

# K76 TYPE -40°C +85°C 5000H

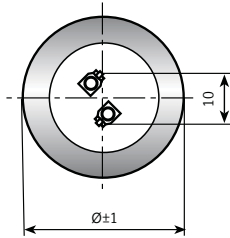
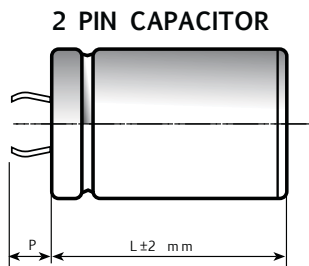
RoHS Compliant

- Design optimized for extremely high miniaturization.
- Surge-proof capacitor in aluminium can with insulation sleeve.
- Snap in terminals for PCB mounting.

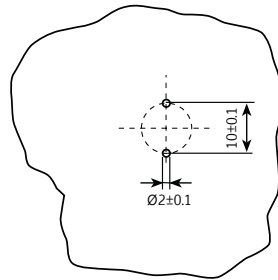
## APPLICATIONS

Designed for professional application.  
Ultra compact UPS, Solar inverters, High ripple current converters, Motor drives.

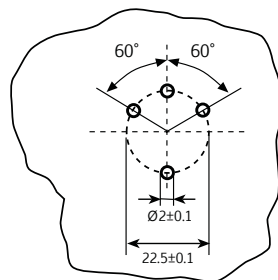
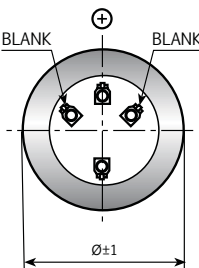
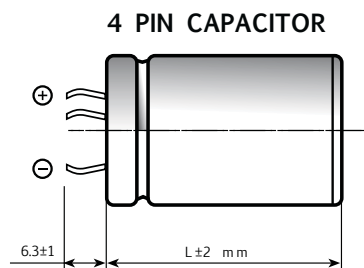
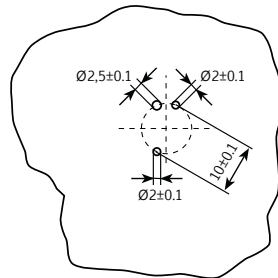
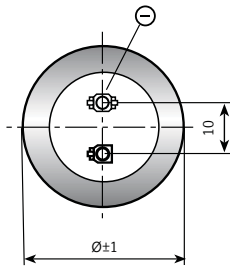
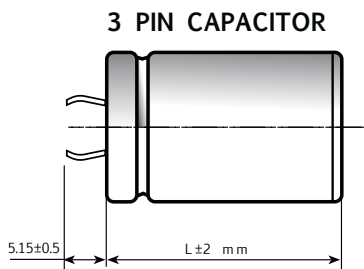
Dimensions in mm.



Circuit board  
hole dimensions



PIN LENGTH  
P 4.5 short pin  
P 6.3 long pin (standard)



| Ø      | 22 | 25 | 30 | 35 | 40 | 45 | 50 |
|--------|----|----|----|----|----|----|----|
| 2 PINS | ●  | ●  | ●  | ●  | ●  |    |    |
| 3 PINS |    | ●  | ●  | ●  |    |    |    |
| 4 PINS |    |    |    | ●  | ●  | ●  | ●  |

On demand, only for capacitors with diam ≥ 35mm: octagonal can shape for long stress vibration applications.

