



# Ultra High Voltage Ceramic Capacitors

With metal terminals

For high voltage power supplies/lasers

## UHV series

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UHV-221A to UHV-253A

UHV-1A to UHV-12A

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## PRECAUTIONS

### (1) During transportation and storage

Do not transport or store where the products will be exposed to high temperature or high humidity.

Do not expose to poisonous gases such as  $\text{H}_2\text{SO}_4$ ,  $\text{HCl}$ , or  $\text{HNO}_3$ .

Avoid excessive impact such as that caused by falling.

### (2) During operation

Avoid contact with electrolytes such as perspiration. Do not touch with bare hands.

Avoid excessive impact such as that caused by falling.

Do not apply solder to stud terminals.

Do not re-machine the terminals.

### (3) Usage

Make sure that the products are not exposed to radiant heat from chambers or transformers.

### (4) Others

The products listed on this catalog are not designed or warranted to meet the requirements of the applications listed below, whose performance and/or quality require a more stringent level of safety or reliability, or whose failure, malfunction or trouble could cause serious damage to society, person or property.

If you intend to use the products in the applications listed below or if you have special requirements exceeding the range or conditions set forth in the each catalog, please contact us.

(1) Aerospace/Aviation equipment

(2) Transportation equipment (electric trains, ships, etc.)

(3) Medical equipment

(4) Power-generation control equipment

(5) Atomic energy-related equipment

(6) Seabed equipment

(7) Transportation control equipment

(8) Public information-processing equipment

(9) Military equipment

(10) Electric heating apparatus, burning equipment

(11) Disaster prevention/crime prevention equipment

(12) Safety equipment

(13) Other applications that are not considered general-purpose applications

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.

# Ultra High Voltage Ceramic Capacitors

Product compatible with RoHS directive

With metal terminals

For high voltage power supplies/lasers

## Overview of the UHV Series

### FEATURES

- Products with a rated voltage Edc of 20 to 50 kV.
- Small ESR.
- Low-loss and low distortion factor.
- Molded type metal screw terminals for easy mounting.
- Uses high-reliability mold resin.

### APPLICATION

High-voltage power circuits (for medical devices, lithography, industrial analyzers)

### OPERATING TEMPERATURE RANGE, PRODUCT WEIGHT

| Part No. | Temperature range     |                     | Individual weight<br>(g) |
|----------|-----------------------|---------------------|--------------------------|
|          | Operating temperature | Storage temperature |                          |
|          | (°C)                  | (°C)                |                          |
| UHV-221A | -30 to +85            | -30 to +85          | 14                       |
| UHV-222A | -30 to +85            | -30 to +85          | 25                       |
| UHV-223A | -30 to +85            | -30 to +85          | 40                       |
| UHV-224A | -30 to +85            | -30 to +85          | 53                       |
| UHV-1A   | -30 to +85            | -30 to +85          | 75                       |
| UHV-2A   | -30 to +85            | -30 to +85          | 115                      |
| UHV-3A   | -30 to +85            | -30 to +85          | 170                      |
| UHV-231A | -30 to +85            | -30 to +85          | 28                       |
| UHV-232A | -30 to +85            | -30 to +85          | 46                       |
| UHV-233A | -30 to +85            | -30 to +85          | 63                       |
| UHV-4A   | -30 to +85            | -30 to +85          | 83                       |
| UHV-5A   | -30 to +85            | -30 to +85          | 138                      |
| UHV-6A   | -30 to +85            | -30 to +85          | 210                      |
| UHV-241A | -30 to +85            | -30 to +85          | 22                       |
| UHV-242A | -30 to +85            | -30 to +85          | 38                       |
| UHV-243A | -30 to +85            | -30 to +85          | 72                       |
| UHV-7A   | -30 to +85            | -30 to +85          | 112                      |
| UHV-8A   | -30 to +85            | -30 to +85          | 173                      |
| UHV-9A   | -30 to +85            | -30 to +85          | 261                      |
| UHV-251A | -30 to +85            | -30 to +85          | 25                       |
| UHV-252A | -30 to +85            | -30 to +85          | 61                       |
| UHV-253A | -30 to +85            | -30 to +85          | 88                       |
| UHV-10A  | -30 to +85            | -30 to +85          | 126                      |
| UHV-11A  | -30 to +85            | -30 to +85          | 199                      |
| UHV-12A  | -30 to +85            | -30 to +85          | 297                      |

○ RoHS Directive Compliant Product: See the following for more details related to RoHS Directive compliant products. <http://www.tdk.co.jp/rohs/>

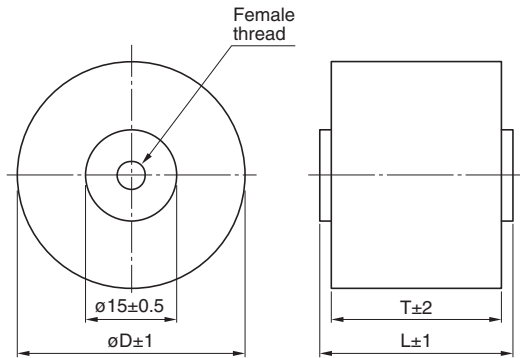
• All specifications are subject to change without notice.

