

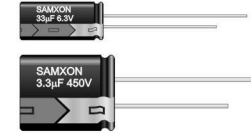
## KM Series

+105°C, Standard(標準品)

SAMXON®

### FEATURES

1. Rated working voltage range 6.3 to 100V DC/160 to 450V DC at operation temperature range -40 to +105°C/-25 to +105°C.
2. This series is for communication equipments, switching power supply, industrial measuring instruments, automotive electric products, etc.



### SPECIFICATIONS

| Item                                       | Performance Characteristics                                                                                                                                                                                                               |           |       |       |                                                     |                    |      |      |      |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|-------|-----------------------------------------------------|--------------------|------|------|------|
| Operating Temperature Range                | -40 to +105°C                                                                                                                                                                                                                             |           |       |       |                                                     | -25 to +105°C      |      |      |      |
| Rated Working Voltage Range                | 6.3 to 100V                                                                                                                                                                                                                               |           |       |       |                                                     | 160 to 450V        |      |      |      |
| Nominal Capacitance Range                  | 0.1 to 33000μF                                                                                                                                                                                                                            |           |       |       |                                                     |                    |      |      |      |
| Capacitance Tolerance                      | ±20% (120Hz, +20°C)                                                                                                                                                                                                                       |           |       |       |                                                     |                    |      |      |      |
| Leakage Current                            | I ≤ 0.01CV or 3(μA) whichever is greater                                                                                                                                                                                                  |           |       |       |                                                     | I ≤ 0.03CV +40(μA) |      |      |      |
|                                            | after 2 minutes application of rated working voltage at +20°C                                                                                                                                                                             |           |       |       |                                                     |                    |      |      |      |
| Dissipation Factor<br>tan δ (120Hz, +20°C) | Working Voltage (V)                                                                                                                                                                                                                       | 6.3       | 10    | 16    | 25                                                  | 35                 | 50   | 63   | 100  |
|                                            | tan δ (max.)                                                                                                                                                                                                                              | 0.26      | 0.22  | 0.18  | 0.16                                                | 0.14               | 0.12 | 0.10 | 0.08 |
|                                            | Working Voltage (V)                                                                                                                                                                                                                       | 160       | 200   | 220   | 250                                                 | 350                | 400  | 420  | 450  |
|                                            | tan δ (max.)                                                                                                                                                                                                                              | 0.20      | 0.20  | 0.20  | 0.20                                                | 0.24               | 0.24 | 0.24 | 0.24 |
|                                            | For capacitance value > 1000μF, add 0.02 per another 1000μF                                                                                                                                                                               |           |       |       |                                                     |                    |      |      |      |
| Low Temperature Characteristics            | Impedance ratio max. at 120Hz                                                                                                                                                                                                             |           |       |       |                                                     |                    |      |      |      |
|                                            | Working Voltage (V)                                                                                                                                                                                                                       | 6.3       | 10    | 16    | 25                                                  | 35                 | 50   | 63   | 100  |
|                                            | Z-25°C / Z+20°C                                                                                                                                                                                                                           | 5         | 4     | 3     | 2                                                   | 2                  | 2    | 2    | 2    |
|                                            | Z-40°C / Z+20°C                                                                                                                                                                                                                           | 10        | 8     | 6     | 4                                                   | 3                  | 3    | 3    | 3    |
|                                            | Working Voltage (V)                                                                                                                                                                                                                       | 160       | 200   | 220   | 250                                                 | 350                | 400  | 420  | 450  |
|                                            | Z-25°C / Z+20°C                                                                                                                                                                                                                           | 3         | 3     | 3     | 4                                                   | 4                  | 6    | 6    | 15   |
|                                            | For capacitance value > 1000μF, Add 0.5 per another 1000μF for Z-25°C / Z+20°C<br>Add 1.0 per another 1000μF for Z-40°C / Z+20°C                                                                                                          |           |       |       |                                                     |                    |      |      |      |
| High Temperature Loading                   | Test conditions                                                                                                                                                                                                                           |           |       |       | Post test requirements at +20°C                     |                    |      |      |      |
|                                            | Duration :                                                                                                                                                                                                                                | φD        | ≤ 8   | ≥ 10  | Leakage current : ≤ Initial specified value         |                    |      |      |      |
|                                            |                                                                                                                                                                                                                                           | Load life | 1000h | 2000h | Cap. change : within ±20% of initial measured value |                    |      |      |      |
|                                            | Ambient temp. : +105°C                                                                                                                                                                                                                    |           |       |       | tan δ : ≤ 200% of initial specified value           |                    |      |      |      |
|                                            | Applied voltage : DC voltage with maximum permissible ripple current specified at +105°C<br>(Sum of the DC voltage and super-imposed peak AC voltage for maximum permissible ripple current should be equal to rated DC working voltage). |           |       |       |                                                     |                    |      |      |      |
| Shelf Life                                 | Test conditions                                                                                                                                                                                                                           |           |       |       | Post test requirements at +20°C                     |                    |      |      |      |
|                                            | Duration : 1000 hours                                                                                                                                                                                                                     |           |       |       | Same limits for high temperature loading.           |                    |      |      |      |
|                                            | Ambient temp. : +105°C                                                                                                                                                                                                                    |           |       |       |                                                     |                    |      |      |      |
|                                            | Applied voltage : (None)                                                                                                                                                                                                                  |           |       |       |                                                     |                    |      |      |      |
| Others                                     | JIS C - 5101 (IEC 60384)                                                                                                                                                                                                                  |           |       |       |                                                     |                    |      |      |      |