## SPECIFICATIONS

|   |   |        |                                   |                 |        |        |      |      |
|---|---|--------|-----------------------------------|-----------------|--------|--------|------|------|
| <b>Temperature Range</b>  | Operating : -40°C +85°C [ Environmental classification 40/85/56 IEC-68 ]<br>Storage : Preferably below +25°C, not exceeding +40°C |        |                                   |                 |        |        |      |      |
| <b>Rated Voltage Range (V<sub>r</sub>)</b>                          | from 200V to 450V DC  |        |                                   |                 |        |        |      |      |
| <b>Surge Voltage (V<sub>p</sub>)</b>                                | $V_p = 1.10 V_r$  |        |                                   |                 |        |        |      |      |
| <b>Rated Capacitance Range</b>                                      | from 220 µF to 5600 µF  |        |                                   |                 |        |        |      |      |
| <b>Capacitance Tolerance</b>  | ±20% at 100 Hz, 20°C [M class IEC-62]<br>on request : -10% +30% at 100 Hz, 20°C [Q class IEC-62]                                  |        |                                   |                 |        |        |      |      |
| <b>Leakage Current (I<sub>L</sub>)<br/>(mA, 5 min, 20°C)</b>        | $\max I_L = 0.006 C_r V_r + 4 \mu A$  |        |                                   |                 |        |        |      |      |
| <b>Ripple current (I<sub>r</sub>)</b>                               | Refer to table at 85°C and 100Hz :  |        |                                   |                 |        |        |      |      |
|   | FREQUENCY   | 50Hz   | 100Hz                             | 500Hz           | 1000Hz | >10kHz |      |      |
|   | MULTIPLIER  | 0.8    | 1.0                               | 1.2             | 1.3    | 1.5    |      |      |
|   | AMBIENT TEMP  | 35°C   | 45°C                              | 55°C            | 65°C   | 75°C   | 85°C | 95°C |
|   | MULTIPLIER  | 2.2    | 2.1                               | 1.8             | 1.6    | 1.4    | 1.0  | 0.5  |
| <b>Insulation Resistance</b>  | At 100V DC for 1 min is >100 MΩ across insulating sleeve and terminals.   |        |                                   |                 |        |        |      |      |
| <b>Vibration Resistance</b>   | Frequency range : 10 Hz to 55 Hz, amplitude 0.75 mm<br>max acceleration 10g for 3x2 h   |        |                                   |                 |        |        |      |      |
| <b>Life test<br/>(85°C, V<sub>n</sub>, I<sub>r</sub> applied)</b>   | After 2,000 hours application of rated voltage at 85°C capacitors meet characteristics aside                                      |        | Cap change                        | ≤ 10%           |        |        |      |      |
|   |   |        | tan δ                             | ≤ 130%          |        |        |      |      |
|   |   |        | Leakage current (I <sub>L</sub> ) | < initial limit |        |        |      |      |
|   |   |        | Impedance (Z)                     | ≤ 130%          |        |        |      |      |
| <b>Shelf life</b>   | After leaving capacitors under no load for 500 hours at 85°C, when restored at 20°C meet specifications aside                     |        | Cap change                        | ≤ ±15%          |        |        |      |      |
|   |   |        | tan δ                             | ≤ 150%          |        |        |      |      |
|   |   |        | Leakage current (I <sub>L</sub> ) | < initial limit |        |        |      |      |
| <b>Useful life<br/>(85°C, V<sub>n</sub>, I<sub>r</sub> applied)</b> | ≥ 5,000 h at 85°C   | D≤35mm | Cap change                        | ≤ 20%           |        |        |      |      |
|   | ≥ 12,000 h at 85°C  | D>40mm | tan δ                             | ≤ 200%          |        |        |      |      |
|   |   |        | Leakage current (I <sub>L</sub> ) | < initial limit |        |        |      |      |
|   |   |        | Impedance (Z)                     | ≤ 200%          |        |        |      |      |
| <b>Failure percentage<br/>Failure rate</b>                          | ≤ 1% (during working life)<br>≤ 33 fit (33 10 <sup>-9</sup> /h)   |        |                                   |                 |        |        |      |      |
| <b>Self inductance</b>  | Approx. 15 nH   |        |                                   |                 |        |        |      |      |
| <b>Reference standards</b>  | CECC 30.300 IEC 60384-4 LONG LIFE GRADE   |        |                                   |                 |        |        |      |      |

