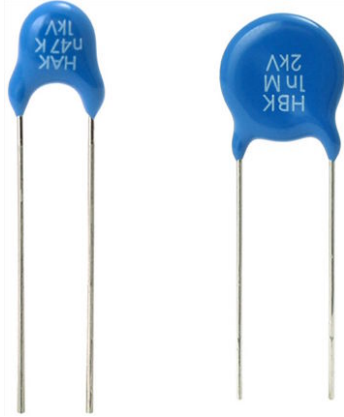


Ceramic Singlelayer DC Disc Capacitors, Class 2, Low Loss (0.5 %), 1 kV_{DC}, 2 kV_{DC}, 3 kV_{DC}


FEATURES

- Low losses
- High stability
- Low DF minimizes self heating at HF
- Ideal for switching to 100 kHz
- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912


RoHS
COMPLIANT

APPLICATIONS

In electronic circuits where low losses and high capacitance per volume are essential, for example:

- HF ballast
- SMPS
- Snubber and HV circuits

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 or 10.0 mm.

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

| QUICK REFERENCE DATA | | | |
|----------------------------|--------|------|------|
| DESCRIPTION | VALUE | | |
| Ceramic Class | 2 | | |
| Ceramic Dielectric | Y5S | | |
| Voltage (V _{DC}) | 1000 | 2000 | 3000 |
| Min. Capacitance (pF) | 100 | 100 | 100 |
| Max. Capacitance (pF) | 4700 | 4700 | 3300 |
| Mounting | Radial | | |

MARKING

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

OPERATING TEMPERATURE RANGE

-40 °C to +125 °C

TEMPERATURE CHARACTERISTICS

Y5S (2C3)

SECTIONAL SPECIFICATIONS

Climatic category (according to EN 60068-1):
40/125/21

APPROVALS

IEC 60384-9, EIA 198

CAPACITANCE RANGE

100 pF to 4700 pF

RATED DC VOLTAGE

- 1 kV_{DC}
- 2 kV_{DC}
- 3 kV_{DC}

DIELECTRIC STRENGTH

- 2000 V_{AC}, 50 Hz, 2 s Component test
- 3000 V_{AC}, 50 Hz, 2 s
- 4000 V_{AC}, 50 Hz, 2 s

INSULATION RESISTANCE AT 500 V_{DC}

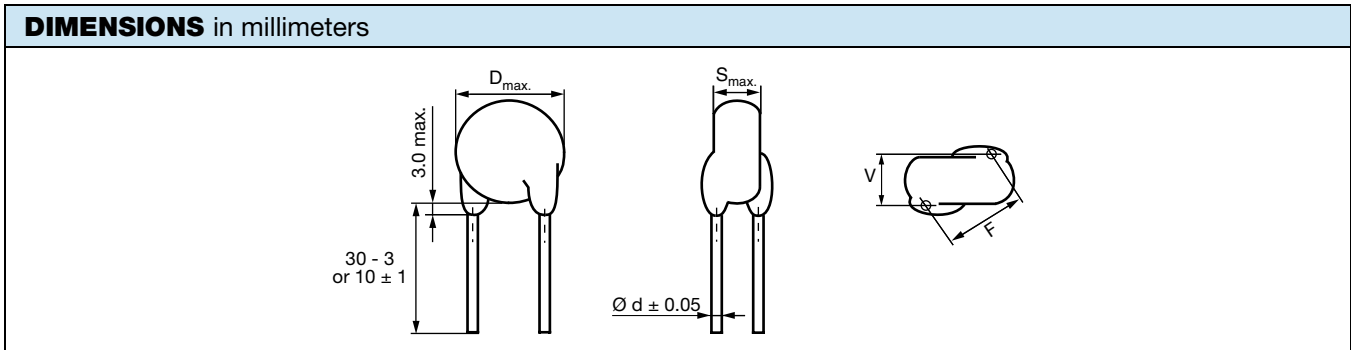
≥ 10 000 MΩ (60 s)

TOLERANCE ON CAPACITANCE

± 20 % (± 10 % available on request)

