

# RADIAL TYPE

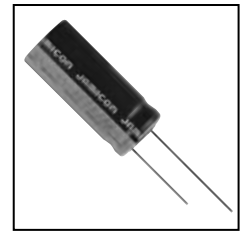
# TK

Series

Wide Temperature Range

JAMICON®

- High temperature 105°C and high reliability



## SPECIFICATION

| Item                                       | Characteristic   |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
|--|--|--|------|------|------|--------------------------------------|--------|---------|---------|------|--------------|------|------|------|------|
| Operation Temperature Range                | -55 ~ +105°C   |  |      |      |      | -40 ~ +105°C                         |        |         |         |      | -25 ~ +105°C |      |      |      |      |
| Rated Working Voltage                      | 6.3 ~ 100VDC   |  |      |      |      | 160 ~ 400VDC                         |        |         |         |      | 450VDC       |      |      |      |      |
| Capacitance Tolerance (120Hz 20°C)         | ±20%(M)  |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
| Leakage Current<br>(20°C)                  | 6.3~100 VDC I ≤ 0.01CV or 4 (μA)   |  |      |      |      | 160~450 VDC I ≤ 0.03CV + 40 (μA) max |        |         |         |      |              |      |      |      |      |
|  | *Whichever is greater after 3 minutes<br>I : Leakage Current(μA) C : Rated Capacitance(μF) V : Working Voltage(V)  |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
| Surge Voltage<br>(20°C)                    | W.V.   | 6.3  | 10   | 16   | 25   | 35                                   | 50     | 63      | 100     | 160  | 200          | 250  | 350  | 400  | 450  |
|  | S.V.   | 8  | 13   | 20   | 32   | 44                                   | 63     | 79      | 125     | 200  | 250          | 300  | 400  | 450  | 500  |
| Dissipation Factor (tan δ)<br>(120Hz 20°C) | Add 0.02 per 1000 μF for more than 1000 μF   |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
|  | W.V.   | 6.3  | 10   | 16   | 25   | 35                                   | 50     | 63      | 100     | 160  | 200          | 250  | 350  | 400  | 450  |
|  | tan δ  | 0.24   | 0.20 | 0.17 | 0.15 | 0.12                                 | 0.10   | 0.10    | 0.08    | 0.15 | 0.15         | 0.15 | 0.20 | 0.20 | 0.20 |
| Low Temperature Stability                  | Impedance ratio at 120Hz   |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
|  | Rated Voltage (V)  | 6.3  |      | 10   | 16   | 25                                   | 35~100 | 160~250 | 350~400 | 450  |              |      |      |      |      |
|  | -25°C / +20°C  | 4  |      | 3    | 2    | 2                                    | 2      | 3       | 6       | 15   |              |      |      |      |      |
|  | -40°C / +20°C  | 10   |      | 8    | 6    | 4                                    | 3      | 4       | 10      | —    |              |      |      |      |      |
| Load Life                                  | After 2000 hours application of W.V. and +105°C ripple current value, the capacitor shall meet the following limits. (DC + ripple peak voltage ≤ rate working voltage) |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
|  | Capacitance Change   | ≤ ±25% of initial value for 6.3~16 W.V., ≤ ±20% of initial value for 25~450 W.V. |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
|  | Dissipation Factor   | ≤ 200% of initial specified value  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
|  | Leakage current  | ≤ initial specified value  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |
| Shelf Life                                 | At +105°C no voltage application after 1000 hours the capacitor shall meet the limits for load life characteristics. (with voltage treatment)                          |  |      |      |      |                                      |        |         |         |      |              |      |      |      |      |

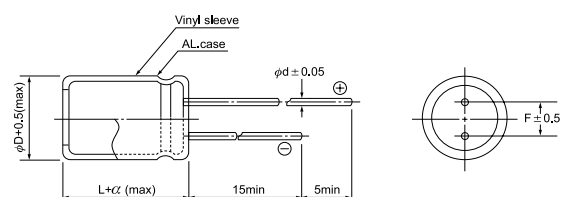
## DIMENSIONS (mm)

| φD | 5   | 6.3 | 8   | 10  | 12.5 | 16  | 18  | 20   | 22   | 25   |
|----|-----|-----|-----|-----|------|-----|-----|------|------|------|
| F  | 2.0 | 2.5 | 3.5 | 5.0 | 5.0  | 7.5 | 7.5 | 10.0 | 10.0 | 12.5 |
| d  | 0.5 | 0.5 | 0.6 | 0.6 | 0.6  | 0.8 | 0.8 | 0.8  | 1.0  | 1.0  |
| α  | 1.5 | 1.5 | 1.5 | 1.5 | 1.5  | 1.5 | 1.5 | 2.0  | 2.0  | 2.0  |

## RIPPLE CURRENT COEFFICIENTS

| Temperature(°C) | 65   | 85   | 105  |
|-----------------|------|------|------|
| Multiplier      | 1.75 | 1.40 | 1.00 |

| Frequency(Hz) | 60         | 120  | 1k   | ≥10k |
|---------------|------------|------|------|------|
| W.V.          | Multiplier |      |      |      |
| 6.3~25V       | 0.85       | 1.00 | 1.10 | 1.20 |
| 35~100V       | 0.80       | 1.00 | 1.15 | 1.25 |
| 160~250V      | 0.75       | 1.00 | 1.25 | 1.40 |
| 350~450V      | 0.70       | 1.00 | 1.30 | 1.80 |



● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)  
 Max ripple current : mA(rms) 105°C 120Hz

| μF    | V(Code) |      | 6.3 (0J) |      | 10 (1A) |      | 16 (1C) |      |
|-------|---------|------|----------|------|---------|------|---------|------|
|       | Code    | Item | DxL      | R.C. | DxL     | R.C. | DxL     | R.C. |
| 47    | 470     |      |          |      |         | →    | 5x11    | 90   |
| 100   | 101     |      | 5x11     | 110  | 5x11    | 120  | 5x11    | 130  |
| 220   | 221     |      | 5x11     | 160  | 5x11    | 180  | 6.3x11  | 220  |
| 330   | 331     |      | 6.3x11   | 220  | 6.3x11  | 250  | 8x11.5  | 310  |
| 470   | 471     |      | 6.3x11   | 270  | 6.3x11  | 290  | 8x11.5  | 370  |
| 1000  | 102     |      | 8x11.5   | 460  | 10x12.5 | 530  | 10x16   | 630  |
| 2200  | 222     |      | 10x16    | 760  | 10x20   | 910  | 12.5x20 | 1050 |
| 3300  | 332     |      | 10x20    | 990  | 12.5x20 | 1140 | 12.5x25 | 1340 |
| 4700  | 472     |      | 12.5x20  | 1200 | 12.5x25 | 1420 | 16x25   | 1510 |
| 6800  | 682     |      | 12.5x25  | 1500 | 16x25   | 1600 | 16x31.5 | 1860 |
| 10000 | 103     |      | 16x25    | 1660 | 16x35.5 | 2040 | 18x35.5 | 2270 |
| 15000 | 153     |      | 16x35.5  | 2140 | 18x35.5 | 2370 | 20x40   | 2550 |
| 22000 | 223     |      | 18x40    | 2590 | 20x40   | 2830 | 22x50   | 3380 |
| 33000 | 333     |      | 22x50    | 3390 | 22x50   | 3470 | 25x50   | 3790 |

All blank voltage on sleeve marking is the same voltage as" → "point to.

| μF    | V(Code) |      | 25 (1E) |      | 35 (1V) |      | 50 (1H) |      |
|-------|---------|------|---------|------|---------|------|---------|------|
|       | Code    | Item | DxL     | R.C. | DxL     | R.C. | DxL     | R.C. |
| 0.1   | 0R1     |      |         |      |         | →    | 5x11    | 5    |
| 0.22  | R22     |      |         |      |         | →    | 5x11    | 8    |
| 0.33  | R33     |      |         |      |         | →    | 5x11    | 10   |
| 0.47  | R47     |      |         |      |         | →    | 5x11    | 12   |
| 1     | 010     |      |         |      |         | →    | 5x11    | 17   |
| 2.2   | 2R2     |      |         |      |         | →    | 5x11    | 25   |
| 3.3   | 3R3     |      |         |      |         | →    | 5x11    | 31   |
| 4.7   | 4R7     |      |         |      |         | →    | 5x11    | 36   |
| 10    | 100     |      | 5x11    | 43   | 5x11    | 49   | 5x11    | 55   |
| 22    | 220     |      | 5x11    | 65   | 5x11    | 70   | 5x11    | 80   |
| 33    | 330     |      | 5x11    | 80   | 5x11    | 90   | 5x11    | 95   |
| 47    | 470     |      | 5x11    | 95   | 5x11    | 110  | 6.3x11  | 130  |
| 100   | 101     |      | 6.3x11  | 160  | 6.3x11  | 170  | 8x11.5  | 220  |
| 220   | 221     |      | 8x11.5  | 270  | 8x11.5  | 300  | 10x12.5 | 350  |
| 330   | 331     |      | 8x11.5  | 330  | 10x12.5 | 390  | 10x16   | 480  |
| 470   | 471     |      | 10x12.5 | 420  | 10x16   | 520  | 10x20   | 630  |
| 1000  | 102     |      | 10x20   | 740  | 12.5x20 | 890  | 12.5x25 | 1070 |
| 2200  | 222     |      | 12.5x25 | 1220 | 16x25   | 1350 | 16x35.5 | 1700 |
| 3300  | 332     |      | 16x25   | 1420 | 16x35.5 | 1810 | 18x35.5 | 2060 |
| 4700  | 472     |      | 16x31.5 | 1740 | 18x35.5 | 2110 |         |      |
| 6800  | 682     |      | 18x35.5 | 2170 |         |      |         |      |
| 10000 | 103     |      | 20x40   | 2610 |         |      |         |      |
| 15000 | 153     |      | 22x50   | 3270 |         |      |         |      |
| 22000 | 223     |      | 25x50   | 3690 |         |      |         |      |