## K76 TYPE STANDARD RATINGS

| Cap<br>µF | Ø x L<br>mm | Tan δ<br>MAX<br>100 Hz 20°C | ESR<br>TYP mΩ<br>100 Hz 20°C | Z<br>TYP mΩ<br>10 kHz 20°C | Ir a.c.<br>A max<br>100 Hz 85°C | PART NUMBER<br>termination digit<br>excluded |
|-----------|-------------|-----------------------------|------------------------------|----------------------------|---------------------------------|--|
| 560       | 25x30       | 0.09                        | 106                          | 39                         | 3.05                            | K76200561_PM0C030                            |
| 680       | 25x35       | 0.09                        | 85                           | 32                         | 3.63                            | K76200681_PM0C035                            |
| 820       | 25x40       | 0.09                        | 67                           | 25                         | 4.04                            | K76200821_PM0C040                            |
| 820       | 30x30       | 0.09                        | 84                           | 34                         | 3.87                            | K76200821_PM0D030                            |
| 1000      | 25x45       | 0.10                        | 61                           | 23                         | 4.72                            | K76200102_PM0C045                            |
| 1000      | 30x35       | 0.10                        | 68                           | 30                         | 4.56                            | K76200102_PM0D035                            |
| 1000      | 35x30       | 0.10                        | 75                           | 37                         | 4.43                            | K76200102_PM0E030                            |
| 1200      | 25x50       | 0.10                        | 53                           | 22                         | 5.23                            | K76200122_PM0C050                            |
| 1200      | 30x40       | 0.10                        | 58                           | 25                         | 5.15                            | K76200122_PM0D040                            |
| 1200      | 35x30       | 0.10                        | 69                           | 33                         | 4.45                            | K76200122_PM0E030                            |
| 1500      | 30x45       | 0.10                        | 50                           | 22                         | 5.86                            | K76200152_PM0D045                            |
| 1500      | 35x35       | 0.10                        | 58                           | 26                         | 5.22                            | K76200152_PM0E035                            |
| 1800      | 35x40       | 0.10                        | 53                           | 27                         | 5.97                            | K76200182_PM0E040                            |
| 2200      | 35x45       | 0.10                        | 46                           | 24                         | 6.72                            | K76200222_PM0E045                            |
| 2200      | 35x50       | 0.10                        | 46                           | 24                         | 7.43                            | K76200222_PM0E050                            |
| 2700      | 35x60       | 0.10                        | 33                           | 17                         | 8.89                            | K76200272_PM0E060                            |
| 3300      | 40x60       | 0.10                        | 32                           | 18                         | 9.64                            | K76200332_PM0F060                            |

**RATED  
VOLTAGE  
VDC**

**200V**

| Cap<br>µF | Ø x L<br>mm | Tan δ<br>MAX<br>100 Hz 20°C | ESR<br>TYP mΩ<br>100 Hz 20°C | Z<br>TYP mΩ<br>10 kHz 20°C | Ir a.c.<br>A max<br>100 Hz 85°C | PART NUMBER<br>termination digit<br>excluded |
|-----------|-------------|-----------------------------|------------------------------|----------------------------|---------------------------------|--|
| 390       | 25x30       | 0.09                        | 141                          | 52                         | 2.68                            | K76250391_PM0C030                            |
| 470       | 25x35       | 0.09                        | 111                          | 42                         | 3.17                            | K76250471_PM0C035                            |
| 560       | 30x30       | 0.09                        | 106                          | 44                         | 3.45                            | K76250561_PM0D030                            |
| 680       | 25x45       | 0.09                        | 80                           | 33                         | 4.09                            | K76250681_PM0C045                            |
| 760       | 30x35       | 0.09                        | 82                           | 35                         | 4.05                            | K76250761_PM0D035                            |
| 820       | 30x40       | 0.09                        | 75                           | 30                         | 4.50                            | K76250821_PM0D040                            |
| 820       | 35x30       | 0.09                        | 84                           | 36                         | 4.07                            | K76250821_PM0E030                            |
| 1000      | 30x45       | 0.10                        | 60                           | 26                         | 5.25                            | K76250102_PM0D045                            |
| 1000      | 35x35       | 0.10                        | 66                           | 32                         | 4.80                            | K76250102_PM0E035                            |
| 1200      | 30x50       | 0.10                        | 55                           | 22                         | 5.75                            | K76250122_PM0D050                            |
| 1200      | 35x40       | 0.10                        | 55                           | 22                         | 5.44                            | K76250122_PM0E040                            |
| 1500      | 35x50       | 0.10                        | 48                           | 22                         | 6.80                            | K76250152_PM0E050                            |
| 2200      | 35x60       | 0.10                        | 39                           | 18                         | 8.12                            | K76250222_PM0E060                            |
| 2500      | 40x60       | 0.10                        | 31                           | 18                         | 9.50                            | K76250252_PM0F060                            |