### CASE SIZE TABLE

|  |    |     |              |     |     |              |     |     |      |      |
|--|----|-----|--------------|-----|-----|--------------|-----|-----|------|------|
|  | ϕD | 5   | 6.3          | 8   | 10  | 12.5         | 16  | 18  | 22   | 25   |
|  | F  | 2.0 | 2.5          | 3.5 | 5.0 | 5.0          | 7.5 | 7.5 | 10.0 | 12.5 |
|  | ϕd |     | 0.5          |     | 0.6 |              | 0.8 |     |      | 1.0  |
|  | α  |     | (L < 20) 1.5 |     |     | (L ≥ 20) 2.0 |     |     |      |      |
|  | β  |     | (D < 20) 0.5 |     |     | (D ≥ 20) 1.0 |     |     |      |      |
|  |    |     |              |     |     |              |     |     |      |      |

### RIPPLE CURRENT MULTIPLIER

| Temperature Coefficient |      |      |      |      |      | Frequency Coefficient |         |            |      |      |      |      |      |
|-------------------------|------|------|------|------|------|-----------------------|---------|------------|------|------|------|------|------|
| Temperature(°C)         | ~ 55 | 60   | 70   | 85   | 105  | Rated Voltage(V)      | Cap(μF) | Freq.(Hz)  | 50   | 120  | 300  | 1K   | 10K~ |
| Factor                  | 2.23 | 2.17 | 2.00 | 1.75 | 1.00 | 6.3 ~ 100             |         | ~ 47       | 0.75 | 1.00 | 1.35 | 1.57 | 2.00 |
|                         |      |      |      |      |      |                       |         | 100 ~ 470  | 0.80 | 1.00 | 1.23 | 1.34 | 1.50 |
|                         |      |      |      |      |      |                       |         | ≥ 560      | 0.85 | 1.00 | 1.10 | 1.13 | 1.15 |
|                         |      |      |      |      |      | 160 ~ 450             |         | 0.47 ~ 220 | 0.80 | 1.00 | 1.25 | 1.40 | 1.60 |
|                         |      |      |      |      |      |                       |         | > 270      | 0.90 | 1.00 | 1.10 | 1.13 | 1.15 |

