AC Line Rated Ceramic Disc Capacitors
Class X1, 275 VAC

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

QUICK REFERENCE DATA

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>VALUE</th>
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</thead>
<tbody>
<tr>
<td>Ceramic Class</td>
<td>2</td>
</tr>
<tr>
<td>Ceramic Dielectric</td>
<td>Y5V</td>
</tr>
<tr>
<td>Voltage (VAC)</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
- Singlelayer 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 VAC, 50 Hz (IEC 60384-14.3)
275 VAC, 50 Hz/60 Hz (US/UL/CSA 60384-14)

TEST VOLTAGE
- 4000 VDC, 2 s Component test (100 %)
- 3500 VDC, 60 s Random sampling test (destructive)
- 2000 VAC, 50 Hz, 60 s Voltage proof of coating (destructive)

INSULATION RESISTANCE AT 500 VDC
≥ 6000 MΩ (60 s)

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

![Diagrams showing dimensions](image)

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>CAPACITANCE C (pF)</th>
<th>CAPACITANCE TOLERANCE</th>
<th>BODY DIAMETER D MAX (mm)</th>
<th>BODY THICKNESS S MAX (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>
</tr>
</thead>
<tbody>
<tr>
<td>Y5V (2F3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>4700</td>
<td>± 20 %</td>
<td>11.0</td>
<td></td>
<td></td>
<td></td>
<td>1.4</td>
<td>W1X472#CV###KR</td>
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<tr>
<td>6800</td>
<td>11.0</td>
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<td></td>
<td></td>
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<td>W1X682#CV###KR</td>
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<tr>
<td>10 000</td>
<td>15.0</td>
<td>3.0</td>
<td>7.5</td>
<td>0.6</td>
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<td></td>
<td>W1X103#CV###KR</td>
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<td>15 000</td>
<td>-20 %/+50 %</td>
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<td>1.6</td>
<td>W1X153#CV###KR</td>
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<tr>
<td>22 000</td>
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<td>20.0</td>
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<td>W1X223#CV###KR</td>
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</tbody>
</table>

**Note**

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

### ORDERING CODE

<table>
<thead>
<tr>
<th>#</th>
<th>7th digit</th>
<th>Capacitance tolerance</th>
<th>± 10 % = K, ± 20 % = M</th>
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<tbody>
<tr>
<td>###</td>
<td>10th to 12th digit</td>
<td>Lead configuration</td>
<td>see “General Information”</td>
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</tbody>
</table>

**Example**

<table>
<thead>
<tr>
<th>Example</th>
<th>Series</th>
<th>Capacitance value</th>
<th>Tolerance code</th>
<th>Voltage code</th>
<th>Lead configuration</th>
<th>Internal code</th>
<th>RoHS compliant</th>
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</thead>
<tbody>
<tr>
<td>W1X 223 M CV CRU K R</td>
<td>Y5V</td>
<td>4700</td>
<td>± 20 %</td>
<td>11.0</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6800</td>
<td>11.0</td>
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<tr>
<td></td>
<td></td>
<td>10 000</td>
<td>15.0</td>
<td>3.0</td>
<td>7.5</td>
<td>0.6</td>
<td>W1X472#CV###KR</td>
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<td></td>
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<td></td>
<td>1.6</td>
<td>W1X153#CV###KR</td>
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<tr>
<td></td>
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<td>22 000</td>
<td></td>
<td>20.0</td>
<td></td>
<td></td>
<td>W1X223#CV###KR</td>
</tr>
</tbody>
</table>

### MARKING

![Marking example](image)
APPROVALS

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

CB Certificate
X1-capacitor: CB test certificate: DE 1-11148-A1 4.7 nF to 22 nF 275 VAC
Minimum thickness of insulation: 0.4 mm

VDE
X1-capacitor: VDE marks approval: 137890 4.7 nF to 22 nF 275 VAC
DIN EN 60384-14 VDE 0565-1-1:2006-04 - Safety tests
Minimum thickness of insulation: 0.4 mm

LEAKAGE CURRENT VS. VOLTAGE (typical)

IMPEDANCE VS. FREQUENCY (typical)

RELATED DOCUMENTS

General Information www.vishay.com/doc?22001
CB Test Certificate www.vishay.com/doc?22223
VDE Marks Approval www.vishay.com/doc?22224
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