**RATED  
VOLTAGE  
VDC**

**250V**

## K76 TYPE STANDARD RATINGS

| Cap<br>µF | Ø x L<br>mm | Tan δ              | ESR                   | Z                     | Ir a.c.              | PART NUMBER<br>termination digit<br>excluded |
|-----------|-------------|--------------------|-----------------------|-----------------------|----------------------|--|
|           |             | MAX<br>100 Hz 20°C | TYP mΩ<br>100 Hz 20°C | TYP mΩ<br>10 kHz 20°C | A max<br>100 Hz 85°C |  |
| 330       | 25x30       | 0.09               | 238                   | 117                   | 1.91                 | K76350331_PM0C030                            |
| 390       | 25x35       | 0.09               | 225                   | 114                   | 2.25                 | K76350391_PM0C035                            |
| 470       | 30x30       | 0.09               | 208                   | 107                   | 2.53                 | K76350471_PM0D030                            |
| 520       | 30x30       | 0.09               | 195                   | 105                   | 2.55                 | K76350521_PM0D030                            |
| 560       | 30x35       | 0.09               | 169                   | 87                    | 2.93                 | K76350561_PM0D035                            |
| 560       | 30x40       | 0.09               | 169                   | 87                    | 3.14                 | K76350561_PM0D040                            |
| 620       | 30x35       | 0.09               | 149                   | 76                    | 3.00                 | K76350621_PM0D050                            |
| 680       | 30x40       | 0.09               | 127                   | 66                    | 3.34                 | K76350681_PM0D040                            |
| 680       | 35x40       | 0.09               | 142                   | 79                    | 3.11                 | K76350681_PM0E040                            |
| 820       | 30x45       | 0.09               | 111                   | 57                    | 3.77                 | K76350821_PM0D045                            |
| 820       | 35x35       | 0.09               | 134                   | 77                    | 3.59                 | K76350821_PM0E035                            |
| 880       | 30x45       | 0.09               | 110                   | 57                    | 3.78                 | K76350881_PM0D045                            |
| 920       | 30x50       | 0.09               | 104                   | 56                    | 4.19                 | K76350921_PM0D050                            |
| 1000      | 35x40       | 0.10               | 102                   | 56                    | 4.12                 | K76350102_PM0E040                            |
| 1200      | 35x45       | 0.10               | 88                    | 49                    | 4.63                 | K76350122_PM0E045                            |
| 1400      | 35x50       | 0.10               | 83                    | 46                    | 5.18                 | K76350142_PM0E050                            |
| 1700      | 35x60       | 0.10               | 68                    | 40                    | 6.17                 | K76350172_PM0E060                            |
| 2200      | 40x60       | 0.10               | 60                    | 38                    | 7.10                 | K76350222_PM0F060                            |
| 2400      | 45x60       | 0.10               | 45                    | 26                    | 7.60                 | K76350242_PM0N060                            |
| 2900      | 45x77       | 0.10               | 42                    | 25                    | 9.50                 | K76350292_PM0N077                            |
| 2900      | 50x60       | 0.10               | 41                    | 26                    | 8.85                 | K76350292_PM0V060                            |
| 3100      | 40x97       | 0.10               | 40                    | 24                    | 9.00                 | K76350312_PM0F097                            |
| 3700      | 50x77       | 0.10               | 34                    | 22                    | 9.80                 | K76350372_PM0V077                            |
| 4400      | 45x105      | 0.10               | 26                    | 15                    | 12.50                | K76350442_PM0N105                            |
| 4700      | 50x105      | 0.10               | 25                    | 15                    | 13.60                | K76350472_PM0V105                            |
| 5600      | 50x105      | 0.10               | 23                    | 15                    | 14.00                | K76350562_PM0V105                            |