## UHV series

## UHV-221A to UHV-253A, UHV-1A to UHV-12A

## ■ SHAPE &amp; DIMENSIONS

## Molded type



| Part No. | øD | T  | L  | Internal screw |
|----------|----|----|----|----------------|
| UHV-221A | 20 | 19 | 23 | ISO M4         |
| UHV-222A | 25 | 19 | 23 | ISO M4         |
| UHV-223A | 30 | 19 | 23 | ISO M4         |
| UHV-224A | 34 | 19 | 23 | ISO M4         |
| UHV-1A   | 38 | 19 | 23 | ISO M5         |
| UHV-2A   | 48 | 19 | 23 | ISO M5         |
| UHV-3A   | 60 | 19 | 23 | ISO M5         |
| UHV-231A | 25 | 22 | 25 | ISO M4         |
| UHV-232A | 30 | 22 | 25 | ISO M4         |
| UHV-233A | 34 | 22 | 25 | ISO M4         |
| UHV-4A   | 38 | 22 | 25 | ISO M5         |
| UHV-5A   | 48 | 22 | 25 | ISO M5         |
| UHV-6A   | 60 | 22 | 25 | ISO M5         |
| UHV-241A | 20 | 28 | 32 | ISO M4         |
| UHV-242A | 25 | 28 | 32 | ISO M4         |
| UHV-243A | 34 | 28 | 32 | ISO M4         |
| UHV-7A   | 38 | 28 | 32 | ISO M5         |
| UHV-8A   | 48 | 28 | 32 | ISO M5         |
| UHV-9A   | 60 | 28 | 32 | ISO M5         |
| UHV-251A | 20 | 31 | 35 | ISO M4         |
| UHV-252A | 30 | 31 | 35 | ISO M4         |
| UHV-253A | 34 | 31 | 35 | ISO M4         |
| UHV-10A  | 38 | 31 | 35 | ISO M5         |
| UHV-11A  | 48 | 31 | 35 | ISO M5         |
| UHV-12A  | 60 | 31 | 35 | ISO M5         |

## □ MARKING

| Item                                             | Marking example |
|--------------------------------------------------|-----------------|
| 1. Part No.                                      | 1 — UHV-5A      |
| 2. Nominal capacitance and tolerance code        | 2 — 172K        |
| 3. Rated voltage                                 | 3 — 30kV        |
| 4. Manufacturer's name<br>(TDK or TDK logo mark) | 4 — TDK         |
| 5. Lot No.                                       | 5 — 1234        |

# UHV series UHV-221A to UHV-253A, UHV-1A to UHV-12A

## ELECTRICAL CHARACTERISTICS

### CHARACTERISTICS SPECIFICATION TABLE

Class 2 (Temperature Stable)

Temperature Characteristics: Z5T (+10 to +85°C, +22/-33%)

