sub>dc</sub> ) | Cap (μF) | Case size φD×L(mm) | tan δ              | Rated ripple current (Arms/105°C, 120Hz) | Part No.           |                    |
|-----------------------|----------|--------------------|-------|--|--------------------|-----------------------|----------|--------------------|--------------------|--|--------------------|--------------------|
| 50                    | 5,600    | 25.4 × 40          | 0.20  | 2.70                                     | EKMH500VSN562MQ40S | 80                    | 1,800    | 25.4 × 30          | 0.15               | 1.76                                     | EKMH800VSN182MQ30S |                    |
|                       | 5,600    | 30 × 35            | 0.20  | 2.76                                     | EKMH500VSN562MR35S |                       | 1,800    | 30 × 25            | 0.15               | 1.65                                     | EKMH800VSN182MR25S |                    |
|                       | 5,600    | 35 × 25            | 0.20  | 2.70                                     | EKMH500VSN562MA25S |                       | 2,200    | 22 × 45            | 0.15               | 2.04                                     | EKMH800VSN222MP45S |                    |
|                       | 6,800    | 25.4 × 50          | 0.20  | 3.30                                     | EKMH500VSN682MQ50S |                       | 2,200    | 25.4 × 35          | 0.15               | 2.01                                     | EKMH800VSN222MQ35S |                    |
|                       | 6,800    | 30 × 40            | 0.20  | 3.30                                     | EKMH500VSN682MR40S |                       | 2,200    | 30 × 30            | 0.15               | 2.05                                     | EKMH800VSN222MR30S |                    |
|                       | 6,800    | 35 × 30            | 0.20  | 3.25                                     | EKMH500VSN682MA30S |                       | 2,200    | 35 × 25            | 0.15               | 2.07                                     | EKMH800VSN222MA25S |                    |
|                       | 8,200    | 30 × 45            | 0.20  | 3.60                                     | EKMH500VSN822MR45S |                       | 2,700    | 25.4 × 45          | 0.15               | 2.36                                     | EKMH800VSN272MQ45S |                    |
|                       | 8,200    | 35 × 35            | 0.20  | 3.55                                     | EKMH500VSN822MA35S |                       | 2,700    | 30 × 35            | 0.15               | 2.35                                     | EKMH800VSN272MR35S |                    |
|                       | 10,000   | 30 × 50            | 0.20  | 4.04                                     | EKMH500VSN103MR50S |                       | 2,700    | 35 × 25            | 0.15               | 2.29                                     | EKMH800VSN272MA25S |                    |
|                       | 10,000   | 35 × 40            | 0.20  | 4.03                                     | EKMH500VSN103MA40S |                       | 3,300    | 25.4 × 50          | 0.15               | 2.68                                     | EKMH800VSN332MQ50S |                    |
| 63                    | 1,200    | 22 × 25            | 0.15  | 1.19                                     | EKMH630VSN122MP25S | 80                    | 3,300    | 30 × 40            | 0.15               | 2.68                                     | EKMH800VSN332MP40S |                    |
|                       | 1,500    | 22 × 25            | 0.15  | 1.33                                     | EKMH630VSN152MP25S |                       | 3,300    | 35 × 30            | 0.15               | 2.45                                     | EKMH800VSN332MA30S |                    |
|                       | 1,800    | 22 × 30            | 0.15  | 1.51                                     | EKMH630VSN182MP30S |                       | 3,900    | 30 × 45            | 0.15               | 3.00                                     | EKMH800VSN392MR45S |                    |
|                       | 1,800    | 25.4 × 25          | 0.15  | 1.52                                     | EKMH630VSN182MQ25S |                       | 3,900    | 35 × 35            | 0.15               | 2.98                                     | EKMH800VSN392MA35S |                    |
|                       | 2,200    | 22 × 35            | 0.15  | 1.73                                     | EKMH630VSN222MP35S |                       | 4,700    | 30 × 50            | 0.15               | 3.39                                     | EKMH800VSN472MP50S |                    |
|                       | 2,200    | 25.4 × 30          | 0.15  | 1.74                                     | EKMH630VSN222MQ30S |                       | 4,700    | 35 × 40            | 0.15               | 3.38                                     | EKMH800VSN472MA40S |                    |
|                       | 2,700    | 22 × 40            | 0.15  | 1.97                                     | EKMH630VSN272MP40S |                       | 5,600    | 35 × 45            | 0.15               | 3.80                                     | EKMH800VSN562MA45S |                    |
|                       | 2,700    | 25.4 × 35          | 0.15  | 1.99                                     | EKMH630VSN272MQ35S |                       | 6,800    | 35 × 50            | 0.15               | 3.90                                     | EKMH800VSN682MA50S |                    |
|                       | 2,700    | 30 × 25            | 0.15  | 1.76                                     | EKMH630VSN272MR25S |                       | 100      | 560                | 22 × 25            | 0.15                                     | 1.05               | EKMH101VSN561MP25S |
|                       | 3,300    | 22 × 50            | 0.15  | 2.29                                     | EKMH630VSN332MP50S |                       |          | 820                | 22 × 30            | 0.15                                     | 1.32               | EKMH101VSN821MP30S |
|                       | 3,300    | 25.4 × 40          | 0.15  | 2.27                                     | EKMH630VSN332MQ40S | 820                   |          | 25.4 × 25          | 0.15               | 1.33                                     | EKMH101VSN821MQ25S |                    |