**RATED  
VOLTAGE  
VDC**

**350V**

| Cap<br>µF | Ø x L<br>mm | Tan δ              | ESR                   | Z                     | Ir a.c.              | PART NUMBER<br>termination digit<br>excluded |
|-----------|-------------|--------------------|-----------------------|-----------------------|----------------------|--|
|           |             | MAX<br>100 Hz 20°C | TYP mΩ<br>100 Hz 20°C | TYP mΩ<br>10 kHz 20°C | A max<br>100 Hz 85°C |  |
| 220       | 25x30       | 0.09               | 328                   | 148                   | 1.70                 | K76400221_PM0C030                            |
| 330       | 25x35       | 0.09               | 240                   | 115                   | 2.10                 | K76400331_PM0C035                            |
| 390       | 30x30       | 0.09               | 230                   | 112                   | 2.35                 | K76400391_PM0D030                            |
| 470       | 30x35       | 0.09               | 190                   | 91                    | 2.75                 | K76400471_PM0D035                            |
| 560       | 30x40       | 0.09               | 160                   | 78                    | 3.11                 | K76400561_PM0D040                            |
| 560       | 35x30       | 0.09               | 183                   | 97                    | 2.92                 | K76400561_PM0E030                            |
| 680       | 30x45       | 0.09               | 126                   | 60                    | 3.55                 | K76400681_PM0D045                            |
| 680       | 35x35       | 0.09               | 140                   | 64                    | 3.44                 | K76400681_PM0E035                            |
| 720       | 30x50       | 0.09               | 121                   | 59                    | 3.89                 | K76400721_PM0D050                            |
| 780       | 35x40       | 0.09               | 128                   | 67                    | 3.85                 | K76400781_PM0E040                            |
| 820       | 35x45       | 0.09               | 114                   | 59                    | 4.32                 | K76400821_PM0E045                            |
| 1000      | 35x50       | 0.10               | 97                    | 51                    | 4.85                 | K76400102_PM0E050                            |
| 1200      | 35x60       | 0.10               | 79                    | 41                    | 5.77                 | K76400122_PM0E060                            |
| 1700      | 40x60       | 0.10               | 67                    | 39                    | 6.70                 | K76400172_PM0F060                            |
| 2000      | 45x60       | 0.10               | 49                    | 28                    | 8.36                 | K76400202_PM0N060                            |
| 2200      | 45x77       | 0.10               | 46                    | 26                    | 8.8                  | K76400222_PM0N077                            |
| 2200      | 50x60       | 0.10               | 45                    | 26                    | 8.1                  | K76400222_PM0V060                            |
| 2400      | 40x97       | 0.10               | 43                    | 25                    | 8.8                  | K76400242_PM0F097                            |
| 2400      | 45x77       | 0.10               | 42                    | 23                    | 8.8                  | K76400242_PM0N077                            |
| 2400      | 50x60       | 0.10               | 45                    | 26                    | 8.8                  | K76400242_PM0V060                            |
| 2900      | 50x77       | 0.10               | 38                    | 22                    | 10.0                 | K76400292_PM0V077                            |
| 3300      | 45x105      | 0.10               | 30                    | 18                    | 11.8                 | K76400332_PM0N105                            |
| 3300      | 50x105      | 0.10               | 28                    | 16                    | 12.80                | K76400332_PM0V105                            |
| 4400      | 50x105      | 0.10               | 26                    | 15                    | 13.40                | K76400442_PM0V105                            |

