

## Ceramic AC Capacitors Class X1, 760 V<sub>AC</sub>/Class Y1, 500 V<sub>AC</sub>



Dimensions in mm

**Note**

Impedance (Z) as a function of frequency (f) at T<sub>a</sub> = 20 °C (average).  
Measurement with lead length 6 mm.



I = f (U<sub>R</sub>) (typ.)



**DESIGN**

Disc capacitors with epoxy coating

**RATED VOLTAGE U<sub>R</sub>**

- (X1): 760 V<sub>AC</sub>, 50 Hz (IEC 60384-14.2)
- (Y1): 500 V<sub>AC</sub>, 50 Hz (IEC 60384-14.2)
- 250 V<sub>AC</sub>, 60 Hz (UL1414, CSA C22.2)

**DIELECTRIC STRENGTH BETWEEN LEADS**

- Component test:
- 4000 V<sub>AC</sub>, 50 Hz, 2 s
- As repeated test admissible only once with:
- 3600 V<sub>AC</sub>, 50 Hz, 2 s
- Random sampling test (destructive test):
- 4000 V<sub>AC</sub>, 50 Hz, 60 s

**DIELECTRIC STRENGTH OF BODY INSULATION**

4000 V<sub>AC</sub>, 50 Hz, 60 s (destructive test)

**DISSIPATION FACTOR tan δ**

≤ 25 x 10<sup>-3</sup>

**INSULATION RESISTANCE R<sub>IS</sub>**

≥ 10 x 10<sup>9</sup> Ω

**CATEGORY TEMPERATURE RANGE θ<sub>A</sub>**

(- 40 to + 125) °C

**CLIMATIC CATEGORY ACC. TO EN60068-1**

40/125/21

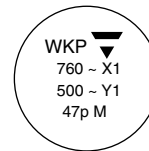
**COATING**

Epoxy dipped, insulating, flame retarding acc. to UL 94V-0

**TAPING AND SPECIAL LEAD CONFIGURATIONS**

On request

**MARKING**



WKP 33 pF to 1.5 nF

WKP 2.2 nF to 4.7 nF

**Note**

- All approval marks are also shown on the label.




| <b>ORDERING INFORMATION, CERAMIC X1/Y1 CAPACITORS WKP</b> |             |               |                              |                                 |                                |                |
|---|-------------|---------------|------------------------------|---------------------------------|--------------------------------|----------------|
| CAPACITANCE <sup>(2)</sup><br>(pF)                        | TOL.<br>(%) | D x s<br>(mm) | F ± 1 <sup>(1)</sup><br>(mm) | d ± 0.05 <sup>(1)</sup><br>(mm) | V ± 0.5 <sup>(1)</sup><br>(mm) | ORDERING CODE  |
| <b>CLASS 1 N 750</b>                                      |             |               |                              |                                 |                                |                |
| 33  | ± 10 , ± 20 | 8.0 x 6.0     | 12.5                         | 0.6                             | 1.9                            | WKP330□CP□□□KR |
| <b>CLASS 2 K 1200</b>                                     |             |               |                              |                                 |                                |                |
| 47  | ± 10 , ± 20 | 8.0 x 6.0     | 12.5                         | 0.6                             | 2.3                            | WKP470□CP□□□KR |
| 68  |             |               |                              |                                 |                                | WKP680□CP□□□KR |
| <b>CLASS 2 K 1500</b>                                     |             |               |                              |                                 |                                |                |
| 100   | ± 10 , ± 20 | 8.0 x 6.0     | 12.5                         | 0.6                             | 2.3                            | WKP101□CP□□□KR |
| <b>CLASS 2 K 2000</b>                                     |             |               |                              |                                 |                                |                |
| 150   | ± 10 , ± 20 | 8.0 x 6.0     | 12.5                         | 0.6                             | 2.3                            | WKP151□CP□□□KR |
| 220   |             |               |                              |                                 |                                | WKP221□CP□□□KR |
| <b>CLASS 2 K 4000</b>                                     |             |               |                              |                                 |                                |                |
| 330   | ± 10 , ± 20 | 8.0 x 6.0     | 12.5                         | 0.6                             | 2.5                            | WKP331□CP□□□KR |
| 470   |             | 9.0 x 6.0     |                              |                                 |                                | WKP471□CP□□□KR |
| 680   |             | 10.0 x 6.0    |                              |                                 |                                | WKP681□CP□□□KR |
| 1000  |             | 12.0 x 6.0    |                              |                                 |                                | WKP102□CP□□□KR |
| 1500  |             | 13.0 x 6.0    |                              | 0.8                             | 2.7                            | WKP152□CP□□□KR |
| 2200  |             | 15.0 x 6.0    |                              |                                 |                                | WKP222□CP□□□KR |
| 3300  |             | 16.0 x 6.0    |                              |                                 |                                | WKP332□CP□□□KR |
| 3900  |             | 18.0 x 6.0    |                              |                                 |                                | WKP392□CP□□□KR |
| 4700  |             |               |                              |                                 |                                | WKP472□CP□□□KR |

