

# Ultra-high Voltage Ceramic Capacitors

Molded type with metal terminals

For high voltage power supply/laser

UHV(Edc: 20 to 50kV) series

FHV(Edc: 15 to 50kV) series

Issue date: September 2006

- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# Ultra-high Voltage Ceramic Capacitors

## Molded Type with Metal Terminals UHV, FHV Series

Conformity to RoHS Directive

**CLASS 2 HIGH DIELECTRIC****DC. 20 TO 50kV: UHV-1A TO 12A, 221A TO 253A TYPES****DC. 15 TO 50kV: FHV-1AN TO 12AN, 153AN TYPES**

TDK UHV and FHV series high voltage ceramic capacitors feature low dissipation and excellent voltage-capacitance characteristics using patented strontium titanate for dielectric material. They are epoxy-encapsulated to meet requirement of high voltage applications.

**FEATURES**

- Small size.
- Low dissipation factor.
- Excellent voltage-capacitance characteristics.
- Screw terminals for easy mounting.
- FHV series: High capacitance and low temperature characteristics of capacitance.

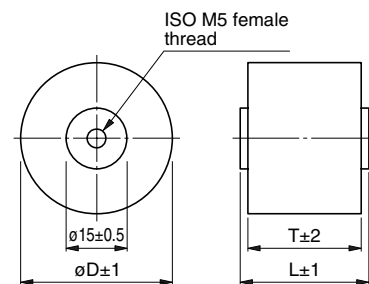
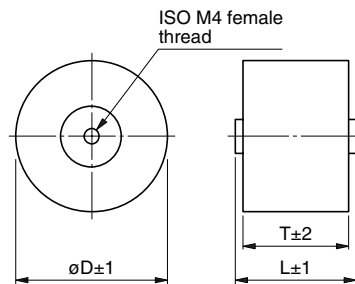
**APPLICATIONS**

High voltage power supplies, laser equipment.

**INITIAL CHARACTERISTICS**

| Series                                  | UHV                                                     | FHV                                                     |
|-----------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| Operating temperature range             | −30 to +85°C                                            | −30 to +85°C                                            |
| Rated voltage                           | DC. 20 to 50kV                                          | DC. 15 to 50kV                                          |
| Insulation resistance                   | 100,000MΩ min.                                          | 100,000MΩ min.                                          |
| Nominal capacitance range               | 100 to 4,000pF                                          | 700 to 7,000pF                                          |
| Capacitance tolerance                   | ±10%                                                    | ±10%                                                    |
| Dissipation factor(tanδ)                | 0.2% max.                                               | 0.2% max.                                               |
| Capacitance temperature characteristics | Z5T: +22, −33%[+10 to +85°C, 25°C]                      | Y5S: ±22%[−30 to +85°C, 25°C]                           |
| AC Corona starting voltage              | 3PC* max. at 50% of rated voltage min.(50Hz rms)        | 3PC* max. at 50% of rated voltage min.(50Hz rms)        |
| Withstanding voltage                    | No breakdown at 1.5 times of rated voltage, 60s(in oil) | No breakdown at 1.5 times of rated voltage, 60s(in oil) |

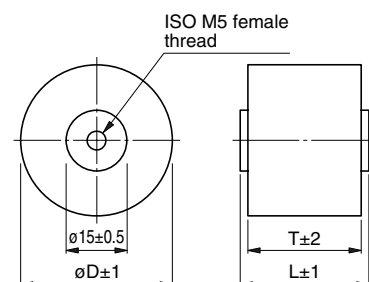
\* PC: Pico coulomb

**SHAPES AND DIMENSIONS****UHV-1A to 12A****UHV-221A to 253A**

Dimensions in mm

**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 (TDK or TDK logo mark) | 4 → TDK         |
| 5. Lot No.                                    | 5 → 1234        |

**FHV-1AN to 12AN****MARKING**

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

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## ELECTRICAL CHARACTERISTICS/DIMENSIONS

### TYPICAL CAPACITANCE CHARACTERISTICS

#### UHV SERIES(DC. 20 to 50kV, TC:Z5T)

| Rated voltage<br>Edc(kV) | Part No. | Rated capacitance<br>(pF)±10% | Dimensions (mm) |    |    | Female thread |
|--------------------------|----------|-------------------------------|-----------------|----|----|---------------|
|                          |          |                               | øD              | T  | L  |               |
| 20                       | UHV-221A | 200                           | 20              | 19 | 23 | ISO M4        |
|                          | UHV-222A | 400                           | 25              |    |    |               |
|                          | UHV-223A | 700                           | 30              |    |    |               |
|                          | UHV-224A | 1,000                         | 34              |    |    |               |
|                          | UHV-1A   | 1,400                         | 38              |    |    | ISO M5        |
|                          | UHV-2A   | 2,500                         | 48              |    |    |               |
|                          | UHV-3A   | 4,000                         | 60              |    |    |               |
| 30                       | UHV-231A | 200                           | 25              | 22 | 26 | ISO M4        |
|                          | UHV-232A | 400                           | 30              |    |    |               |
|                          | UHV-233A | 700                           | 34              |    |    |               |
|                          | UHV-4A   | 940                           | 38              |    |    |               |
|                          | UHV-5A   | 1,700                         | 48              |    |    | ISO M5        |
|                          | UHV-6A   | 2,700                         | 60              |    |    |               |
|                          |          |                               |                 |    |    |               |
| 40                       | UHV-241A | 100                           | 20              | 28 | 32 | ISO M4        |
|                          | UHV-242A | 200                           | 25              |    |    |               |
|                          | UHV-243A | 400                           | 34              |    |    |               |
|                          | UHV-7A   | 700                           | 38              |    |    | ISO M5        |
|                          | UHV-8A   | 1,300                         | 48              |    |    |               |
|                          | UHV-9A   | 2,000                         | 60              |    |    |               |
| 50                       | UHV-251A | 100                           | 20              | 31 | 35 | ISO M4        |
|                          | UHV-252A | 200                           | 30              |    |    |               |
|                          | UHV-253A | 400                           | 34              |    |    |               |
|                          | UHV-10A  | 560                           | 38              |    |    | ISO M5        |
|                          | UHV-11A  | 1,000                         | 48              |    |    |               |
|                          | UHV-12A  | 1,700                         | 60              |    |    |               |