**RATED  
VOLTAGE  
VDC**

**400V**

## K76 TYPE STANDARD RATINGS

**RATED  
VOLTAGE  
VDC**

**420V**

| Cap<br>µF | Ø x L<br>mm | Tan δ<br>MAX<br>100 Hz 20°C | ESR<br>TYP mΩ<br>100 Hz 20°C | Z<br>TYP mΩ<br>10 kHz 20°C | Ir a.c.<br>A max<br>100 Hz 85°C | PART NUMBER<br>termination digit<br>excluded |
|-----------|-------------|-----------------------------|------------------------------|----------------------------|---------------------------------|--|
| 290       | 25x35       | 0.09                        | 273                          | 123                        | 2.02                            | K76420291_PM0C035                            |
| 330       | 30x30       | 0.09                        | 256                          | 118                        | 2.30                            | K76420331_PM0D030                            |
| 470       | 30x35       | 0.09                        | 178                          | 81                         | 2.76                            | K76420471_PM0D035                            |
| 520       | 30x40       | 0.09                        | 170                          | 80                         | 3.02                            | K76420521_PM0D040                            |
| 520       | 35x30       | 0.09                        | 180                          | 87                         | 2.86                            | K76420521_PM0E030                            |
| 560       | 30x45       | 0.09                        | 149                          | 69                         | 3.48                            | K76420561_PM0D045                            |
| 560       | 35x35       | 0.09                        | 165                          | 82                         | 3.33                            | K76420561_PM0E035                            |
| 620       | 30x45       | 0.09                        | 150                          | 72                         | 3.50                            | K76420621_PM0D045                            |
| 620       | 35x35       | 0.09                        | 150                          | 72                         | 3.40                            | K76420621_PM0E035                            |
| 680       | 30x50       | 0.09                        | 127                          | 60                         | 3.80                            | K76420681_PM0D050                            |
| 680       | 35x45       | 0.09                        | 127                          | 60                         | 3.80                            | K76420681_PM0E045                            |
| 820       | 35x45       | 0.09                        | 115                          | 55                         | 4.23                            | K76420821_PM0E045                            |
| 920       | 35x50       | 0.09                        | 100                          | 51                         | 4.73                            | K76420921_PM0E050                            |
| 1000      | 35x60       | 0.10                        | 84                           | 44                         | 5.51                            | K76420102_PM0E060                            |
| 1200      | 35x60       | 0.10                        | 80                           | 42                         | 5.65                            | K76420122_PM0E060                            |
| 1500      | 40x60       | 0.10                        | 69                           | 38                         | 6.58                            | K76420152_PM0F060                            |
| 1700      | 45x60       | 0.10                        | 53                           | 28                         | 7.5                             | K76420172_PM0N060                            |
| 2000      | 45x77       | 0.10                        | 44                           | 23                         | 8.2                             | K76420202_PM0N077                            |
| 2200      | 40x97       | 0.10                        | 45                           | 26                         | 8.3                             | K76420222_PM0F097                            |
| 2200      | 50x60       | 0.10                        | 47                           | 27                         | 8.0                             | K76420222_PM0V060                            |
| 2700      | 50x77       | 0.10                        | 40                           | 22                         | 9.5                             | K76420272_PM0V077                            |
| 3100      | 45x105      | 0.10                        | 31                           | 16                         | 11.41                           | K76420312_PM0N105                            |
| 3300      | 50x105      | 0.10                        | 28                           | 16                         | 12.80                           | K76420332_PM0V105                            |
| 3900      | 50x105      | 0.10                        | 27                           | 16                         | 13.00                           | K76420392_PM0V105                            |

