

# KMG Series

- Endurance with ripple current : 1,000 to 2,000 hours at 105°C
- Solvent resistant type except 350 to 450V<sub>dc</sub>  
(see PRECAUTIONS AND GUIDELINES)
- RoHS Compliant

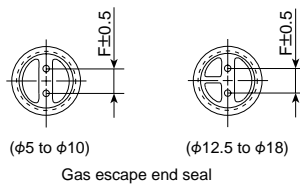
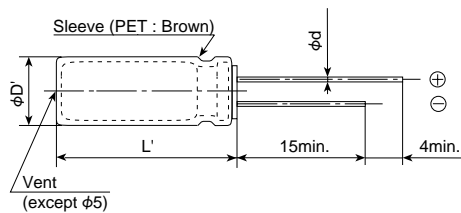


## ◆ SPECIFICATIONS

| Items   | Characteristics  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
|---|--|--------------------------------------|------------------|------|------|------|------|--------------------------------------|------|-------------|-------------|------|----|------|---------------|----------------|----------|--|-----------------|------------------|----------|--|-------------------|
| Category  | -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> )   |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| Temperature Range   |  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| 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>  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
|   | 160 to 450V <sub>dc</sub>  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
|   | I=0.03CV or 4μA, whichever is greater.   |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
|   | <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≤1,000</td> <td></td> <td>I=0.1CV+40 max.</td> <td>I=0.03CV+15 max.</td> </tr> <tr> <td>CV&gt;1,000</td> <td></td> <td>I=0.04CV+100 max.</td> <td>I=0.02CV+25 max.</td> </tr> </tbody> </table> |                                      |                  |      |      |      |      |                                      |      |             |             |      | CV | Time | After 1minute | After 5minutes | CV≤1,000 |  | I=0.1CV+40 max. | I=0.03CV+15 max. | CV>1,000 |  | I=0.04CV+100 max. |
| CV  | Time   | After 1minute                        | After 5minutes   |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| CV≤1,000  |  | I=0.1CV+40 max.                      | I=0.03CV+15 max. |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| CV>1,000  |  | I=0.04CV+100 max.                    | I=0.02CV+25 max. |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| (at 20°C after 1 minute) (at 20°C)  |  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V) |  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
| Dissipation Factor (tanδ)   | 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 | 0.20        | 0.24        | 0.24 |    |      |               |                |          |  |                 |                  |          |  |                   |
|   | 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)                                    | 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    |    |      |               |                |          |  |                 |                  |          |  |                   |
|   | Z(-40°C)/Z(+20°C)  | 12                                   | 10               | 8    | 5    | 4    | 3    | 3                                    | 3    | 4           | 6           | —    |    |      |               |                |          |  |                 |                  |          |  |                   |
| (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 for 1,000 hours (2,000 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 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.  |                                      |                  |      |      |      |      |                                      |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |
|   | 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 |      |             |             |      |    |      |               |                |          |  |                 |                  |          |  |                   |

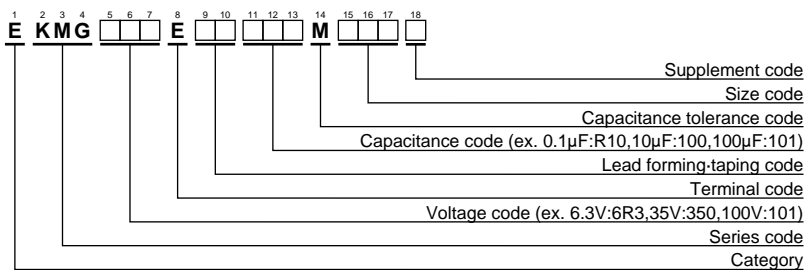
## ◆ DIMENSIONS [mm]

- 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 "Product code guide (radial lead type)"

