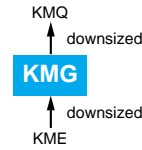


# KMG Series

- Downsized from KME series
- Solvent-proof type except 350 to 450V<sub>dc</sub>  
(see PRECAUTIONS AND GUIDELINES)
- Pb-free design

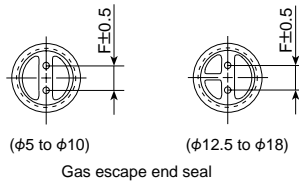
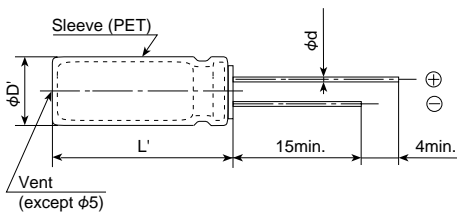


## ◆ SPECIFICATIONS

| Items  | Characteristics  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|--|--|--------------------------------------|------------------|------|------|------|------|--------------------------------------|------|-------------|-------------|------|------|------|---------------|----------------|---------|--|-----------------|------------------|---------|--|-------------------|
| Category<br>Temperature Range                                | -55 to +105°C(6.3 to 100V <sub>dc</sub> ) -40 to +105°C(160 to 400V <sub>dc</sub> ) -25 to +105°C(450V <sub>dc</sub> )   |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| Rated Voltage Range  | 6.3 to 450V <sub>dc</sub>  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| Capacitance Tolerance  | ±20% (M) (at 20°C, 120Hz)  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| Leakage Current  | 6.3 to 100V <sub>dc</sub>  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | I=0.03CV or 4μA, whichever is greater.   |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | 160 to 450V <sub>dc</sub>  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | <table border="1"> <thead> <tr> <th>CV</th> <th>Time</th> <th>After 1minute</th> <th>After 5minutes</th> </tr> </thead> <tbody> <tr> <td>CV≤1000</td> <td></td> <td>I=0.1CV+40 max.</td> <td>I=0.03CV+15 max.</td> </tr> <tr> <td>CV&gt;1000</td> <td></td> <td>I=0.04CV+100 max.</td> <td>I=0.02CV+25 max.</td> </tr> </tbody> </table> <p>(at 20°C after 1 minute) (at 20°C)</p> |                                      |                  |      |      |      |      |                                      |      |             |             |      | CV   | Time | After 1minute | After 5minutes | CV≤1000 |  | I=0.1CV+40 max. | I=0.03CV+15 max. | CV>1000 |  | I=0.04CV+100 max. |
| CV   | Time   | After 1minute                        | After 5minutes   |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| CV≤1000  |  | I=0.1CV+40 max.                      | I=0.03CV+15 max. |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| CV>1000  |  | I=0.04CV+100 max.                    | I=0.02CV+25 max. |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| Dissipation Factor<br>(tanδ)                                 | Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Rated voltage (V <sub>dc</sub> )   | 6.3V                                 | 10V              | 16V  | 25V  | 35V  | 50V  | 63V                                  | 100V | 160 to 250V | 350 to 400V | 450V |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | tanδ (Max.)  | 0.34                                 | 0.24             | 0.20 | 0.16 | 0.14 | 0.12 | 0.10                                 | 0.08 | 0.08        | 0.20        | 0.24 | 0.24 |      |               |                |         |  |                 |                  |         |  |                   |
| Low Temperature<br>Characteristics<br>(Max. Impedance Ratio) | When nominal capacitance exceeds 1000μF, add 0.02 to the value above for each 1000μF increase. (at 20°C, 120Hz)  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Rated voltage (V <sub>dc</sub> )   | 6.3V                                 | 10V              | 16V  | 25V  | 35V  | 50V  | 63V                                  | 100V | 160 to 250V | 350 to 400V | 450V |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Z(-25°C)/Z(+20°C)  | 5                                    | 4                | 3    | 2    | 2    | 2    | 2                                    | 2    | 3           | 6           | 6    |      |      |               |                |         |  |                 |                  |         |  |                   |
| Endurance  | Z(-40°C)/Z(+20°C)  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | 12 10 8 5 4 3 3 3 4 6 - (at 120Hz)   |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | 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 1000 hours (2000 hours to meet the following two conditions 1) : 160V <sub>dc</sub> and larger, 2) : φ12.5 and larger) at 105°C.   |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Capacitance change   | ≤±20% of the initial value           |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
| D.F. (tanδ)  | ≤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 1000 hours at 105°C without voltage applied.  |                                      |                  |      |      |      |      |                                      |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Rated voltage  | 6.3 to 100V <sub>dc</sub>            |                  |      |      |      |      | 160 to 450V <sub>dc</sub>            |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Capacitance change   | ≤±20% of the initial value           |                  |      |      |      |      | ≤±20% of the initial value           |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | D.F. (tanδ)  | ≤200% of the initial specified value |                  |      |      |      |      | ≤200% of the initial specified value |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |
|  | Leakage current  | ≤The initial specified value         |                  |      |      |      |      | ≤500% of the initial specified value |      |             |             |      |      |      |               |                |         |  |                 |                  |         |  |                   |

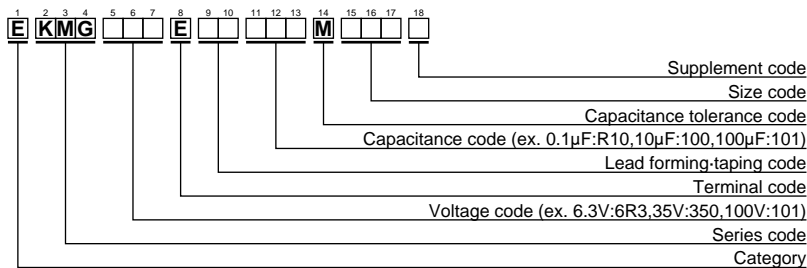
## ◆ DIMENSIONS [mm]