KM

Miniature Aluminum Electrolytic Capacitors

**+105°C, Standard(標準品)****DIMENSIONS**

| Voltage (Code) |      | 6.3V (0J) |                | 10V (1A)  |                | 16V (1C)  |                | 25V (1E)  |                |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap.(μF)       | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.1            | 104  |           |                |           |                |           |                |           |                |
| 0.15           | 154  |           |                |           |                |           |                |           |                |
| 0.22           | 224  |           |                |           |                |           |                |           |                |
| 0.33           | 334  |           |                |           |                |           |                |           |                |
| 0.47           | 474  |           |                |           |                |           |                |           |                |
| 1              | 105  |           |                |           |                |           |                |           |                |
| 2.2            | 225  |           |                |           |                |           |                |           |                |
| 3.3            | 335  |           |                |           |                |           |                |           |                |
| 4.7            | 475  |           |                |           |                |           |                | 5 x 11    | 26             |
| 10             | 106  |           |                |           |                | 5 x 11    | 35             | 5 x 11    | 38             |
| 22             | 226  |           |                | 5 x 11    | 49             | 5 x 11    | 54             | 5 x 11    | 57             |
| 33             | 336  | 5 x 11    | 54             | 5 x 11    | 60             | 5 x 11    | 64             | 5 x 11    | 75             |
| 47             | 476  | 5 x 11    | 65             | 5 x 11    | 70             | 5 x 11    | 80             | 5 x 11    | 84             |
| 68             | 686  | 5 x 11    | 70             | 5 x 11    | 75             | 5 x 11    | 90             | 5 x 11    | 92             |
| 100            | 107  | 5 x 11    | 95             | 5 x 11    | 105            | 5 x 11    | 125            | 6.3 x 11  | 159            |
| 220            | 227  | 5 x 11    | 153            | 6.3 x 11  | 193            | 6.3 x 11  | 213            | 8 x 12    | 285            |
| 330            | 337  | 6.3 x 11  | 216            | 6.3 x 11  | 239            | 8 x 12    | 315            | 8 x 12    | 340            |
| 470            | 477  | 6.3 x 11  | 258            | 6.3 x 11  | 285            | 8 x 12    | 366            | 10 x 12.5 | 471            |
| 680            | 687  | 8 x 12    | 365            | 10 x 12.5 | 472            | 10 x 12.5 | 480            | 10 x 16   | 620            |
| 1000           | 108  | 8 x 12    | 443            | 10 x 12.5 | 571            | 10 x 16   | 680            | 10 x 20   | 821            |
| 2200           | 228  | 10 x 20   | 817            | 10 x 20   | 886            | 12.5 x 20 | 1108           | 12.5 x 25 | 1297           |
| 3300           | 338  | 10 x 20   | 1032           | 12.5 x 20 | 1205           | 12.5 x 25 | 1389           | 16 x 25   | 1646           |
| 4700           | 478  | 12.5 x 20 | 1280           | 12.5 x 25 | 1492           | 16 x 25   | 1740           | 16 x 30   | 2012           |
| 6800           | 688  | 12.5 x 25 | 1554           | 16 x 25   | 1824           | 16 x 30   | 2081           | 16 x 40   | 2452           |
| 10000          | 109  | 16 x 25   | 1897           | 16 x 30   | 1980           | 16 x 40   | 2527           | 18 x 35   | 2500           |
| 15000          | 159  | 16 x 35   | 2344           | 16 x 40   | 2180           | 18 x 35   | 2600           |           |                |
| 22000          | 229  | 18 x 40   | 2500           | 18 x 35   | 2268           |           |                |           |                |
|                |      | 18 x 35   | 2400           |           |                |           |                |           |                |
| 33000          | 339  | 18 x 40   | 2555           |           |                |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size φD x L(mm)