◆STANDARD RATINGS

| WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ  | Rated ripple current (mA rms/105°C, 120Hz) | Part No.           | WV (Vdc) | Cap (μF) | Case size φD×L(mm) | tanδ    | Rated ripple current (mA rms/105°C, 120Hz) | Part No.           |                    |                    |
|----------|----------|--------------------|-------|--|--------------------|----------|----------|--------------------|---------|--|--------------------|--------------------|--------------------|
| 6.3      | 220      | 5×11               | 0.34  | 140  | EKMG6R3E□□221ME11D | 50       | 2,200    | 16×35.5            | 0.14    | 1,470                                      | EKMG500E□□222MLP1S |                    |                    |
|          | 330      | 6.3×11             | 0.34  | 190  | EKMG6R3E□□331MF11D |          | 3,300    | 18×35.5            | 0.16    | 1,770                                      | EKMG500E□□332MMP1S |                    |                    |
|          | 470      | 6.3×11             | 0.34  | 230  | EKMG6R3E□□471MF11D |          | 63       | 10                 | 5×11    | 0.10                                       | 46                 | EKMG630E□□100ME11D |                    |
|          | 1,000    | 8×11.5             | 0.34  | 380  | EKMG6R3E□□102MHB5D |          |          | 22                 | 5×11    | 0.10                                       | 71                 | EKMG630E□□220ME11D |                    |
|          | 2,200    | 10×20              | 0.36  | 710  | EKMG6R3E□□222MJ20S |          |          | 33                 | 6.3×11  | 0.10                                       | 100                | EKMG630E□□330MF11D |                    |
|          | 3,300    | 10×20              | 0.38  | 840  | EKMG6R3E□□332MJ20S |          |          | 47                 | 6.3×11  | 0.10                                       | 120                | EKMG630E□□470MF11D |                    |
|          | 4,700    | 12.5×20            | 0.40  | 1,090                                      | EKMG6R3E□□472MK20S |          |          | 100                | 10×12.5 | 0.10                                       | 215                | EKMG630E□□101MJC5S |                    |
|          | 6,800    | 12.5×25            | 0.44  | 1,350                                      | EKMG6R3E□□682MK25S |          |          | 220                | 10×16   | 0.10                                       | 335                | EKMG630E□□221MJ16S |                    |
|          | 10,000   | 16×25              | 0.52  | 1,650                                      | EKMG6R3E□□103ML25S |          |          | 330                | 10×20   | 0.10                                       | 510                | EKMG630E□□331MJ20S |                    |
|          | 15,000   | 16×35.5            | 0.62  | 2,010                                      | EKMG6R3E□□153MLP1S |          |          | 470                | 12.5×20 | 0.10                                       | 640                | EKMG630E□□471MK20S |                    |
| 22,000   | 18×40    | 0.76               | 2,350 | EKMG6R3E□□223MM40S                         | 1,000              | 16×25    |          | 0.10               | 930     | EKMG630E□□102ML25S                         |                    |                    |                    |
| 10       | 220      | 6.3×11             | 0.24  | 170  | EKMG100E□□221MF11D | 100      |          | 0.10               | 5×11    | 0.08                                       | 1.5                | EKMG101E□□R10ME11D |                    |
|          | 330      | 6.3×11             | 0.24  | 200  | EKMG100E□□331MF11D |          | 0.22     | 5×11               | 0.08    | 3.4  | EKMG101E□□R22ME11D |                    |                    |
|          | 470      | 8×11.5             | 0.24  | 250  | EKMG100E□□471MHB5D |          | 0.33     | 5×11               | 0.08    | 5.0  | EKMG101E□□R33ME11D |                    |                    |
|          | 1,000    | 10×12.5            | 0.24  | 460  | EKMG100E□□102MJC5S |          | 0.47     | 5×11               | 0.08    | 7.1  | EKMG101E□□R47ME11D |                    |                    |
|          | 2,200    | 10×20              | 0.26  | 760  | EKMG100E□□222MJ20S |          | 1.0      | 5×11               | 0.08    | 15   | EKMG101E□□R10ME11D |                    |                    |