**RATED  
VOLTAGE  
VDC**

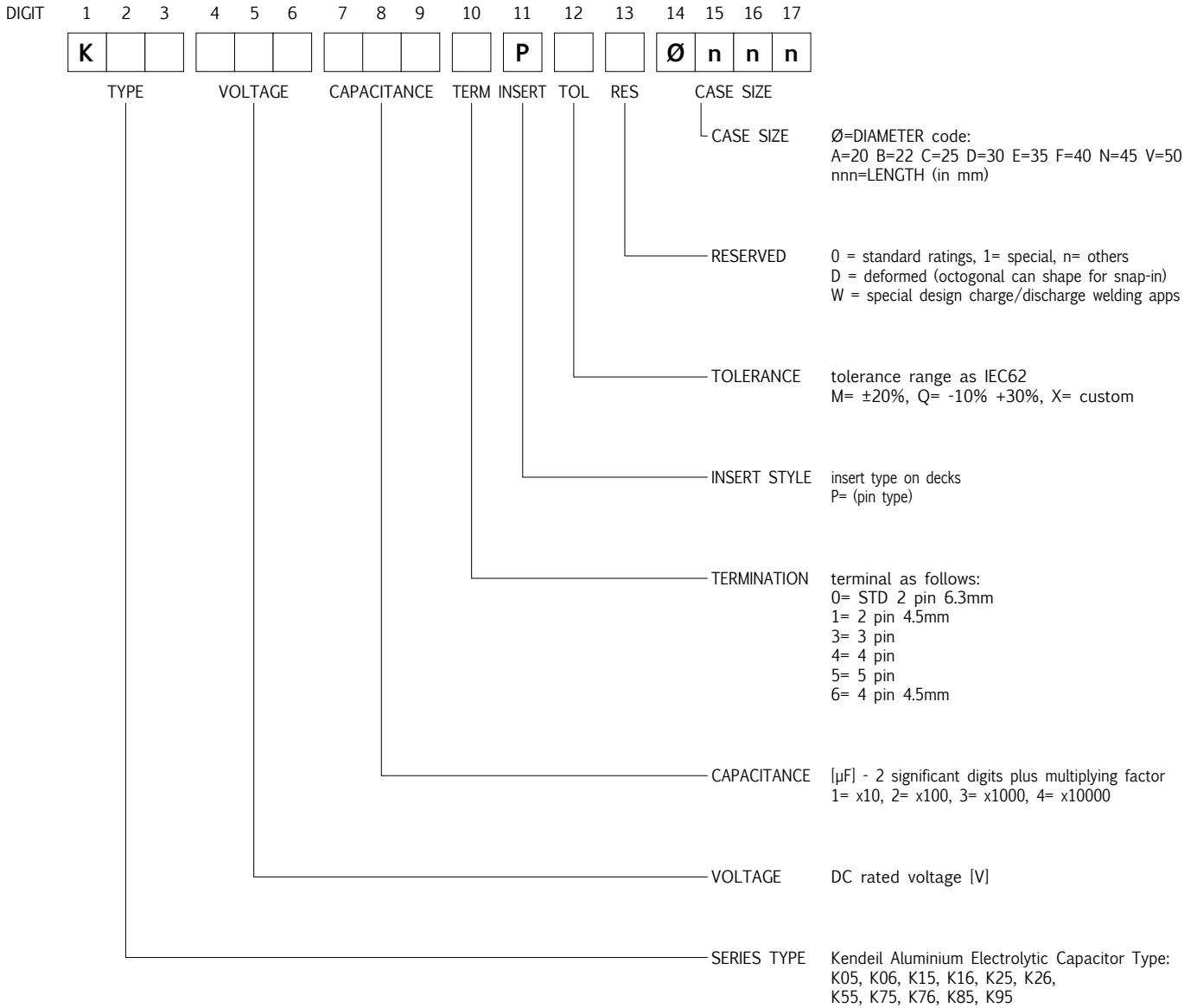
**450V**

| Cap<br>µF | Ø x L<br>mm | Tan δ<br>MAX<br>100 Hz 20°C | ESR<br>TYP mΩ<br>100 Hz 20°C | Z<br>TYP mΩ<br>10 kHz 20°C | Ir a.c.<br>A max<br>100 Hz 85°C | PART NUMBER<br>termination digit<br>excluded |
|-----------|-------------|-----------------------------|------------------------------|----------------------------|---------------------------------|--|
| 220       | 25x35       | 0.09                        | 325                          | 145                        | 1.87                            | K76450221_PM0C035                            |
| 270       | 25x35       | 0.09                        | 283                          | 132                        | 1.89                            | K76450271_PM0C035                            |
| 330       | 30x30       | 0.09                        | 228                          | 107                        | 2.13                            | K76450331_PM0D030                            |
| 390       | 30x35       | 0.09                        | 200                          | 92                         | 2.51                            | K76450391_PM0D035                            |
| 470       | 30x40       | 0.09                        | 165                          | 80                         | 2.85                            | K76450471_PM0D040                            |
| 560       | 30x45       | 0.09                        | 150                          | 70                         | 3.24                            | K76450561_PM0D045                            |
| 560       | 35x35       | 0.09                        | 154                          | 76                         | 3.12                            | K76450561_PM0E035                            |
| 620       | 30x50       | 0.09                        | 140                          | 66                         | 3.53                            | K76450621_PM0D050                            |
| 680       | 35x40       | 0.09                        | 133                          | 65                         | 3.56                            | K76450681_PM0E040                            |
| 750       | 35x45       | 0.09                        | 126                          | 64                         | 3.95                            | K76450751_PM0E045                            |
| 820       | 35x50       | 0.09                        | 109                          | 56                         | 4.41                            | K76450821_PM0E050                            |
