AC Line Rated Ceramic Disc Capacitors
Class X1, 275 V$_{AC}$

**MARKING**
Marking indicates series, AC rating, capacitance, tolerance code, and approvals.

**OPERATING TEMPERATURE RANGE**
-40 °C to +125 °C

**TEMPERATURE CHARACTERISTICS**
Class 2 Y5V

**SECTIONAL SPECIFICATIONS**
Climatic category (according to EN 60058-1)
Class 2 40/125/21

**APPROVALS**
IEC 60384-14.3

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**QUICK REFERENCE DATA**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>VALUE</th>
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<tbody>
<tr>
<td>Ceramic Class</td>
<td>2</td>
</tr>
<tr>
<td>Ceramic Dielectric</td>
<td>Y5V</td>
</tr>
<tr>
<td>Voltage (V$_{AC}$)</td>
<td>275</td>
</tr>
<tr>
<td>Min. Capacitance (pF)</td>
<td>4700</td>
</tr>
<tr>
<td>Max. Capacitance (pF)</td>
<td>22 000</td>
</tr>
<tr>
<td>Mounting</td>
<td>Radial</td>
</tr>
</tbody>
</table>

**FEATURES**
- Complying with IEC 60384-14 3rd edition
- High reliability
- Wide range of different leadstyles
- Single layer AC disc safety capacitors
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

**APPLICATIONS**
- X1 according to IEC 60384-14.3
- EMI filters

**DESIGN**
The capacitors consist of ceramic disc both sides of which are silver plated. Connection leads are made of tinned copper having diameters of 0.6 mm.
The capacitors may be supplied with straight or kinked leads having a lead spacing of 7.5 mm.
Coating is made of blue colored flame retardant epoxy resin in accordance with UL 94 V-0.

**CAPACITANCE RANGE**
4.7 nF to 22 nF

**TOLERANCE ON CAPACITANCE**
± 20%

**RATED VOLTAGE**
- X1: 275 V$_{AC}$, 50 Hz (IEC 60384-14.3)
  275 V$_{AC}$, 50 Hz/60 Hz (US/UL/CSA 60384-14)

**TEST VOLTAGE**
- 4000 V$_{DC}$, 2 s Component test (100 %)
- 3500 V$_{DC}$, 60 s Random sampling test (destructive)
- 2000 V$_{AC}$, 50 Hz, 60 s Voltage proof of coating (destructive)

**INSULATION RESISTANCE AT 500 V$_{DC}$**
≥ 6000 MΩ (60 s)

**DISSIPATION FACTOR**
Class 2: max. 2.5 % (1 kHz)
## DIMENSIONS in millimeters

![Diagram of W1X Series dimensions](image)

## TECHNICAL DATA

<table>
<thead>
<tr>
<th>CAPACITANCE C (pF)</th>
<th>CAPACITANCE TOLERANCE</th>
<th>BODY DIAMETER DMAX (mm)</th>
<th>BODY THICKNESS SMAX (mm)</th>
<th>LEAD SPACING (1) F (mm) ± 1 mm</th>
<th>LEAD DIAMETER (1) d (mm) ± 0.05 mm</th>
<th>WIDTH (1) V (mm) ± 0.5 mm</th>
<th>PART NUMBER</th>
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</thead>
<tbody>
<tr>
<td>Y5V (2F3)</td>
<td></td>
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<tr>
<td>4700</td>
<td>± 20 %</td>
<td>11.0</td>
<td>3.0</td>
<td>7.5</td>
<td>0.6</td>
<td>1.4</td>
<td>W1X472#CV###KR</td>
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<tr>
<td>6800</td>
<td>± 20 %</td>
<td>11.0</td>
<td>3.0</td>
<td>7.5</td>
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<td>1.4</td>
<td>W1X682#CV###KR</td>
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<td>10 000</td>
<td>-20 %/+50 %</td>
<td>15.0</td>
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<td>7.5</td>
<td>0.6</td>
<td>1.6</td>
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<td>15 000</td>
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<td>15.0</td>
<td>3.0</td>
<td>7.5</td>
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<td>1.6</td>
<td>W1X153#CV###KR</td>
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<td>22 000</td>
<td>-20 %/+50 %</td>
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<td>7.5</td>
<td>0.6</td>
<td>1.6</td>
<td>W1X223#CV###KR</td>
</tr>
</tbody>
</table>

**Note**

(1) Standard lead configuration, other lead spacing and diameter available on request

## MARKING

![MARKING Diagram](image)

- **W1X** 10n M
- X1 275 V~
- IEC 384-14
APPROVALS

IEC 60384-14.3 - Safety tests
This approval together with CB test certificate substitutes all national approvals.

<table>
<thead>
<tr>
<th>CB Certificate</th>
<th>DE 1-11148-A1</th>
<th>4.7 nF to 22 nF</th>
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<tbody>
<tr>
<td>Minimum thickness of insulation: 0.4 mm</td>
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<th>VDE</th>
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<th>275 V_{AC}</th>
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<td>X1-capacitor: VDE marks approval:</td>
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</tr>
<tr>
<td>Minimum thickness of insulation: 0.4 mm</td>
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</tbody>
</table>

LEAKAGE CURRENT VS. VOLTAGE (typical)

![Leakage Current vs. Voltage Graph](image)

IMPEDEANCE VS. FREQUENCY (typical)

![Impedance vs. Frequency Graph](image)

RELATED DOCUMENTS

<table>
<thead>
<tr>
<th>Document</th>
<th>URL</th>
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</table>
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