|          | 3,300    | 12.5×20            | 0.28  | 1,000                                      | EKMG100E□□332MK20S |          | 2.2      | 5×11               | 0.08    | 21   | EKMG101E□□R22ME11D |                    |                    |
|          | 4,700    | 12.5×25            | 0.30  | 1,260                                      | EKMG100E□□472MK25S |          | 3.3      | 5×11               | 0.08    | 29   | EKMG101E□□R33ME11D |                    |                    |
|          | 6,800    | 16×25              | 0.34  | 1,570                                      | EKMG100E□□682ML25S |          | 4.7      | 5×11               | 0.08    | 32   | EKMG101E□□R47ME11D |                    |                    |
|          | 10,000   | 16×35.5            | 0.42  | 1,890                                      | EKMG100E□□103MLP1S |          | 10       | 6.3×11             | 0.08    | 54   | EKMG101E□□100MF11D |                    |                    |
|          | 15,000   | 18×35.5            | 0.52  | 2,180                                      | EKMG100E□□153MMP1S |          | 22       | 8×11.5             | 0.08    | 93   | EKMG101E□□220MHB5D |                    |                    |
| 16       | 100      | 5×11               | 0.20  | 110  | EKMG160E□□101ME11D | 160      | 33       | 8×11.5             | 0.08    | 130  | EKMG101E□□330MHB5D |                    |                    |
|          | 220      | 6.3×11             | 0.20  | 180  | EKMG160E□□221MF11D |          | 47       | 10×12.5            | 0.08    | 165  | EKMG101E□□470MJC5S |                    |                    |
|          | 330      | 8×11.5             | 0.20  | 260  | EKMG160E□□331MHB5D |          | 100      | 10×20              | 0.08    | 265  | EKMG101E□□101MJ20S |                    |                    |
|          | 470      | 8×11.5             | 0.20  | 310  | EKMG160E□□471MHB5D |          | 220      | 12.5×25            | 0.08    | 440  | EKMG101E□□221MK25S |                    |                    |
|          | 1,000    | 10×16              | 0.20  | 560  | EKMG160E□□102MJ16S |          | 330      | 16×25              | 0.08    | 540  | EKMG101E□□331ML25S |                    |                    |
|          | 2,200    | 12.5×20            | 0.22  | 920  | EKMG160E□□222MK20S |          | 470      | 16×31.5            | 0.08    | 715  | EKMG101E□□471MLN3S |                    |                    |
|          | 3,300    | 12.5×25            | 0.24  | 1,170                                      | EKMG160E□□332MK25S |          | 1,000    | 18×40              | 0.08    | 985  | EKMG101E□□102MM40S |                    |                    |
|          | 4,700    | 16×25              | 0.26  | 1,480                                      | EKMG160E□□472ML25S |          | 200      | 3.3                | 6.3×11  | 0.20                                       | 28                 | EKMG161E□□R33MF11D |                    |
|          | 6,800    | 16×31.5            | 0.30  | 1,780                                      | EKMG160E□□682MLN3S |          |          | 4.7                | 6.3×11  | 0.20                                       | 34                 | EKMG161E□□R47MF11D |                    |
|          | 10,000   | 18×35.5            | 0.38  | 2,060                                      | EKMG160E□□103MMP1S |          |          | 10                 | 10×12.5 | 0.20                                       | 67                 | EKMG161E□□100MJC5S |                    |
| 25       | 47       | 5×11               | 0.16  | 80   | EKMG250E□□470ME11D | 250      |          | 22                 | 10×20   | 0.20                                       | 120                | EKMG161E□□220MJ20S |                    |
|          | 100      | 6.3×11             | 0.16  | 130  | EKMG250E□□101MF11D |          |          | 33                 | 10×20   | 0.20                                       | 145                | EKMG161E□□330MJ20S |                    |
|          | 220      | 8×11.5             | 0.16  | 230  | EKMG250E□□221MHB5D |          |          | 47                 | 12.5×20 | 0.20                                       | 195                | EKMG161E□□470MK20S |                    |
|          | 330      | 8×11.5             | 0.16  | 310  | EKMG250E□□331MHB5D |          |          | 100                | 16×25   | 0.20                                       | 335                | EKMG161E□□101ML25S |                    |
