High Voltage Ring Style Capacitors, Class 1 and Class 2 Ceramic

FEATURES
• High reliability
• Stackmounting is possible

APPLICATIONS
Ring style high voltage capacitors made from class 2 ceramic dielectric can be used as coupling and bypass capacitors, capacitors where low power ratings are required and larger capacitance changes where temperature can be tolerated.

QUICK REFERENCE DATA

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic Class</td>
<td>2</td>
</tr>
<tr>
<td>Ceramic Dielectric</td>
<td>R2000H (Z5U)</td>
</tr>
<tr>
<td>Voltage (Vp)</td>
<td>2800</td>
</tr>
<tr>
<td>Min. Capacitance (pF)</td>
<td>750</td>
</tr>
<tr>
<td>Max. Capacitance (pF)</td>
<td>1000</td>
</tr>
<tr>
<td>Mounting</td>
<td>Screw terminal</td>
</tr>
</tbody>
</table>

MATERIAL
Capacitor elements made from class 1 or class 2 ceramic dielectric with noble metal electrodes.

FINISH
Noble metal electrode pure silver, inner and outer insulating rim completely protective lacquered.

MARKING
Type designator, capacitance value and tolerance, rated peak voltage, ceramic material code, manufacturer logo.

CAPACITANCE RANGE
100 pF to 5.0 nF

CAPACITANCE TOLERANCE
R85, R2000H: ± 20 %
R4000, R6000: -20 % to +50 %

CERAMIC DIELECTRIC
• R85 (U2J)
• R2000H (Z5U)
• R4000 (Y5U)
• R6000 (Y5U)

RATED VOLTAGE
• 2.0 kVp
• 2.8 kVp
• 3.5 kVp
• 5.6 kVp

DIELECTRIC STRENGTH TEST
300 % of rated voltage, 50 Hz, in dielectric fluid

DISSIPATION FACTOR
• R85: max. 0.07 % (1 MHz)
• R2000H: max. 0.5 % (1 kHz)
• R4000, R6000: max. 2.5 % (1 kHz)

INSULATION RESISTANCE
Min. 50 000 MΩ (at 25 °C)

OPERATING TEMPERATURE RANGE
• Class 1: -55 °C to +85 °C
• Class 2: -55 °C to +100 °C
### SAP PART NUMBER, ELECTRICAL AND DIMENSIONAL DATA

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>CERAMIC</th>
<th>CAP. VALUES (pF)</th>
<th>RATED VOLTAGE (kVp)</th>
<th>D1 (mm) (inch)</th>
<th>D2 (mm) (inch)</th>
<th>H (mm) (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TYPE HR22</strong></td>
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<td></td>
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<tr>
<td>HR0022VR75138AX1</td>
<td>R2000H (Z5U)</td>
<td>750</td>
<td>2.8</td>
<td>10 (0.39)</td>
<td>22 (0.87)</td>
<td>7.5 (0.295)</td>
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<tr>
<td>HR0022VR10238AX1</td>
<td>1000</td>
<td>5.6</td>
<td>12 (0.47)</td>
<td>30 (1.18)</td>
<td>10.0 (0.394)</td>
<td>5.0 (0.197)</td>
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<tr>
<td>HR0022VR20291BB1</td>
<td>R6000 (Y5U)</td>
<td>2000</td>
<td>2.8</td>
<td>12 (0.47)</td>
<td>35 (1.38)</td>
<td>7.0 (0.276)</td>
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<tr>
<td>HR0022VR30291BB1</td>
<td>3000</td>
<td>5.6</td>
<td>12 (0.47)</td>
<td>30 (1.18)</td>
<td>10.0 (0.394)</td>
<td>5.0 (0.197)</td>
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<td>HR0030VT15238AX1</td>
<td>R2000H (Z5U)</td>
<td>1500</td>
<td>3.5</td>
<td>12 (0.47)</td>
<td>30 (1.18)</td>
<td>7.6 (0.295)</td>
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<tr>
<td>HR0030VW25291BB1</td>
<td>R6000 (Y5U)</td>
<td>2500</td>
<td>5.6</td>
<td>12 (0.47)</td>
<td>35 (1.38)</td>
<td>7.6 (0.295)</td>
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<tr>
<td>HR0030VR50291BB1</td>
<td>5000</td>
<td>5.6</td>
<td>12 (0.47)</td>
<td>35 (1.38)</td>
<td>7.6 (0.295)</td>
<td>5.0 (0.197)</td>
</tr>
<tr>
<td><strong>TYPE HR35</strong></td>
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<tr>
<td>HR0035VT10138BJ1</td>
<td>R85 (U2,J)</td>
<td>100</td>
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<td>12 (0.47)</td>
<td>35 (1.38)</td>
<td>7.0 (0.276)</td>
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<tr>
<td>HR0035BB50291BA1</td>
<td>R4000 (Y5U)</td>
<td>5000</td>
<td>2.0</td>
<td>12 (0.47)</td>
<td>35 (1.38)</td>
<td>5.2 (0.205)</td>
</tr>
</tbody>
</table>

**Note**
- The surface temperature during operation must not exceed +100 °C

### DIMENSIONS in millimeters (inches)

![Dimensions Diagram]

### MOUNTING GUIDELINES

Ring style capacitors can be mounted in series.
- Avoid installation in which too much pressure or torque is applied to the capacitor elements
- Use spring washers in order to prevent the generation of physical stress to the capacitor elements and noble metal electrodes
- The capacitor elements must not be used as a mechanical support for other devices or components

### CERAMIC CHARACTERISTICS (TYPICAL)

- **CAPACITANCE CHANGE VS. TEMPERATURE**
- **DC VOLTAGE DEPENDENCE OF CAPACITANCE**
CERAMIC CHARACTERISTICS (TYPICAL)

CAPACITANCE CHANGE VS. TEMPERATURE

DC VOLTAGE DEPENDENCE OF CAPACITANCE

R2000H (Z5U)

R4000 (Y5U)

R6000 (Y5U)

Applied Field Strength (V/mm)

Applied Field Strength (V/mm)

Applied Field Strength (V/mm)

RELATED DOCUMENTS

General Information  www.vishay.com/doc?22071
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