DISSIPATION FACTOR

Max. 0.5 % (1 kHz)



| ORDERING INFORMATION | | | | | | | |
|--------------------------|----------------|------------------------------|-------------------------------|---|---|--|---|
| CAPACITANCE (pF) | TOLERANCE (%) | BODY DIAMETER D_{max} (mm) | BODY THICKNESS S_{max} (mm) | LEAD SPACING ⁽¹⁾ F (mm) $\pm 1 \text{ mm}$ | LEAD DIAMETER ⁽¹⁾ d (mm) $\pm 0.05 \text{ mm}$ | WIDTH ⁽¹⁾ V (mm) $\pm 0.5 \text{ mm}$ | ORDERING CODE MISSING DIGITS SEE ORDERING CODE BELOW |
| 1 kV_{DC} | | | | | | | |
| 100 | $\pm 20^{(2)}$ | 7.0 | 5.0 | 7.5 | 0.6 | 1.1 | HAK101#BA###KR |
| 150 | | | | | | | HAK151#BA###KR |
| 220 | | | | | | | HAK221#BA###KR |
| 270 | | | | | | | HAK271#BA###KR |
| 330 | | | | | | | HAK331#BA###KR |
| 390 | | | | | | | HAK391#BA###KR |
| 470 | | | | | | | HAK471#BA###KR |
| 560 | | | | | | | HAK561#BA###KR |
| 680 | | HAK681#BA###KR | | | | | |
| 820 | | HAK821#BA###KR | | | | | |
| 1000 | | HAK102#BA###KR | | | | | |
| 1200 | | HAK122#BA###KR | | | | | |
| 1500 | | HAK152#BA###KR | | | | | |
| 1800 | | HAK182#BA###KR | | | | | |
| 2200 | | HAK222#BA###KR | | | | | |
| 2700 | | HAK272#BA###KR | | | | | |
| 3300 | | HAK332#BA###KR | | | | | |
| 3900 | | HAK392#BA###KR | | | | | |
| 4700 | HAK472#BA###KR | | | | | | |
| 2 kV_{DC} | | | | | | | |
| 100 | $\pm 20^{(2)}$ | 7.0 | 5.0 | 7.5 | 0.6 | 1.6 | HBK101#BB###KR |
| 150 | | | | | | | HBK151#BB###KR |
| 220 | | | | | | | HBK221#BB###KR |
| 270 | | | | | | | HBK271#BB###KR |
| 330 | | | | | | | HBK331#BB###KR |
| 390 | | | | | | | HBK391#BB###KR |
| 470 | | | | | | | HBK471#BB###KR |
| 560 | | | | | | | HBK561#BB###KR |
| 680 | | HBK681#BB###KR | | | | | |
| 820 | | HBK821#BB###KR | | | | | |
| 1000 | | HBK102#BB###KR | | | | | |
| 1200 | | HBK122#BB###KR | | | | | |
| 1500 | | HBK152#BB###KR | | | | | |
| 1800 | | HBK182#BB###KR | | | | | |
| 2200 | | HBK222#BB###KR | | | | | |
| 2700 | | HBK272#BB###KR | | | | | |
| 3300 | | HBK332#BB###KR | | | | | |
| 3900 | | HBK392#BB###KR | | | | | |
| 4700 | HBK472#BB###KR | | | | | | |



| ORDERING INFORMATION | | | | | | | |
|--------------------------|---------------------|--------------------------------------|---------------------------------------|---|---|--------------------------------------|---|
| CAPACITANCE (pF) | TOLERANCE (%) | BODY DIAMETER D _{max.} (mm) | BODY THICKNESS S _{max.} (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 MISSING DIGITS SEE ORDERING CODE BELOW |
| 3 kV_{DC} | | | | | | | |
| 100 | ± 20 ⁽²⁾ | 7.0 | 5.0 | 10.0 | 0.6 | 1.6 | HCK101#BC###KR |
| 150 | | | | | | | HCK151#BC###KR |
| 220 | | | | | | | HCK221#BC###KR |
| 270 | | HCK271#BC###KR | | | | | |
| 330 | | 8.0 | | | | | HCK331#BC###KR |
| 390 | | 9.0 | | | | | HCK391#BC###KR |
| 470 | | 10.0 | | | | | HCK471#BC###KR |
| 560 | | | | | | | HCK561#BC###KR |
| 680 | | | | | | | HCK681#BC###KR |
| 820 | | 11.0 | | | | | HCK821#BC###KR |
| 1000 | | 12.0 | | | | | HCK102#BC###KR |
| 1200 | | 13.0 | | | | | HCK122#BC###KR |
| 1500 | | 15.0 | | | | | HCK152#BC###KR |
| 1800 | | 16.0 | | | | | HCK182#BC###KR |
| 2200 | | 17.0 | | | | | HCK222#BC###KR |
| 2700 | | 18.0 | | | | | HCK272#BC###KR |
| 3300 | | 20.0 | | | | | HCK332#BC###KR |