|          | 470      | 10×12.5            | 0.16  | 380  | EKMG250E□□471MJC5S |          |          | 220                | 16×31.5 | 0.20                                       | 540                | EKMG161E□□221MLN3S |                    |
|          | 1,000    | 10×20              | 0.16  | 680  | EKMG250E□□102MJ20S |          |          | 330                | 18×35.5 | 0.20                                       | 705                | EKMG161E□□331MMP1S |                    |
|          | 2,200    | 12.5×25            | 0.18  | 1,090                                      | EKMG250E□□222MK25S |          |          | 350                | 3.3     | 6.3×11                                     | 0.20               | 28                 | EKMG201E□□R33MF11D |
|          | 3,300    | 16×25              | 0.20  | 1,400                                      | EKMG250E□□332ML25S |          | 4.7      |                    | 8×11.5  | 0.20                                       | 39                 | EKMG201E□□R47MHB5D |                    |
|          | 4,700    | 16×31.5            | 0.22  | 1,710                                      | EKMG250E□□472MLN3S |          | 10       |                    | 10×16   | 0.20                                       | 74                 | EKMG201E□□100MJ16S |                    |
|          | 6,800    | 18×35.5            | 0.26  | 2,040                                      | EKMG250E□□682MMP1S |          | 22       |                    | 10×20   | 0.20                                       | 120                | EKMG201E□□220MJ20S |                    |
| 35       | 47       | 5×11               | 0.14  | 90   | EKMG350E□□470ME11D | 400      | 33       |                    | 12.5×20 | 0.20                                       | 160                | EKMG201E□□330MK20S |                    |
|          | 100      | 6.3×11             | 0.14  | 150  | EKMG350E□□101MF11D |          | 47       |                    | 12.5×20 | 0.20                                       | 195                | EKMG201E□□470MK20S |                    |
|          | 220      | 8×11.5             | 0.14  | 270  | EKMG350E□□221MHB5D |          | 100      |                    | 16×25   | 0.20                                       | 335                | EKMG201E□□101ML25S |                    |
|          | 330      | 10×12.5            | 0.14  | 350  | EKMG350E□□331MJC5S |          | 220      |                    | 18×35.5 | 0.20                                       | 575                | EKMG201E□□221MMP1S |                    |
|          | 470      | 10×16              | 0.14  | 460  | EKMG350E□□471MJ16S |          | 500      |                    | 2.2     | 6.3×11                                     | 0.20               | 23                 | EKMG251E□□R22MF11D |
|          | 1,000    | 12.5×20            | 0.14  | 810  | EKMG350E□□102MK20S |          |          |                    | 3.3     | 8×11.5                                     | 0.20               | 32                 | EKMG251E□□R33MHB5D |
|          | 2,200    | 16×25              | 0.16  | 1,260                                      | EKMG350E□□222ML25S |          |          | 4.7                | 8×11.5  | 0.20                                       | 39                 | EKMG251E□□R47MHB5D |                    |
|          | 3,300    | 16×35.5            | 0.18  | 1,610                                      | EKMG350E□□332MLP1S |          |          | 10                 | 10×16   | 0.20                                       | 74                 | EKMG251E□□100MJ16S |                    |
|          | 4,700    | 18×35.5            | 0.20  | 1,910                                      | EKMG350E□□472MMP1S |          |          | 22                 | 12.5×20 | 0.20                                       | 130                | EKMG251E□□220MK20S |                    |
|          | 50       | 0.10               | 5×11  | 0.12                                       | 1.3                |          |          | EKMG500E□□R10ME11D | 550     | 33   | 12.5×20            | 0.20               | 160                |
| 0.22     |          | 5×11               | 0.12  | 2.9  | EKMG500E□□R22ME11D | 47       |          | 12.5×25            |         | 0.20                                       | 210                | EKMG251E□□470MK25S |                    |
| 0.33     |          | 5×11               | 0.12  | 4.3  | EKMG500E□□R33ME11D | 100      |          | 16×31.5            |         | 0.20                                       | 365                | EKMG251E□□101MLN3S |                    |
