

## Ceramic Singlelayer DC Disc Capacitors, 2 kV<sub>DC</sub> General Purpose



QUICK REFERENCE DATA	
DESCRIPTION	VALUE
Ceramic Class	1                      2
Ceramic Dielectric	N750, Y5T, Y5U, Y5V
Voltage (V <sub>DC</sub> )	2000
Min. Capacitance (pF)	10                      56
Max. Capacitance (pF)	470                      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 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

2 kV<sub>DC</sub>

### DIELECTRIC STRENGTH

3000 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 %, - 20 % / + 50 %

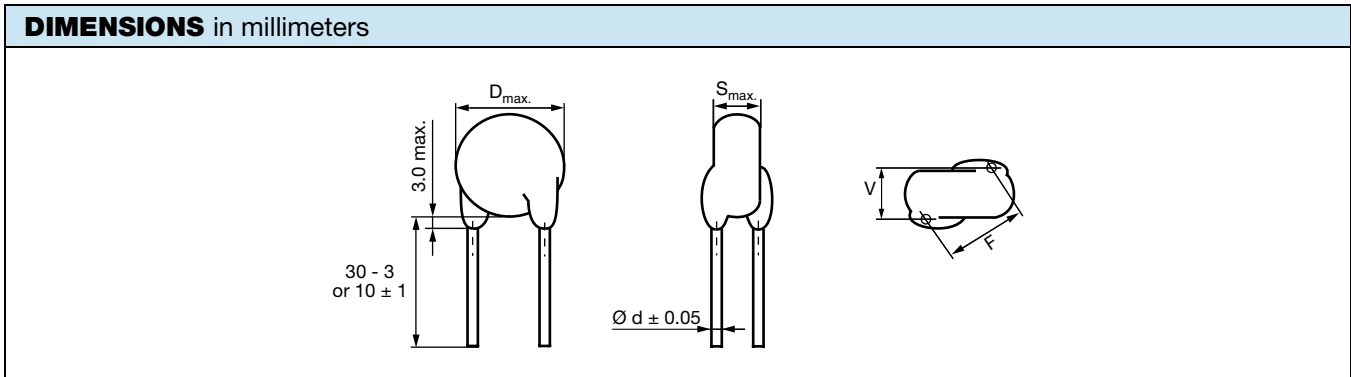
### DISSIPATION FACTOR

Class 1:

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

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

Class 2:    max. 2.5 % (1 kHz)



ORDERING INFORMATION												
CAPACITANCE (pF)	TOLERANCE (%)	BODY DIAMETER $D_{max}$ (mm)	BODY THICKNESS $S_{max}$ (mm)	LEAD SPACING <sup>(1)</sup> F (mm) $\pm 1$ mm	LEAD DIAMETER <sup>(1)</sup> d (mm) $\pm 0.05$ mm	WIDTH <sup>(1)</sup> V (mm) $\pm 0.5$ mm	ORDERING CODE MISSING DIGITS SEE ORDERING CODE BELOW					
<b>N750 (U2J)</b>												
10	$\pm 10$	7.0	4.0	$\pm 1$ mm	0.6	1.2	HBU100KBB###KR					
15							HBU150KBB###KR					
22							HBU220KBB###KR					
33						1.3	HBU330KBB###KR					
47							1.4	HBU470KBB###KR				
68								HBU680KBB###KR				
82		HBU820KBB###KR										
100		HBU101KBB###KR										
150		HBU151KBB###KR										
220		4.2	12.0			HBU221KBB###KR						
330						HBU331KBB###KR						
470						HBU471KBB###KR						
<b>Y5T (2D3)</b>												
56						$\pm 10, \pm 20$	7.0	3.0	7.5	0.6	1.4	HBZ560#BB###KR
68	HBZ680#BB###KR											
82	HBZ820#BB###KR											
100	HBZ101#BB###KR											
150	HBZ151#BB###KR											
220	HBZ221#BB###KR											
330	HBZ331#BB###KR											
470	HBZ471#BB###KR											
680	9.0	11.0	HBZ681#BB###KR									
1000			HBZ102#BB###KR									
1500			HBZ152#BB###KR									
2200			HBZ222#BB###KR									
3300			HBZ332#BB###KR									
4700			HBZ472#BB###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					
							MISSING DIGITS SEE ORDERING CODE BELOW					
<b>Y5U (2E3)</b>												
680	± 20	7.0	3.0	7.5	0.6	1.4	HBE681MBB###KR					
1000							HBE102MBB###KR					
1500		9.0					HBE152MBB###KR					
2200							HBE222MBB###KR					
3300		11.0					HBE332MBB###KR					
4700		13.0					HBE472MBB###KR					
6800		15.0					HBE682MBB###KR					
10 000		17.0					HBE103MBB###KR					
<b>Y5V (2F3)</b>												
1500		- 20 / + 50 <sup>(2)</sup>					7.0	3.0	7.5	0.6	1.2	HBX152#BB###KR
2200	9.0		HBX222#BB###KR									
3300	11.0		HBX332#BB###KR									
4700			HBX472#BB###KR									
6800	15.0		HBX682#BB###KR									
10 000			17.0	HBX103#BB###KR								
15 000	20.0		HBX153#BB###KR									
22 000			20.0	HBX223#BB###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>HBX</b>	<b>223</b>	<b>S</b>	<b>BB</b>	<b>CRU</b>	<b>K</b>	<b>R</b>
	Series	Capacitance value	Tolerance code	Voltage code	Lead configuration	Internal code	RoHS compliant

## MARKING

<p>56p K 2 kV U</p> <p>HBU 10 pF to 220 pF HBZ 56 pF to 2.2 nF HBE 680 pF to 4.7 nF</p>	<p>3n3 K</p> <p>HBU 330 pF to 470 pF HBZ 3.3 nF to 4.7 nF HBE 6.8 nF to 10 nF</p>	<p>3n3 M 2 kV</p> <p>HBX 1.5 nF to 4.7 nF</p>	<p>HBX 10n S</p> <p>HBX 6.8 nF to 22 nF</p>
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## RELATED DOCUMENTS

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