● CASE SIZE & MAX RIPPLE CURRENT

Case size : D x L (mm)  
 Max ripple current : mA(rms) 105°C 120Hz

| μF   | V(Code) |      | 63 (1J) |      | 100 (2A) |      |
|------|---------|------|---------|------|----------|------|
|      | Code    | Item | DxL     | R.C. | DxL      | R.C. |
| 0.1  | 0R1     |      |         | →    | 5x11     | 6    |
| 0.22 | R22     |      |         | →    | 5x11     | 9    |
| 0.33 | R33     |      |         | →    | 5x11     | 11   |
| 0.47 | R47     |      |         | →    | 5x11     | 13   |
| 1    | 010     |      |         | →    | 5x11     | 19   |
| 2.2  | 2R2     |      |         | →    | 5x11     | 28   |
| 3.3  | 3R3     |      |         | →    | 5x11     | 34   |
| 4.7  | 4R7     |      |         | →    | 5x11     | 41   |
| 10   | 100     |      | 5x11    | 55   | 6.3x11   | 65   |
| 22   | 220     |      | 5x11    | 80   | 6.3x11   | 100  |
| 33   | 330     |      | 6.3x11  | 110  | 8x11.5   | 140  |
| 47   | 470     |      | 6.3x11  | 130  | 10x12.5  | 180  |
| 100  | 101     |      | 10x12.5 | 240  | 10x20    | 320  |
| 220  | 221     |      | 10x16   | 390  | 12.5x25  | 560  |
| 330  | 331     |      | 10x20   | 520  | 12.5x25  | 690  |
| 470  | 471     |      | 12.5x20 | 670  | 16x25    | 830  |
| 1000 | 102     |      | 16x25   | 1080 | 18x40    | 1580 |
| 2200 | 222     |      |         |      | 22x50    | 2590 |

All blank voltage on sleeve marking is the same voltage as" → "point to.

| μF   | V(Code) |      | 160 (2C) |      | 200 (2D) |      | 250 (2E) |      |
|------|---------|------|----------|------|----------|------|----------|------|
|      | Code    | Item | DxL      | R.C. | DxL      | R.C. | DxL      | R.C. |
| 0.47 | R47     |      | 6.3x11   | 12   | 6.3x11   | 13   | 6.3x11   | 14   |
| 1    | 010     |      | 6.3x11   | 18   | 6.3x11   | 19   | 6.3x11   | 21   |
| 2.2  | 2R2     |      | 6.3x11   | 26   | 6.3x11   | 28   | 6.3x11   | 31   |
| 3.3  | 3R3     |      | 6.3x11   | 32   | 6.3x11   | 34   | 8x11.5   | 44   |
| 4.7  | 4R7     |      | 6.3x11   | 38   | 8x11.5   | 48   | 8x11.5   | 50   |
| 10   | 100     |      | 8x11.5   | 65   | 10x12.5  | 75   | 10x16    | 90   |
| 22   | 220     |      | 10x16    | 110  | 10x20    | 130  | 12.5x20  | 160  |
| 33   | 330     |      | 10x20    | 150  | 12.5x20  | 180  | 12.5x20  | 190  |
| 47   | 470     |      | 12.5x20  | 190  | 12.5x20  | 210  | 12.5x25  | 250  |
| 100  | 101     |      | 12.5x25  | 310  | 16x25    | 340  | 16x31.5  | 410  |
| 220  | 221     |      | 16x35.5  | 540  | 18x40    | 660  |          |      |
| 330  | 331     |      | 18x40    | 750  |          |      |          |      |
| 470  | 471     |      | 22x40    | 1000 |          |      |          |      |
| 1000 | 102     |      | 25x50    | 1730 |          |      |          |      |

| μF   | V(Code) |      | 350 (2V) |      | 400 (2G) |      | 450 (2W) |      |
|------|---------|------|----------|------|----------|------|----------|------|
|      | Code    | Item | DxL      | R.C. | DxL      | R.C. | DxL      | R.C. |
| 0.47 | R47     |      | 8x11.5   | 14   | 8x11.5   | 15   | 10x12.5  | 15   |
| 1    | 010     |      | 8x11.5   | 21   | 8x11.5   | 21   | 10x12.5  | 22   |
| 2.2  | 2R2     |      | 8x11.5   | 31   | 10x12.5  | 33   | 10x20    | 39   |
| 3.3  | 3R3     |      | 10x12.5  | 39   | 10x12.5  | 41   | 12.5x20  | 50   |
| 4.7  | 4R7     |      | 10x12.5  | 47   | 10x16    | 55   | 12.5x20  | 60   |
| 10   | 100     |      | 10x20    | 85   | 12.5x20  | 90   | 16x25    | 100  |
| 22   | 220     |      | 12.5x25  | 150  | 12.5x25  | 150  | 16x31.5  | 160  |
| 33   | 330     |      | 16x25    | 180  | 16x31.5  | 210  | 18x35.5  | 230  |
| 47   | 470     |      | 16x35.5  | 250  | 18x35.5  | 280  |          |      |
| 100  | 101     |      | 18x40    | 410  | 20x40    | 450  |          |      |
| 220  | 221     |      | 22x50    | 760  |          |      |          |      |