| 1000      | 35x60       | 0.10                        | 91                           | 45                         | 5.33                            | K76450102_PM0E060                            |
| 1500      | 40x60       | 0.10                        | 74                           | 32                         | 6.22                            | K76450152_PM0F060                            |
| 1600      | 45x60       | 0.10                        | 58                           | 30                         | 6.5                             | K76450162_PM0N060                            |
| 2000      | 40x97       | 0.10                        | 50                           | 27                         | 7.2                             | K76450202_PM0F097                            |
| 2000      | 45x77       | 0.10                        | 48                           | 25                         | 7.6                             | K76450202_PM0N077                            |
| 2000      | 50x60       | 0.10                        | 52                           | 29                         | 7.3                             | K76450202_PM0V060                            |
| 2400      | 50x77       | 0.10                        | 43                           | 24                         | 9.70                            | K76450242_PM0V077                            |
| 2700      | 45x105      | 0.10                        | 33                           | 17                         | 10.50                           | K76450272_PM0N105                            |
| 3300      | 50x105      | 0.10                        | 30                           | 17                         | 12.10                           | K76450332_PM0V105                            |
| 3600      | 50x105      | 0.10                        | 29                           | 16                         | 12.20                           | K76450362_PM0V105                            |

PLEASE TO CONTACT OUR TECHNICAL SERVICE FOR MORE INFORMATION.

# PART NUMBER SYSTEM FOR SNAP-IN TYPE CAPACITORS

New PART-NUMBER CODE in use since Sep 2010. Total length is 17 digits.  
Please see examples below and have a reference code from the standard ratings capacitors pages.



### EXAMPLES

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K | 0 | 5 | 4 | 5 | 0 | 4 | 7 | 1 | 0 | P | M | 0 | E | 0 | 5 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

K05 450V 470µF, standard pin, ±20%, 35x50

Specifications subject to change without notice