| Voltage (Code) |      | 35V (1V)  |                | 50V (1H)  |                | 63V (1J)  |                | 100V (2A) |                |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap.(μF)       | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.1            | 104  |           |                | 5 x 11    | 1              |           |                |           |                |
| 0.15           | 154  |           |                | 5 x 11    | 1.5            |           |                |           |                |
| 0.22           | 224  |           |                | 5 x 11    | 3              |           |                |           |                |
| 0.33           | 334  |           |                | 5 x 11    | 4              |           |                |           |                |
| 0.47           | 474  |           |                | 5 x 11    | 7              |           |                | 5 x 11    | 10             |
| 1              | 105  |           |                | 5 x 11    | 13             |           |                | 5 x 11    | 16             |
| 2.2            | 225  |           |                | 5 x 11    | 20             |           |                | 5 x 11    | 23             |
| 3.3            | 335  |           |                | 5 x 11    | 30             |           |                | 5 x 11    | 34             |
| 4.7            | 475  | 5 x 11    | 28             | 5 x 11    | 37             | 5 x 11    | 40             | 5 x 11    | 40             |
| 10             | 106  | 5 x 11    | 41             | 5 x 11    | 54             | 5 x 11    | 59             | 6.3 x 11  | 61             |
| 22             | 226  | 5 x 11    | 67             | 5 x 11    | 79             | 6.3 x 11  | 87             | 8 x 12    | 110            |
| 33             | 336  | 5 x 11    | 80             | 6.3 x 11  | 115            | 6.3 x 11  | 122            | 8 x 12    | 144            |
| 47             | 476  | 5 x 11    | 101            | 6.3 x 11  | 133            | 6.3 x 11  | 146            | 10 x 12.5 | 199            |
|                |      | 6.3 x 11  | 120            |           |                |           |                |           |                |
| 68             | 686  |           |                |           |                | 8 x 12    | 155            | 10 x 12.5 | 220            |
| 100            | 107  | 6.3 x 11  | 168            | 8 x 12    | 229            | 10 x 12.5 | 251            | 10 x 20   | 349            |
| 220            | 227  | 8 x 12    | 294            | 10 x 16   | 509            | 10 x 20   | 504            | 12.5 x 25 | 662            |
| 330            | 337  | 10 x 12.5 | 419            | 10 x 20   | 650            | 12.5 x 20 | 688            | 12.5 x 25 | 800            |
| 470            | 477  | 10 x 16   | 547            | 12.5 x 20 | 801            | 12.5 x 25 | 897            | 16 x 30   | 1072           |
| 680            | 687  | 10 x 20   | 682            | 12.5 x 20 | 923            | 12.5 x 25 | 1160           | 18 x 35   | 1125           |
| 1000           | 108  | 12.5 x 20 | 1023           | 12.5 x 25 | 1287           | 16 x 30   | 1568           | 18 x 40   | 2020           |
| 2200           | 228  | 16 x 25   | 1497           | 16 x 35   | 1884           | 18 x 40   | 1890           |           |                |
| 3300           | 338  | 16 x 30   | 1808           | 18 x 40   | 2300           |           |                |           |                |
| 4700           | 478  | 18 x 35   | 2335           |           |                |           |                |           |                |
| 6800           | 688  | 18 x 40   | 2400           |           |                |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size φD x L(mm)

## DIMENSIONS

| Voltage (Code) |      | 160V (2C) |                | 200V (2D) |                | 220V (2N) |                | 250V (2E) |                |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|
| Cap.(μF)       | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current |
| 0.47           | 474  |           |                |           |                |           |                | 6.3 x 11  | 8              |
| 1              | 105  |           |                |           |                |           |                | 6.3 x 11  | 17             |
| 2.2            | 225  |           |                |           |                |           |                | 6.3 x 11  | 27             |
| 3.3            | 335  |           |                | 6.3 x 11  | 30             | 6.3 x 11  | 30             | 6.3 x 11  | 35             |
| 4.7            | 475  | 6.3 x 11  | 41             | 6.3 x 11  | 40             | 8 x 12    | 40             | 8 x 12    | 45             |
| 10             | 106  | 8 x 12    | 60             | 10 x 12.5 | 72             | 10 x 12.5 | 70             | 10 x 12.5 | 75             |
| 22             | 226  | 10 x 16   | 110            | 10 x 20   | 125            | 10 x 20   | 125            | 10 x 20   | 130            |
| 33             | 336  | 10 x 20   | 156            | 10 x 20   | 165            | 12.5 x 20 | 165            | 12.5 x 20 | 184            |
| 47             | 476  | 10 x 20   | 195            | 12.5 x 20 | 220            | 12.5 x 20 | 220            | 12.5 x 25 | 238            |
| 68             | 686  | 12.5 x 20 | 250            | 12.5 x 25 | 250            | 12.5 x 25 | 245            | 16 x 25   | 270            |
| 82             | 826  | 12.5 x 25 | 310            | 10 x 30   | 320            | 12.5 x 30 | 280            | 16 x 30   | 380            |
| 100            | 107  | 12.5 x 25 | 360            | 16 x 25   | 386            | 16 x 25   | 335            | 16 x 30   | 422            |
| 150            | 157  | 12.5 x 30 | 380            | 12.5 x 30 | 496            | 16 x 30   | 365            | 18 x 30   | 440            |
| 180            | 187  | 12.5 x 35 | 420            | 12.5 x 35 | 560            | 16 x 35   | 500            | 18 x 35   | 469            |
| 220            | 227  | 16 x 30   | 680            | 16 x 35   | 580            | 16 x 40   | 615            | 18 x 35   | 485            |
|                |      |           |                | 12.5 x 40 | 640            |           |                |           |                |
| 270            | 277  | 16 x 30   | 728            | 16 x 30   | 696            |           |                |           |                |
| 330            | 337  | 18 x 35   | 830            | 16 x 35   | 808            |           |                |           |                |
|                |      |           |                | 18 x 30   | 808            |           |                |           |                |
| 390            | 397  | 18 x 35   | 850            | 16 x 40   | 904            |           |                |           |                |
|                |      |           |                | 18 x 35   | 904            |           |                |           |                |
| 470            | 477  | 18 x 40   | 880            | 18 x 40   | 1016           |           |                |           |                |
| 560            | 567  | 18 x 45   | 925            | 18 x 45   | 1112           |           |                |           |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size φD x L(mm)

