

## Ceramic Singlelayer DC Disc Capacitors, 6 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> ) | 6000           |      |
| Min. Capacitance (pF)      | 10             | 56   |
| Max. Capacitance (pF)      | 330            | 6800 |
| 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

### 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 12.5 mm.

Coating is made of blue colored flame retardant epoxy resin in accordance with UL 94 V-0.

### CAPACITANCE RANGE

10 pF to 6.8 nF

### RATED VOLTAGE

6 kV<sub>DC</sub>

### DIELECTRIC STRENGTH

9000 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 %

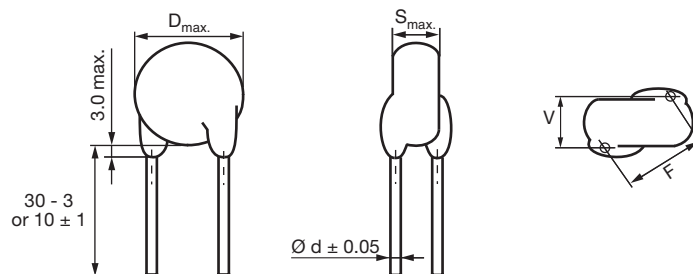
### DISSIPATION FACTOR

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**

| 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<br>MISSING DIGITS<br>SEE ORDERING<br>CODE BELOW |
| N750 (U2J)           |                     |                                            |                                             |                                                    |                                                        |                                            |                                                               |
| 10                   | ± 10                | 7.0                                        | 4.8                                         | 12.5                                               | 0.6                                                    | 2.2                                        | HFU100KBF###KR                                                |
| 15                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFU150KBF###KR                                                |
| 22                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFU220KBF###KR                                                |
| 33                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFU330KBF###KR                                                |
| 47                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFU470KBF###KR                                                |
| 68                   |                     | 12.0                                       | 5.2                                         |                                                    | 0.8                                                    | 2.4                                        | HFU680KBF###KR                                                |
| 82                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFU820KBF###KR                                                |
| 100                  |                     |                                            |                                             |                                                    |                                                        |                                            | HFU101KBF###KR                                                |
| 150                  |                     |                                            |                                             |                                                    |                                                        |                                            | HFU151KBF###KR                                                |
| 220                  |                     |                                            |                                             |                                                    |                                                        |                                            | HFU221KBF###KR                                                |
| 330                  |                     | HFU331KBF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| Y5T (2E3)            |                     |                                            |                                             |                                                    |                                                        |                                            |                                                               |
| 56                   | ± 20 <sup>(2)</sup> | 7.0                                        | 5.0                                         | 12.5                                               | 0.6                                                    | 3.5                                        | HFZ560#BF###KR                                                |
| 68                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFZ680#BF###KR                                                |
| 82                   |                     |                                            |                                             |                                                    |                                                        |                                            | HFZ820#BF###KR                                                |
| 100                  |                     |                                            |                                             |                                                    |                                                        |                                            | HFZ101#BF###KR                                                |
| 120                  |                     | HFZ121#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 150                  |                     | HFZ151#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 180                  |                     | HFZ181#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 220                  |                     | HFZ221#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 270                  |                     | HFZ271#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 330                  |                     | HFZ331#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 390                  |                     | HFZ391#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 470                  |                     | HFZ471#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 560                  |                     | HFZ561#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 680                  |                     | HFZ681#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 820                  |                     | HFZ821#BF###KR                             |                                             |                                                    |                                                        |                                            |                                                               |
| 1000                 |                     | 0.8                                        |                                             |                                                    | HFZ102#BF###KR                                         |                                            |                                                               |
| 1200                 |                     |                                            |                                             |                                                    | HFZ122#BF###KR                                         |                                            |                                                               |
| 1500                 |                     |                                            |                                             |                                                    | HFZ152#BF###KR                                         |                                            |                                                               |
| 1800                 |                     |                                            |                                             |                                                    | HFZ182#BF###KR                                         |                                            |                                                               |
| 2200                 |                     |                                            |                                             |                                                    | HFZ222#BF###KR                                         |                                            |                                                               |
| 2700                 |                     |                                            |                                             |                                                    | HFZ272#BF###KR                                         |                                            |                                                               |



## ORDERING INFORMATION

| 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)            |                  |                                            |                                             |                                                    |                                                        |                                            |                                              |
| 150                  | ± 20             | 7.0                                        | 5.0                                         | 12.5                                               | 0.6                                                    | 3.5                                        | HFE151MBF###KR                               |
| 220                  |                  |                                            |                                             |                                                    |                                                        |                                            | HFE221MBF###KR                               |
| 330                  |                  |                                            |                                             |                                                    |                                                        |                                            | HFE331MBF###KR                               |
| 470                  |                  |                                            |                                             |                                                    |                                                        |                                            | HFE471MBF###KR                               |
| 680                  |                  |                                            |                                             |                                                    |                                                        |                                            | HFE681MBF###KR                               |
| 1000                 |                  | 11.0                                       | 5.5                                         |                                                    | HFE102MBF###KR                                         |                                            |                                              |
| 1500                 |                  | 13.0                                       |                                             |                                                    | HFE152MBF###KR                                         |                                            |                                              |
| 2200                 |                  | 15.0                                       |                                             |                                                    | HFE222MBF###KR                                         |                                            |                                              |
| 3300                 |                  | 21.0                                       |                                             |                                                    | HFE332MBF###KR                                         |                                            |                                              |
| 4700                 |                  |                                            |                                             |                                                    | HFE472MBF###KR                                         |                                            |                                              |
| 6800                 |                  |                                            |                                             |                                                    | 23.0                                                   |                                            | HFE682MBF###KR                               |

## Notes

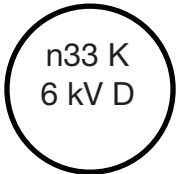
<sup>(1)</sup> Standard lead configuration, other lead spacing and diameter available on request

<sup>(2)</sup> ± 10 % 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" |              |                    |               |                |
| Example | HFE                                        | 682                   | M                         | BF           | EF0                | K             | R              |
|         | Series                                     | Capacitance value     | Tolerance code            | Voltage code | Lead configuration | Internal code | RoHS compliant |

## MARKING

|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |
| HFU 10 pF to 100 pF<br>HFZ 56 pF to 470 pF<br>HFE 150 pF to 1.0 nF                  | HFU 150 pF to 330 pF<br>HFZ 560 nF to 2.7 nF<br>HFE 1.5 nF to 6.8 nF                 |

## RELATED DOCUMENTS

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



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