

## Ceramic Singlelayer DC Disc Capacitors, 1 kV<sub>DC</sub> General Purpose


**RoHS**  
COMPLIANT

### FEATURES

- High capacitance in small sizes
- Low losses
- Wide range of different leadstyles
- Material categorization:

For definitions of compliance please see

[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

### APPLICATIONS

- Lighting ballasts
- SMPS

### 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 or 0.8 mm.

The capacitors may be supplied with straight or kinked leads having a lead spacing of 5.0 mm or 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

1 kV<sub>DC</sub>

### DIELECTRIC STRENGTH

1750 kV<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 %, - 20 % + 50 %

### 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)

### QUICK REFERENCE DATA

| DESCRIPTION                | VALUE               |        |
|----------------------------|---------------------|--------|
| Ceramic Class              | 1                   | 2      |
| Ceramic Dielectric         | N750, Y5T, Y5U, Y5V |        |
| Voltage (V <sub>AC</sub> ) | 1000                |        |
| Min. Capacitance (pF)      | 10                  | 47     |
| Max. Capacitance (pF)      | 680                 | 22 000 |
| Mounting                   | Radial              |        |

### MARKING

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

### OPERATING TEMPERATURE RANGE

- 40 °C to + 85 °C

### TEMPERATURE CHARACTERISTICS

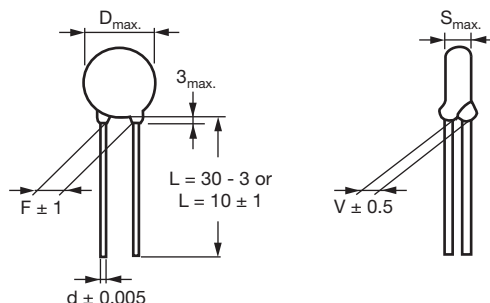
Class 1      N750 (U2J)

Class 2      Y5T, Y5U, Y5V

### SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60068-1):

40/085/21


**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                                        | 3.0                                         | 7.5                                                | 0.6                                                    | 1.4                                        | HAU100KBA...KR                               |     |     |                |
| 15                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAU150KBA...KR                               |     |     |                |
| 22                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAU220KBA...KR                               |     |     |                |
| 33                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAU330KBA...KR                               |     |     |                |
| 47                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAU470KBA...KR                               |     |     |                |
| 68                  |                  | 8.0                                        | 3.0                                         |                                                    |                                                        |                                            | HAU680KBA...KR                               |     |     |                |
| 82                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAU820KBA...KR                               |     |     |                |
| 100                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAU101KBA...KR                               |     |     |                |
| 150                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAU151KBA...KR                               |     |     |                |
| 220                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAU221KBA...KR                               |     |     |                |
| 330                 |                  | 12.5                                       | 3.5                                         |                                                    |                                                        |                                            | HAU331KBA...KR                               |     |     |                |
| 470                 |                  | 14.5                                       |                                             |                                                    |                                                        |                                            | HAU471KBA...KR                               |     |     |                |
| 560                 |                  | 16.5                                       |                                             |                                                    |                                                        |                                            | HAU561KBA...KR                               |     |     |                |
| 680                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAU681KBA...KR                               |     |     |                |
| Y5T (2D3)           |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
| 47                  | ± 10, ± 20       | 7.0                                        | 3.0                                         | 5.0                                                | 0.6                                                    | 1.2                                        | HAZ470.BA...KR                               |     |     |                |
| 56                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ560.BA...KR                               |     |     |                |
| 68                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ680.BA...KR                               |     |     |                |
| 82                  |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ820.BA...KR                               |     |     |                |
| 100                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ101.BA...KR                               |     |     |                |
| 150                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ151.BA...KR                               |     |     |                |
| 220                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ221.BA...KR                               |     |     |                |
| 330                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ331.BA...KR                               |     |     |                |
| 470                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ471.BA...KR                               |     |     |                |
| 680                 |                  |                                            |                                             |                                                    |                                                        |                                            | HAZ681.BA...KR                               |     |     |                |
| 1000                |                  |                                            |                                             |                                                    |                                                        |                                            | 9.0                                          | 3.0 | 7.5 | HAZ102.BA...KR |
| 1500                |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |     |     | HAZ152.BA...KR |
| 2200                |                  | HAZ222.BA...KR                             |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
| 3300                |                  | HAZ332.BA...KR                             |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
| 4700                |                  | HAZ472.BA...KR                             |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
|                     |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
|                     |                  | 11.0                                       |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
|                     |                  | 13.0                                       |                                             |                                                    |                                                        |                                            |                                              |     |     |                |
|                     | 15.0             |                                            |                                             |                                                    |                                                        |                                            |                                              |     |     |                |