| Voltage (Code) |      | 350V (2V) |                | 400V (2G) |                | 420V (2M) |                | 450V (2W)   |                |
|----------------|------|-----------|----------------|-----------|----------------|-----------|----------------|-------------|----------------|
| Cap.(μF)       | Code | Case Size | Ripple Current | Case Size | Ripple Current | Case Size | Ripple Current | Case Size   | Ripple Current |
| 0.47           | 474  | 6.3 x 11  | 8              |           |                |           |                |             |                |
| 1              | 105  | 6.3 x 11  | 18             | 6.3 x 11  | 19             | 6.3 x 11  | 15             | 6.3 x 11    | 16             |
| 2.2            | 225  | 6.3 x 11  | 25             | 8 x 12    | 30             | 8 x 12    | 29             | 10 x 12.5   | 28             |
| 3.3            | 335  | 8 x 12    | 40             | 10 x 12.5 | 41             | 10 x 12.5 | 40             | 10 x 12.5   | 33             |
| 4.7            | 475  | 10 x 12.5 | 50             | 10 x 16   | 52             | 10 x 16   | 52             | 10 x 16     | 42             |
| 10             | 106  | 10 x 20   | 80             | 10 x 20   | 86             | 10 x 20   | 85             | 12.5 x 20   | 84             |
| 18             | 186  | 12.5 x 20 | 100            | 12.5 x 20 | 105            | 12.5 x 25 | 124            | 10 x 30     | 108            |
| 22             | 226  | 12.5 x 20 | 150            | 12.5 x 25 | 163            | 10 x 30   | 160            | 16 x 25     | 151            |
|                |      |           |                |           |                | 12.5 x 25 | 140            |             |                |
| 27             | 276  | 12.5 x 25 | 177            | 10 x 30   | 192            | 12.5 x 25 | 170            | 12.5 x 30   | 164            |
| 33             | 336  | 16 x 25   | 200            | 16 x 25   | 222            | 16 x 25   | 200            | 12.5 x 30   | 224            |
|                |      |           |                |           |                |           |                | 16 x 30     | 257            |
| 39             | 396  | 16 x 25   | 258            | 16 x 25   | 251            | 12.5 x 30 | 248            | 12.5 x 35   | 256            |
| 47             | 476  | 16 x 25   | 265            | 12.5 x 30 | 266            | 12.5 x 35 | 288            | 12.5 x 40   | 304            |
|                |      |           |                | 16 x 30   | 290            | 16 x 35   | 270            | 16 x 35     | 254            |
| 56             | 566  | 16 x 30   | 280            | 12.5 x 35 | 336            | 12.5 x 40 | 344            | 16 x 30     | 352            |
| 68             | 686  | 16 x 30   | 288            | 12.5 x 40 | 384            | 16 x 30   | 408            | 18 x 35     | 392            |
| 82             | 826  | 18 x 30   | 372            | 18 x 30   | 280            | 16 x 35   | 456            | 16x40/18x30 | 440            |
| 100            | 107  | 18 x 35   | 460            | 16 x 30   | 310            | 16 x 40   | 488            | 18 x 35     | 470            |
|                |      |           |                | 18 x 35   | 464            | 18 x 30   | 488            | 18 x 40     | 520            |
| 120            | 127  |           |                | 18 x 30   | 536            | 18 x 35   | 528            | 18 x 40     | 592            |
| 150            | 157  |           |                | 18 x 35   | 616            | 18 x 40   | 568            | 18 x 45     | 640            |
| 180            | 187  |           |                | 18 x 40   | 704            |           |                |             |                |
| 220            | 227  |           |                | 18 x 45   | 800            |           |                |             |                |

Maximum Allowable Ripple Current (mA rms) at 105°C 120Hz

Case Size φD x L(mm)