

## Ceramic Singlelayer DC Disc Capacitors, 3 kV<sub>DC</sub> General Purpose



| QUICK REFERENCE DATA       |                |        |
|----------------------------|----------------|--------|
| DESCRIPTION                | VALUE          |        |
| Ceramic Class              | 1              | 2      |
| Ceramic Dielectric         | N750, Y5T, Y5U |        |
| Voltage (V <sub>DC</sub> ) | 3000           |        |
| Min. Capacitance (pF)      | 10             | 68     |
| Max. Capacitance (pF)      | 330            | 10 000 |
| Mounting                   | Radial         |        |

### MARKING

Marking indicates, capacitance, tolerance code, and rated voltage.

### OPERATING TEMPERATURE RANGE

-40 °C to +85 °C

### TEMPERATURE CHARACTERISTICS

Class 1 N750 (U2J)

Class 2 Y5S, Y5U, Y5V

### SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60068-1):  
40/085/21

### FEATURES

- High capacitance in small sizes
- Low losses
- Wide range of different lead styles
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### APPLICATIONS

- Lighting ballasts
- SMPS

### DESIGN

The capacitors consist of a ceramic disc which is silver plated on both sides. Connection leads are made of tinned copper having diameters of 0.6 mm or 0.8 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

10 pF to 22 nF

### RATED VOLTAGE

3 kV<sub>DC</sub>

### DIELECTRIC STRENGTH

5000 V<sub>DC</sub>, 2 s Component test

### INSULATION RESISTANCE AT 500 V<sub>DC</sub>

≥ 10 000 MΩ (60 s)

### TOLERANCE ON CAPACITANCE

± 10 %, ± 20 %

### DISSIPATION FACTOR

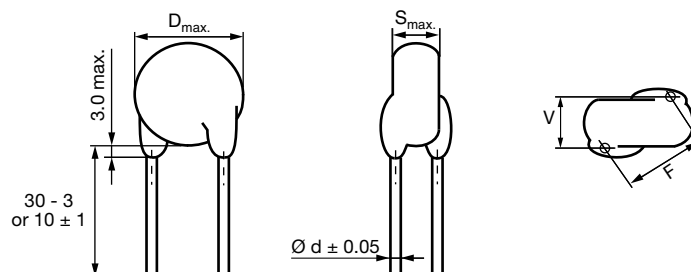
Class 1:

$C < 30 \text{ pF: } \left( \frac{100 \text{ pF}}{C} + 0.7 \right) \times 10^{-4} \text{ max. (1 MHz)}$

$C \geq 30 \text{ pF: max. 0.1 % (1 MHz)}$

Class 2: max. 2.5 % (1 kHz)

## DIMENSIONS in millimeters



## ORDERING INFORMATION

| CAPACITANCE<br>(pF) | TOLERANCE<br>(%) | BODY<br>DIAMETER<br>D <sub>max.</sub> (mm) | BODY<br>THICKNESS<br>S <sub>max.</sub> (mm) | LEAD<br>SPACING <sup>(1)</sup><br>F (mm)<br>± 1 mm | LEAD<br>DIAMETER <sup>(1)</sup><br>d (mm)<br>± 0.05 mm | WIDTH <sup>(1)</sup><br>V (mm)<br>± 0.5 mm | ORDERING CODE                                |                |
|---------------------|------------------|--------------------------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------|--------------------------------------------|----------------------------------------------|----------------|
|                     |                  |                                            |                                             |                                                    |                                                        |                                            | MISSING DIGITS<br>SEE ORDERING<br>CODE BELOW |                |
| N750 (U2J)          |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |                |
| 10                  | ± 10             | 7.0                                        | 4.0                                         | 10.0                                               | 0.6                                                    | 1.3                                        | HCU100KBC###KR                               |                |
| 15                  |                  |                                            |                                             |                                                    |                                                        |                                            | HCU150KBC###KR                               |                |
| 22                  |                  |                                            |                                             |                                                    |                                                        |                                            | HCU220KBC###KR                               |                |
| 33                  |                  |                                            |                                             |                                                    |                                                        |                                            | HCU330KBC###KR                               |                |
| 47                  |                  |                                            |                                             |                                                    |                                                        | 8.0                                        | 1.4                                          | HCU470KBC###KR |
| 68                  |                  |                                            |                                             |                                                    |                                                        |                                            |                                              | HCU680KBC###KR |
| 82                  |                  | 10.0                                       | 4.4                                         |                                                    | 0.8                                                    | 1.6                                        | HCU820KBC###KR                               |                |
| 100                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCU101KBC###KR                               |                |
| 150                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCU151KBC###KR                               |                |
| 220                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCU221KBC###KR                               |                |
| 330                 |                  |                                            |                                             |                                                    |                                                        |                                            | 17.0                                         | HCU331KBC###KR |
| Y5T (2D3)           |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |                |
| 68                  | ± 10, ± 20       | 7.0                                        | 4.0                                         | 10.0                                               | 0.6                                                    | 1.8                                        | HCZ680#BC###KR                               |                |
| 82                  |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ820#BC###KR                               |                |
| 100                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ101#BC###KR                               |                |
| 120                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ121#BC###KR                               |                |
| 150                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ151#BC###KR                               |                |
| 180                 |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ181#BC###KR                               |                |
| 220                 |                  |                                            |                                             |                                                    |                                                        |                                            | 8.0                                          | HCZ221#BC###KR |
| 330                 |                  |                                            |                                             |                                                    |                                                        |                                            |                                              | HCZ331#BC###KR |
| 470                 |                  | 10.0                                       |                                             |                                                    | HCZ471#BC###KR                                         |                                            |                                              |                |
| 680                 |                  |                                            |                                             |                                                    | HCZ681#BC###KR                                         |                                            |                                              |                |
| 1000                |                  | 11.0                                       |                                             |                                                    | 0.8                                                    | 2.0                                        | HCZ102#BC###KR                               |                |
| 1200                |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ122#BC###KR                               |                |
| 1500                |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ152#BC###KR                               |                |
| 2200                |                  |                                            |                                             |                                                    |                                                        |                                            | HCZ222#BC###KR                               |                |
| 3300                |                  |                                            |                                             |                                                    |                                                        |                                            | 21.0                                         | HCZ332#BC###KR |
| 4700                |                  |                                            |                                             |                                                    |                                                        |                                            |                                              | HCZ472#BC###KR |
| 6800                |                  |                                            |                                             |                                                    |                                                        |                                            | 25.0                                         | HCZ682#BC###KR |