- Terminal Code : E



| φD  | 5          | 6.3 | 8   | 10  | 12.5 | 16  | 18  |
|-----|------------|-----|-----|-----|------|-----|-----|
| φd  | 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 |
| φD' | φD+0.5max. |     |     |     |      |     |     |
| L'  | L+1.5max   |     |     |     |      |     |     |

## ◆ PART NUMBERING SYSTEM



Please refer to "A guide to global code (radial lead type)"



**◆STANDARD RATINGS**
 is non solvent-proof.

| WV (Vdc) | Cap (μF) | Case size φDXL(mm) | tanδ | Rated ripple current (mA <sub>rms</sub> /105°C,120Hz) | Part No.           |
|----------|----------|--------------------|------|---|--------------------|
| 250      | 10       | 10×16              | 0.20 | 74  | EKMG251E□□100MJ16S |
|          | 22       | 12.5×20            | 0.20 | 130   | EKMG251E□□220MK20S |
|          | 33       | 12.5×20            | 0.20 | 160   | EKMG251E□□330MK20S |
|          | 47       | 12.5×25            | 0.20 | 210   | EKMG251E□□470MK25S |
|          | 100      | 16×31.5            | 0.20 | 365   | EKMG251E□□101MLN3S |
|          | 220      | 18×40              | 0.20 | 585   | EKMG251E□□221MM40S |
| 350      | 0.47     | 6.3×11             | 0.24 | 11  | EKMG351E□□R47MF11D |
|          | 1.0      | 6.3×11             | 0.24 | 15  | EKMG351E□□1R0MF11D |
|          | 2.2      | 8×11.5             | 0.24 | 26  | EKMG351E□□2R2MHB5D |
|          | 3.3      | 10×12.5            | 0.24 | 38  | EKMG351E□□3R3MJC5S |
|          | 4.7      | 10×16              | 0.24 | 50  | EKMG351E□□4R7MJ16S |
|          | 10       | 10×20              | 0.24 | 80  | EKMG351E□□100MJ20S |
|          | 22       | 12.5×20            | 0.24 | 130   | EKMG351E□□220MK20S |
|          | 33       | 16×25              | 0.24 | 195   | EKMG351E□□330ML25S |
|          | 47       | 16×25              | 0.24 | 230   | EKMG351E□□470ML25S |
| 100      | 18×31.5  | 0.24               | 375  | EKMG351E□□101MMN3S                                    |                    |

 : Lead forming / Taping code

| WV (Vdc) | Cap (μF) | Case size φDXL(mm) | tanδ | Rated ripple current (mA <sub>rms</sub> /105°C,120Hz) | Part No.           |
|----------|----------|--------------------|------|---|--------------------|
| 400      | 1.0      | 6.3×11             | 0.24 | 15  | EKMG401E□□1R0MF11D |
|          | 2.2      | 8×11.5             | 0.24 | 26  | EKMG401E□□2R2MHB5D |
|          | 3.3      | 10×12.5            | 0.24 | 38  | EKMG401E□□3R3MJC5S |
|          | 4.7      | 10×16              | 0.24 | 50  | EKMG401E□□4R7MJ16S |
|          | 10       | 10×20              | 0.24 | 80  | EKMG401E□□100MJ20S |
|          | 22       | 12.5×25            | 0.24 | 145   | EKMG401E□□220MK25S |
|          | 33       | 16×25              | 0.24 | 195   | EKMG401E□□330ML25S |
|          | 47       | 16×31.5            | 0.24 | 250   | EKMG401E□□470MLN3S |
|          | 100      | 16×40              | 0.24 | 350   | EKMG401E□□101ML40S |
| 450      | 0.47     | 10×12.5            | 0.24 | 9.0   | EKMG451E□□R47MJC5S |
|          | 1.0      | 10×12.5            | 0.24 | 13  | EKMG451E□□1R0MJC5S |
|          | 2.2      | 10×12.5            | 0.24 | 23  | EKMG451E□□2R2MJC5S |
|          | 3.3      | 10×16              | 0.24 | 31  | EKMG451E□□3R3MJ16S |
|          | 4.7      | 10×20              | 0.24 | 40  | EKMG451E□□4R7MJ20S |
|          | 10       | 12.5×20            | 0.24 | 65  | EKMG451E□□100MK20S |
|          | 22       | 16×25              | 0.24 | 115   | EKMG451E□□220ML25S |
|          | 33       | 16×31.5            | 0.24 | 155   | EKMG451E□□330MLN3S |
|          | 47       | 16×35.5            | 0.24 | 185   | EKMG451E□□470MLP1S |

**◆RATED RIPPLE CURRENT MULTIPLIERS**

## ●Frequency Multipliers

| Capacitance (μF) | Frequency (Hz) |      |      |      |      |      |
|------------------|----------------|------|------|------|------|------|
|                  | 50             | 120  | 300  | 1k   | 10k  | 100k |
| 0.1 to 4.7       | 0.65           | 1.00 | 1.35 | 1.75 | 2.30 | 2.50 |
| 10 to 47         | 0.75           | 1.00 | 1.25 | 1.50 | 1.75 | 1.80 |
| 100 to 1,000     | 0.80           | 1.00 | 1.15 | 1.30 | 1.40 | 1.50 |
| 2,200 to         | 0.85           | 1.00 | 1.03 | 1.05 | 1.08 | 1.08 |