| 0.47     |          | 5×11               | 0.12  | 6.2  | EKMG500E□□R47ME11D | 220      |          | 18×40              |         | 0.20                                       | 585                | EKMG251E□□221MM40S |                    |
| 1.0      |          | 5×11               | 0.12  | 13   | EKMG500E□□R10ME11D | 630      |          | 0.47               |         | 6.3×11                                     | 0.24               | 11                 | EKMG351E□□R47MF11D |
| 2.2      |          | 5×11               | 0.12  | 20   | EKMG500E□□R22ME11D |          | 1.0      | 6.3×11             |         | 0.24                                       | 15                 | EKMG351E□□R10MF11D |                    |
| 3.3      |          | 5×11               | 0.12  | 25   | EKMG500E□□R33ME11D |          | 2.2      | 8×11.5             |         | 0.24                                       | 26                 | EKMG351E□□R22MHB5D |                    |
| 4.7      |          | 5×11               | 0.12  | 30   | EKMG500E□□R47ME11D |          | 3.3      | 10×12.5            |         | 0.24                                       | 38                 | EKMG351E□□R33MJC5S |                    |
| 10       |          | 5×11               | 0.12  | 40   | EKMG500E□□100ME11D |          | 4.7      | 10×16              |         | 0.24                                       | 50                 | EKMG351E□□R47MJ16S |                    |
| 22       |          | 5×11               | 0.12  | 65   | EKMG500E□□220ME11D |          | 10       | 10×20              |         | 0.24                                       | 80                 | EKMG351E□□100MJ20S |                    |
| 33       | 5×11     | 0.12               | 90    | EKMG500E□□330ME11D                         | 22                 |          | 12.5×20  | 0.24               | 130     | EKMG351E□□220MK20S                         |                    |                    |                    |
| 47       | 6.3×11   | 0.12               | 110   | EKMG500E□□470MF11D                         | 33                 |          | 16×25    | 0.24               | 195     | EKMG351E□□330ML25S                         |                    |                    |                    |
| 100      | 8×11.5   | 0.12               | 180   | EKMG500E□□101MHB5D                         | 47                 |          | 16×25    | 0.24               | 230     | EKMG351E□□470ML25S                         |                    |                    |                    |
| 220      | 10×12.5  | 0.12               | 300   | EKMG500E□□221MJC5S                         | 100                |          | 18×31.5  | 0.24               | 375     | EKMG351E□□101MMN3S                         |                    |                    |                    |
| 330      | 10×16    | 0.12               | 410   | EKMG500E□□331MJ16S                         | 400                | 1.0      | 6.3×11   | 0.24               | 15      | EKMG401E□□R10MF11D                         |                    |                    |                    |
| 470      | 10×20    | 0.12               | 530   | EKMG500E□□471MJ20S                         |                    | 2.2      | 8×11.5   | 0.24               | 26      | EKMG401E□□R22MHB5D                         |                    |                    |                    |
| 1,000    | 12.5×25  | 0.12               | 950   | EKMG500E□□102MK25S                         |                    | 3.3      | 10×12.5  | 0.24               | 38      | EKMG401E□□R33MJC5S                         |                    |                    |                    |

□ : Enter the appropriate lead forming or taping code.

### ◆STANDARD RATINGS

is not solvent resistant.

| WV (Vdc) | Cap (μF) | Case size φDXL(mm) | tanδ | Rated ripple current (mA <sub>rms</sub> /105°C,120Hz) | Part No.           |
|----------|----------|--------------------|------|---|--------------------|
| 400      | 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 |

| WV (Vdc) | Cap (μF) | Case size φDXL(mm) | tanδ | Rated ripple current (mA <sub>rms</sub> /105°C,120Hz) | Part No.           |
|----------|----------|--------------------|------|---|--------------------|
| 450      | 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 |

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

### ◆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 |

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.