**Notes**

<sup>(1)</sup> Standard lead configuration, other lead spacing and diameter available on request.

<sup>(2)</sup> Capacitance values from 470 pF to 4700 pF: The alternative usage of smaller VKP series is recommended for new application.

| <b>ORDERING CODE</b> |  |  |                          |
|----------------------|--|--|--------------------------|
| □                    | 7 <sup>th</sup> digit                      | Capacitance Tolerance:                       | ± 10 % = K<br>± 20 % = M |
| □□□                  | 10 <sup>th</sup> to 12 <sup>th</sup> digit | Lead Configuration (see General Information) |                          |
| R                    | 14 <sup>th</sup> digit                     | RoHS Compliant Component                     |                          |

| <b>APPROVALS</b>  |   |             |             |                  |                     |   |
|---|---|-------------|-------------|------------------|---------------------|---|
| <b>IEC 60384 - 14 / 2<sup>nd</sup> Issue (1993) incl. Am. 1 (1995) - Safety Tests</b>                         |   |             |             |                  |                     |   |
| <b>EN 132 400 (1994) - Safety Tests</b>   |   |             |             |                  |                     |   |
| <b>THAT APPROVAL TOGETHER WITH THE CB TEST CERTIFICATE SUBSTITUTES THE NATIONAL APPROVAL OF THE FOLLOWING</b> |   |             |             |                  |                     |   |
| Belgium   | France  | Italy       | Austria     | China            | Japan               | Spain   |
| Denmark   | Greece  | Luxembourg  | Portugal    | Singapore        | Poland              | United  |
| Germany   | Ireland   | Netherlands | Sweden      | Slovenia         | Hungaria            | Czech Republic  |
| Finland   | Iceland   | Norway      | Switzerland | Korea            | Israel              |   |
| Y1 - Capacitor: CB-Test Certificate: DE-1-11002-A1  |   |             |             | 33 pF ... 4.7 nF | 500 V <sub>AC</sub> |  |
| X1 - Capacitor: CB-Test Certificate: DE-1-11002-A1  |   |             |             | 33 pF ... 4.7 nF | 760 V <sub>AC</sub> |   |
| Minimum thickness of insulation: 0.4 mm   |   |             |             |                  |                     |   |
| <b>UNDERWRITERS LABORATORIES INC.</b>   |   |             |             |                  |                     |   |
| <b>UL 1414</b>  | Across-the-line, Antenna-coupling and Line-by-pass component. |             |             | 33 pF ... 4.7 nF | 250 V <sub>AC</sub> |  |
| <b>CANADIAN STANDARDS ASSOCIATION</b>   |   |             |             |                  |                     |   |
| <b>CSA C22.2</b>  | Across-the-line, antenna-coupling and line-by-pass component  |             |             | 33 pF ... 4.7 nF | 250 V <sub>AC</sub> |  |
| <b>NO 1-98</b>  | Agency Files / Licences                                       |             |             | E 183 844 V1 S1  |                     |   |

| <b>ORDERING INFORMATION</b> |            |           |               |                    |               |                |
|-----------------------------|------------|-----------|---------------|--------------------|---------------|----------------|
| <u>WKP</u>                  | <u>221</u> | <u>M</u>  | <u>CP</u>     | <u>ED0</u>         | <u>K</u>      | <u>R</u>       |
| SERIES                      | CAP. VALUE | TOLERANCE | RATED VOLTAGE | LEAD CONFIGURATION | INTERNAL CODE | ROHS COMPLIANT |



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