|                       | 3,300    | 30 × 30            | 0.15  | 2.24                                     | EKMH630VSN332MR30S | 1,000                 |          | 22 × 35            | 0.15               | 1.50                                     | EKMH101VSN102MP35S |                    |
|                       | 3,300    | 35 × 25            | 0.15  | 2.06                                     | EKMH630VSN332MA25S | 1,000                 |          | 25.4 × 30          | 0.15               | 1.51                                     | EKMH101VSN102MQ30S |                    |
|                       | 3,900    | 25.4 × 45          | 0.15  | 2.54                                     | EKMH630VSN392MQ45S | 1,200                 |          | 22 × 40            | 0.15               | 1.69                                     | EKMH101VSN122MP40S |                    |
|                       | 3,900    | 30 × 35            | 0.15  | 2.55                                     | EKMH630VSN392MR35S | 1,200                 |          | 25.4 × 35          | 0.15               | 1.71                                     | EKMH101VSN122MQ35S |                    |
|                       | 3,900    | 35 × 25            | 0.15  | 2.24                                     | EKMH630VSN392MA25S | 1,200                 |          | 30 × 25            | 0.15               | 1.68                                     | EKMH101VSN122MR25S |                    |
|                       | 4,700    | 25.4 × 50          | 0.15  | 2.86                                     | EKMH630VSN472MQ50S | 1,500                 |          | 22 × 45            | 0.15               | 1.94                                     | EKMH101VSN152MP45S |                    |
|                       | 4,700    | 30 × 40            | 0.15  | 2.86                                     | EKMH630VSN472MR40S | 1,500                 |          | 25.4 × 40          | 0.15               | 1.98                                     | EKMH101VSN152MQ40S |                    |
|                       | 4,700    | 35 × 30            | 0.15  | 2.79                                     | EKMH630VSN472MA30S | 1,500                 | 30 × 30  | 0.15               | 1.95               | EKMH101VSN152MR30S                       |                    |                    |
|                       | 5,600    | 30 × 45            | 0.15  | 3.22                                     | EKMH630VSN562MR45S | 1,500                 | 35 × 25  | 0.15               | 1.98               | EKMH101VSN152MA25S                       |                    |                    |
| 5,600                 | 35 × 35  | 0.15               | 3.19  | EKMH630VSN562MA35S                       | 1,800              | 25.4 × 45             | 0.15     | 2.23               | EKMH101VSN182MQ45S |  |                    |                    |
| 6,800                 | 30 × 50  | 0.15               | 3.65  | EKMH630VSN682MR50S                       | 1,800              | 30 × 35               | 0.15     | 2.50               | EKMH101VSN182MR35S |  |                    |                    |
| 6,800                 | 35 × 40  | 0.15               | 3.64  | EKMH630VSN682MA40S                       | 1,800              | 35 × 25               | 0.15     | 2.17               | EKMH101VSN182MA25S |  |                    |                    |
| 8,200                 | 35 × 45  | 0.15               | 3.90  | EKMH630VSN822MA45S                       | 2,200              | 25.4 × 50             | 0.15     | 2.53               | EKMH101VSN222MQ50S |  |                    |                    |
| 10,000                | 35 × 50  | 0.15               | 4.40  | EKMH630VSN103MA50S                       | 2,200              | 30 × 40               | 0.15     | 2.70               | EKMH101VSN222MR40S |  |                    |                    |
| 80                    | 820      | 22 × 25            | 0.15  | 1.11                                     | EKMH800VSN821MP25S | 2,200                 | 35 × 30  | 0.15               | 2.50               | EKMH101VSN222MA30S                       |                    |                    |
|                       | 1,000    | 22 × 25            | 0.15  | 1.22                                     | EKMH800VSN102MP25S | 2,700                 | 30 × 45  | 0.15               | 2.88               | EKMH101VSN272MR45S                       |                    |                    |
|                       | 1,200    | 22 × 30            | 0.15  | 1.38                                     | EKMH800VSN122MP30S | 2,700                 | 35 × 35  | 0.15               | 2.86               | EKMH101VSN272MA35S                       |                    |                    |
|                       | 1,200    | 25.4 × 25          | 0.15  | 1.39                                     | EKMH800VSN122MQ25S | 3,300                 | 30 × 50  | 0.15               | 3.28               | EKMH101VSN332MR50S                       |                    |                    |
|                       | 1,500    | 22 × 35            | 0.15  | 1.59                                     | EKMH800VSN152MP35S | 3,300                 | 35 × 40  | 0.15               | 3.27               | EKMH101VSN332MA40S                       |                    |                    |
|                       | 1,500    | 25.4 × 30          | 0.15  | 1.61                                     | EKMH800VSN152MQ30S | 3,900                 | 35 × 45  | 0.15               | 3.67               | EKMH101VSN392MA45S                       |                    |                    |
|                       | 1,800    | 22 × 40            | 0.15  | 1.80                                     | EKMH800VSN182MP40S | 4,700                 | 35 × 50  | 0.15               | 3.80               | EKMH101VSN472MA50S                       |                    |                    |

\*For the rated voltage ≥ 160V<sub>dc</sub>, please use KMR and KMQ series.

◆RATED RIPPLE CURRENT MULTIPLIERS

●Frequency Multipliers

| Frequency(Hz)            | 50   | 120  | 300  | 1k   | 10k  | 50k  |
|--------------------------|------|------|------|------|------|------|
| 6.3 to 50V <sub>dc</sub> | 0.95 | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |
| 63 to 100V <sub>dc</sub> | 0.92 | 1.00 | 1.07 | 1.13 | 1.19 | 1.20 |

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.