

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



| 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

### 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)



**RoHS**  
COMPLIANT

### 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 %

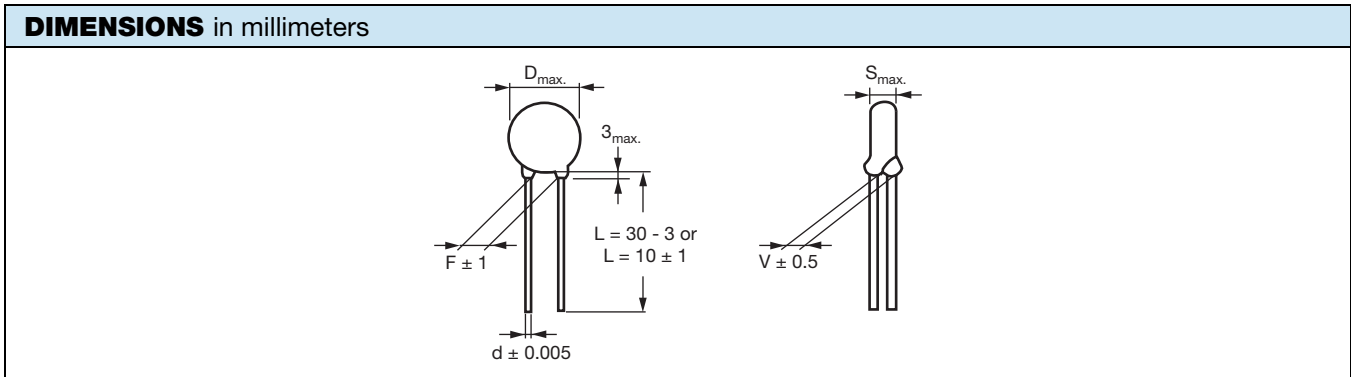
### DISSIPATION FACTOR

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)



| ORDERING INFORMATION |                |                                      |                                       |                                |                                    |                           |   |                |                |     |                |
|----------------------|----------------|--------------------------------------|---------------------------------------|--------------------------------|------------------------------------|---------------------------|---|----------------|----------------|-----|----------------|
| CAPACITANCE (pF)     | TOLERANCE (%)  | BODY DIAMETER D <sub>max.</sub> (mm) | BODY THICKNESS S <sub>max.</sub> (mm) | LEAD SPACING (1) F (mm) ± 1 mm | LEAD DIAMETER (1) d (mm) ± 0.05 mm | WIDTH (1) V (mm) ± 0.5 mm | ORDERING CODE<br>MISSING DIGITS<br>SEE ORDERING<br>CODE BELOW |                |                |     |                |
| <b>N750 (U2J)</b>    |                |                                      |                                       |                                |                                    |                           |   |                |                |     |                |
| 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                   |                |                                      |                                       |                                |                                    |                           | HAU680KBA...KR  |                |                |     |                |
| 82                   |                | 8.0                                  | 3.5                                   |                                |                                    |                           | HAU820KBA...KR  |                |                |     |                |
| 100                  |                |                                      |                                       |                                |                                    |                           | HAU101KBA...KR  |                |                |     |                |
| 150                  |                |                                      |                                       |                                |                                    |                           | HAU151KBA...KR  |                |                |     |                |
| 220                  |                |                                      |                                       |                                |                                    |                           | HAU221KBA...KR  |                |                |     |                |
| 330                  |                |                                      |                                       |                                |                                    |                           | HAU331KBA...KR  |                |                |     |                |
| 470                  |                |                                      |                                       |                                |                                    |                           | HAU471KBA...KR  |                |                |     |                |
| 560                  |                | 16.5                                 | 3.5                                   |                                |                                    |                           | HAU561KBA...KR  |                |                |     |                |
| 680                  |                |                                      |                                       |                                |                                    |                           | HAU681KBA...KR  |                |                |     |                |
| <b>Y5T (2D3)</b>     |                |                                      |                                       |                                |                                    |                           |   |                |                |     |                |
| 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                 |                |                                      | 11.0                                  |                                |                                    | 3.0                       | 7.5   | HAZ472.BA...KR |                |     |                |
|                      |                |                                      |                                       |                                |                                    |                           |   | 13.0           | HAZ472.BA...KR |     |                |
| 4700                 | 15.0           |                                      | 3.0                                   | 7.5                            | HAZ472.BA...KR                     |                           |   |                |                |     |                |



| ORDERING INFORMATION |                          |                                      |                                       |   |   |                                      |   |
|----------------------|--------------------------|--------------------------------------|---------------------------------------|---|---|--------------------------------------|---|
| CAPACITANCE (pF)     | TOLERANCE (%)            | BODY DIAMETER D <sub>max.</sub> (mm) | BODY THICKNESS S <sub>max.</sub> (mm) | LEAD SPACING <sup>(1)</sup> F (mm) ± 1 mm | LEAD DIAMETER <sup>(1)</sup> d (mm) ± 0.05 mm | WIDTH <sup>(1)</sup> V (mm) ± 0.5 mm | ORDERING CODE<br>MISSING DIGITS<br>SEE ORDERING<br>CODE BELOW |
| <b>Y5U (2E3)</b>     |                          |                                      |                                       |   |   |                                      |   |
| 1000                 | ± 20                     | 7.0                                  | 3.0                                   | 5.0                                       | 0.6   | 1.2                                  | HAE102MBA...KR  |
| 1500                 |                          | 9.0                                  |                                       |   |   |                                      | HAE152MBA...KR  |
| 2200                 |                          | HAE222MBA...KR                       |                                       |   |   |                                      |   |
| 3300                 |                          | 11.0                                 |                                       |   |   |                                      | HAE332MBA...KR  |
| 4700                 |                          | 13.0                                 |                                       | HAE472MBA...KR                            |   |                                      |   |
| 6800                 |                          | 15.0                                 |                                       | HAE682MBA...KR                            |   |                                      |   |
| 10000                |                          | 7.5                                  |                                       | HAE103MBA...KR                            |   |                                      |   |
| <b>Y5V (2F3)</b>     |                          |                                      |                                       |   |   |                                      |   |
| 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                                 |                                       | HAX682.BA...KR                            |   |                                      |   |
| 10000                |                          | 17.0                                 |                                       | 7.5                                       |   |                                      | HAX103.BA...KR  |
| 15000                |                          |                                      |                                       |   |   |                                      | HAX153.BA...KR  |
| 22000                |                          |                                      |                                       |   |   |                                      | 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>33p K<br>1 kV U  | <br>▼<br>n56 K  | <br>2n2 S<br>1 kV    | <br>▼ HAX<br>8n2 S  |
| HAU 10 pF to 330 pF<br>HAZ 47 pF to 2.2 nF<br>HAE 1.0 nF to 4.7 nF | HAU 470 pF to 680 pF<br>HAZ 3.3 nF to 4.7 pF<br>HAE 6.8 nF to 10 nF | HAX 2.2 nF to 6.8 nF | 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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