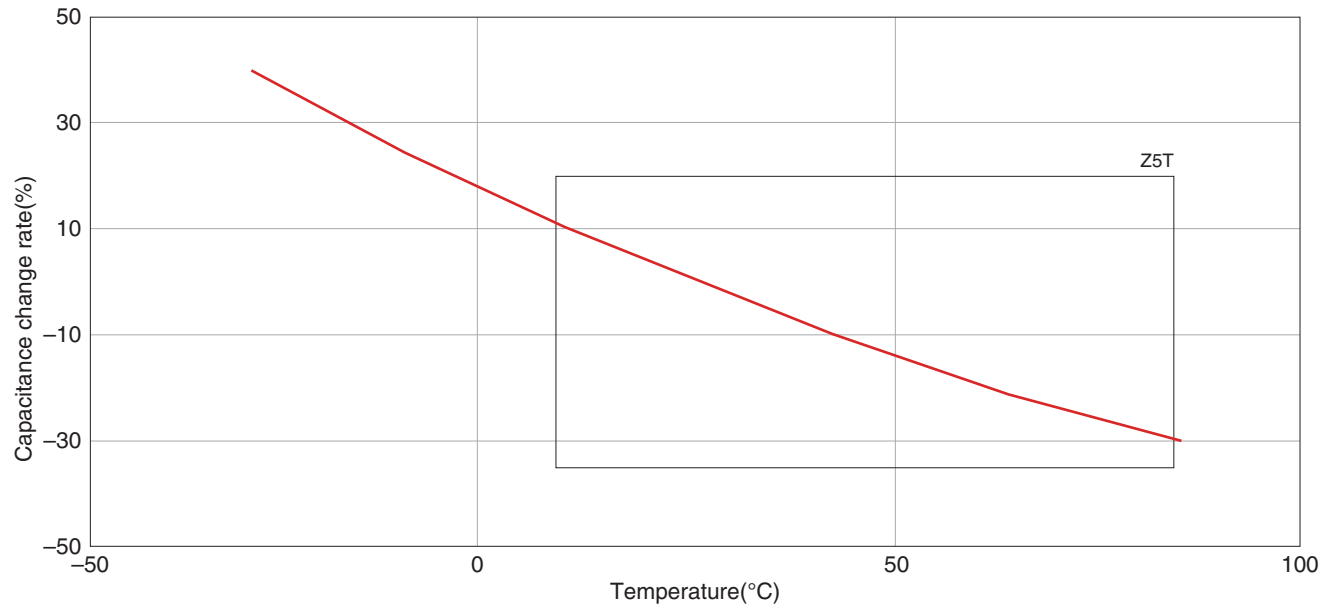
| Part No. | Rated voltage<br>(kV) | Capacitance<br>(pF)±10%<br>nom. | Withstanding<br>voltage<br>(kV)<br>[1min, in oil] | Dissipation factor<br>(tanδ)<br>(%) max. | Insulation<br>resistance<br>(MΩ) min. | AC Corona starting<br>voltage<br>(kV) min.<br>[3PC*] |
|----------|-----------------------|---------------------------------|---------------------------------------------------|------------------------------------------|---------------------------------------|------------------------------------------------------|
| UHV-221A | 20                    | 200                             | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-222A | 20                    | 400                             | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-223A | 20                    | 700                             | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-224A | 20                    | 1,000                           | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-1A   | 20                    | 1,400                           | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-2A   | 20                    | 2,500                           | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-3A   | 20                    | 4,000                           | 30                                                | 0.2                                      | 100000                                | 10                                                   |
| UHV-231A | 30                    | 200                             | 45                                                | 0.2                                      | 100000                                | 15                                                   |
| UHV-232A | 30                    | 400                             | 45                                                | 0.2                                      | 100000                                | 15                                                   |
| UHV-233A | 30                    | 700                             | 45                                                | 0.2                                      | 100000                                | 15                                                   |
| UHV-4A   | 30                    | 940                             | 45                                                | 0.2                                      | 100000                                | 15                                                   |
| UHV-5A   | 30                    | 1,700                           | 45                                                | 0.2                                      | 100000                                | 15                                                   |
| UHV-6A   | 30                    | 2,700                           | 45                                                | 0.2                                      | 100000                                | 15                                                   |
| UHV-241A | 40                    | 100                             | 60                                                | 0.2                                      | 100000                                | 20                                                   |
| UHV-242A | 40                    | 200                             | 60                                                | 0.2                                      | 100000                                | 20                                                   |
| UHV-243A | 40                    | 400                             | 60                                                | 0.2                                      | 100000                                | 20                                                   |
| UHV-7A   | 40                    | 700                             | 60                                                | 0.2                                      | 100000                                | 20                                                   |
| UHV-8A   | 40                    | 1,300                           | 60                                                | 0.2                                      | 100000                                | 20                                                   |
| UHV-9A   | 40                    | 2,000                           | 60                                                | 0.2                                      | 100000                                | 20                                                   |
| UHV-251A | 50                    | 100                             | 75                                                | 0.2                                      | 100000                                | 25                                                   |
| UHV-252A | 50                    | 200                             | 75                                                | 0.2                                      | 100000                                | 25                                                   |
| UHV-253A | 50                    | 400                             | 75                                                | 0.2                                      | 100000                                | 25                                                   |
| UHV-10A  | 50                    | 560                             | 75                                                | 0.2                                      | 100000                                | 25                                                   |
| UHV-11A  | 50                    | 1,000                           | 75                                                | 0.2                                      | 100000                                | 25                                                   |
| UHV-12A  | 50                    | 1,700                           | 75                                                | 0.2                                      | 100000                                | 25                                                   |

\* PC : Pico coulomb.

# UHV series UHV-221A to UHV-253A, UHV-1A to UHV-12A

## ELECTRICAL CHARACTERISTICS

### CAPACITANCE VS. TEMPERATURE CHARACTERISTICS



### CAPACITANCE VS. DC BIAS CHARACTERISTICS