**ORDERING INFORMATION**

| CAPACITANCE<br>(pF) | TOLERANCE<br>(%) | BODY<br>DIAMETER<br>D <sub>max.</sub> (mm) | BODY<br>THICKNESS<br>S <sub>max.</sub> (mm) | LEAD<br>SPACING <sup>(1)</sup><br>F (mm)<br>± 1 mm | LEAD<br>DIAMETER <sup>(1)</sup><br>d (mm)<br>± 0.05 mm | WIDTH <sup>(1)</sup><br>V (mm)<br>± 0.5 mm | ORDERING CODE                                |
|---------------------|------------------|--------------------------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------------------|--------------------------------------------|----------------------------------------------|
|                     |                  |                                            |                                             |                                                    |                                                        |                                            | MISSING DIGITS<br>SEE ORDERING<br>CODE BELOW |
| Y5U (2E3)           |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |
| 470                 | ± 20             | 7.0                                        | 4.0                                         | 10.0                                               | 0.6                                                    | 2.0                                        | HCE471MBC###KR                               |
| 680                 |                  | 8.0                                        |                                             |                                                    |                                                        |                                            | HCE681MBC###KR                               |
| 1000                |                  | 9.0                                        |                                             |                                                    |                                                        |                                            | HCE102MBC###KR                               |
| 1500                |                  | 11.0                                       |                                             |                                                    |                                                        |                                            | HCE152MBC###KR                               |
| 2200                |                  |                                            |                                             |                                                    |                                                        |                                            | HCE222MBC###KR                               |
| 3300                |                  | 15.0                                       |                                             |                                                    | 0.8                                                    | 2.2                                        | HCE332MBC###KR                               |
| 4700                |                  | 17.0                                       |                                             |                                                    |                                                        |                                            | HCE472MBC###KR                               |
| 6800                |                  | 21.0                                       |                                             |                                                    |                                                        |                                            | HCE682MBC###KR                               |
| 10 000              |                  | 25.0                                       |                                             |                                                    |                                                        |                                            | 2.5                                          |

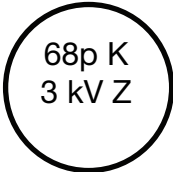
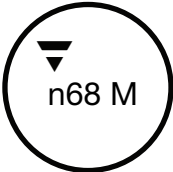
**Note**

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

**ORDERING CODE**

|                |                                            |                       |                           |              |                    |               |                |
|----------------|--------------------------------------------|-----------------------|---------------------------|--------------|--------------------|---------------|----------------|
| #              | 7 <sup>th</sup> digit                      | Capacitance tolerance | ± 10 % = K, ± 20 % = M    |              |                    |               |                |
| ###            | 10 <sup>th</sup> to 12 <sup>th</sup> digit | Lead configuration    | see "General Information" |              |                    |               |                |
| <b>Example</b> | <b>HCE</b>                                 | <b>152</b>            | <b>M</b>                  | <b>BC</b>    | <b>DD0</b>         | <b>K</b>      | <b>R</b>       |
|                | Series                                     | Capacitance value     | Tolerance code            | Voltage code | Lead configuration | Internal code | RoHS compliant |

**MARKING**

|                                                                                                                                                                                         |                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>68p K<br/>3 kV Z</p> <p>HCU 10 pF to 150 pF<br/>HCZ 68 pF to 1.0 nF<br/>HCE 470 pF to 2.2 nF</p> |  <p>n68 M</p> <p>HCU 220 pF to 330 pF<br/>HCZ 1.2 nF to 6.8 nF<br/>HCE 3.3 nF to 10 nF</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**RELATED DOCUMENTS**

|                     |                                                                        |
|---------------------|------------------------------------------------------------------------|
| General Information | <a href="http://www.vishay.com/doc?22001">www.vishay.com/doc?22001</a> |
|---------------------|------------------------------------------------------------------------|



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