Notes

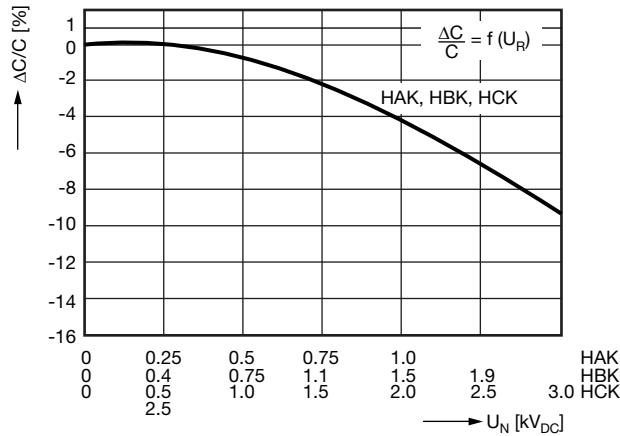
⁽¹⁾ Standard lead configuration, other lead spacing and diameter available on request

⁽²⁾ ± 10 % available on request

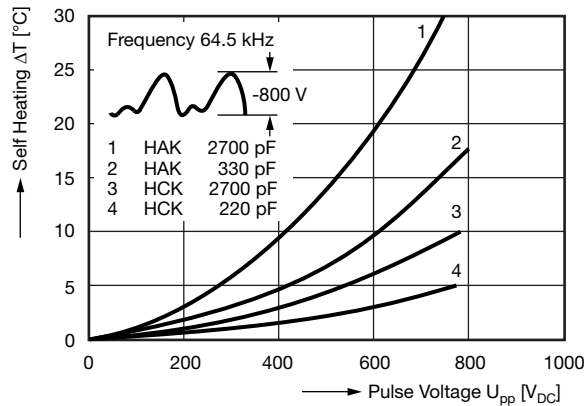
| ORDERING CODE | | | | | | | |
|----------------|--|-----------------------|---------------------------|--------------|--------------------|---------------|----------------|
| # | 7 th digit | Capacitance tolerance | ± 10 % = K, ± 20 % = M | | | | |
| ### | 10 th to 12 th digit | Lead configuration | see "General Information" | | | | |
| Example | HCK | 02 | M | BC | DF0 | K | R |
| | Series | Capacitance value | Tolerance code | Voltage code | Lead configuration | Internal code | RoHS compliant |

| MARKING | |
|---------------------------------|---------------------------------|
| <p>D_{max.} ≤ 10 mm</p> | <p>D_{max.} ≥ 11 mm</p> |

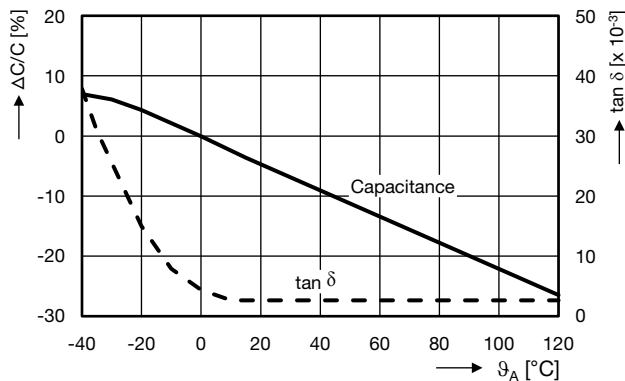
CAPACITANCE CHANGE VS. VOLTAGE (Typical)



SELF HEATING (Typical)



CAPACITANCE CHANGE AND DISSIPATION FACTOR VS. TEMPERATURE (Typical)



RELATED DOCUMENTS

General Information

www.vishay.com/doc?22001



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.