## 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)           |                          |                                            |                                             |                                                    |                                                        |                                            |                                              |
| 1000                | ± 20                     | 7.0                                        | 3.0                                         | 5.0                                                | 0.6                                                    | 1.2                                        | HAE102MBA...KR                               |
| 1500                |                          | 9.0                                        |                                             |                                                    |                                                        |                                            | HAE152MBA...KR                               |
| 2200                |                          |                                            |                                             |                                                    |                                                        |                                            | HAE222MBA...KR                               |
| 3300                |                          |                                            |                                             |                                                    |                                                        |                                            | HAE332MBA...KR                               |
| 4700                |                          | 11.0                                       |                                             |                                                    |                                                        |                                            | HAE472MBA...KR                               |
| 6800                |                          |                                            | 13.0                                        | HAE682MBA...KR                                     |                                                        |                                            |                                              |
| 10000               |                          |                                            | 15.0                                        | HAE103MBA...KR                                     |                                                        |                                            |                                              |
| Y5V (2F3)           |                          |                                            |                                             |                                                    |                                                        |                                            |                                              |
| 2200                | - 20/+ 50 <sup>(2)</sup> | 7.0                                        | 3.0                                         | 5.0                                                | 0.6                                                    | 1.2                                        | HAX222.BA...KR                               |
| 3300                |                          | 9.0                                        |                                             |                                                    |                                                        |                                            | HAX332.BA...KR                               |
| 4700                |                          |                                            |                                             |                                                    |                                                        |                                            | HAX472.BA...KR                               |
| 6800                |                          |                                            |                                             | 12.0                                               |                                                        |                                            | 7.5                                          |
| 10000               |                          | HAX103.BA...KR                             |                                             |                                                    |                                                        |                                            |                                              |
| 15000               |                          | 17.0                                       | HAX153.BA...KR                              |                                                    |                                                        |                                            |                                              |
| 22000               |                          | 18.0                                       | HAX223.BA...KR                              |                                                    |                                                        |                                            |                                              |

## Notes

<sup>(1)</sup> Standard lead configuration, other lead spacing and diameter available on request<sup>(2)</sup> ± 20 % available on request

## ORDERING CODE

|                |                                            |                       |                                           |              |                    |               |                |
|----------------|--------------------------------------------|-----------------------|-------------------------------------------|--------------|--------------------|---------------|----------------|
| .              | 7 <sup>th</sup> digit                      | Capacitance tolerance | ± 10 % = K, ± 20 % = M, - 20 %/+ 50 % = S |              |                    |               |                |
| ...            | 10 <sup>th</sup> to 12 <sup>th</sup> digit | Lead configuration    | see "General Information"                 |              |                    |               |                |
| <b>Example</b> | <b>HAU</b>                                 | <b>101</b>            | <b>K</b>                                  | <b>BA</b>    | <b>BFG</b>         | <b>K</b>      | <b>R</b>       |
|                | Series                                     | Capacitance value     | Tolerance code                            | Voltage code | Lead configuration | Internal code | RoHS compliant |

## MARKING

|                                                                        |                                                                         |                          |                         |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------|-------------------------|
| <br>HAU 10 pF to 330 pF<br>HAZ 47 pF to 2.2 nF<br>HAE 1.0 nF to 4.7 nF | <br>HAU 470 pF to 680 pF<br>HAZ 3.3 nF to 4.7 pF<br>HAE 6.8 nF to 10 nF | <br>HAX 2.2 nF to 6.8 nF | <br>HAX 8.2 nF to 22 nF |
|------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------|-------------------------|

## RELATED DOCUMENTS

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



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- Оценку стоимости проекта по компонентам.
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