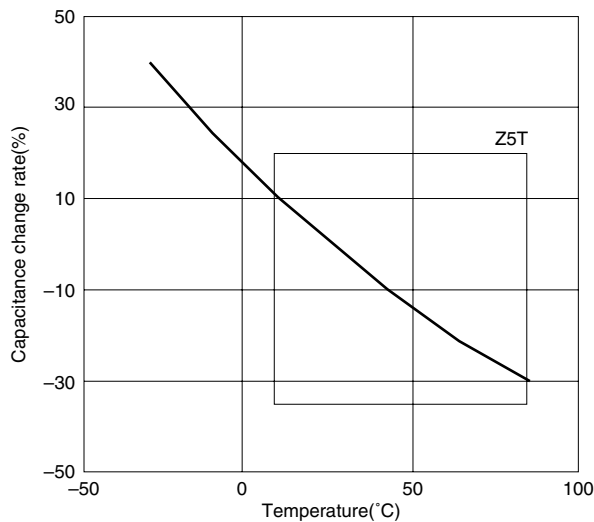
#### FHV SERIES(DC. 15 to 50kV, TC:Y5S)

| Rated voltage<br>Edc(kV) | Part No.  | Rated capacitance<br>(pF)±10% | Dimensions (mm) |      |      | Female thread |
|--------------------------|-----------|-------------------------------|-----------------|------|------|---------------|
|                          |           |                               | øD              | T    | L    |               |
| 15                       | FHV-153AN | 7,000                         | 60              | 16.5 | 20.5 | ISO M5        |
|                          | FHV-1AN   | 1,700                         | 38              |      |      |               |
| 20                       | FHV-2AN   | 3,000                         | 48              | 18.5 | 22.5 | ISO M5        |
|                          | FHV-3AN   | 5,200                         | 60              |      |      |               |
|                          | FHV-4AN   | 1,200                         | 38              |      |      |               |
| 30                       | FHV-5AN   | 2,100                         | 48              | 22   | 26   | ISO M5        |
|                          | FHV-6AN   | 3,500                         | 60              |      |      |               |
|                          | FHV-7AN   | 850                           | 38              |      |      |               |
| 40                       | FHV-8AN   | 1,500                         | 48              | 26   | 30   | ISO M5        |
|                          | FHV-9AN   | 2,600                         | 60              |      |      |               |
|                          | FHV-10AN  | 700                           | 38              |      |      |               |
| 50                       | FHV-11AN  | 1,300                         | 48              | 29   | 33   | ISO M5        |
|                          | FHV-12AN  | 2,100                         | 60              |      |      |               |

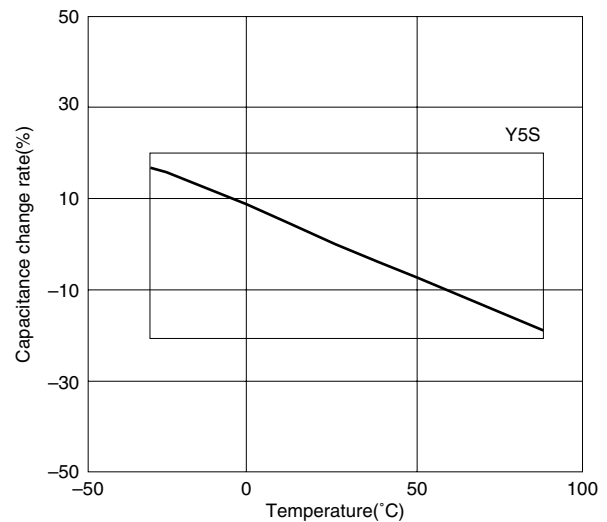
### TYPICAL CAPACITANCE CHARACTERISTICS

#### CAPACITANCE vs. TEMPERATURE CHARACTERISTICS

##### UHV SERIES(DC. 20 to 50kV, TC:Z5T)

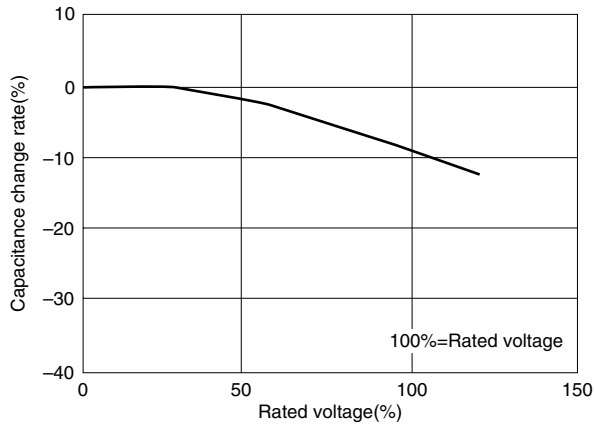


##### FHV SERIES(DC. 15 to 50kV, TC:Y5S)

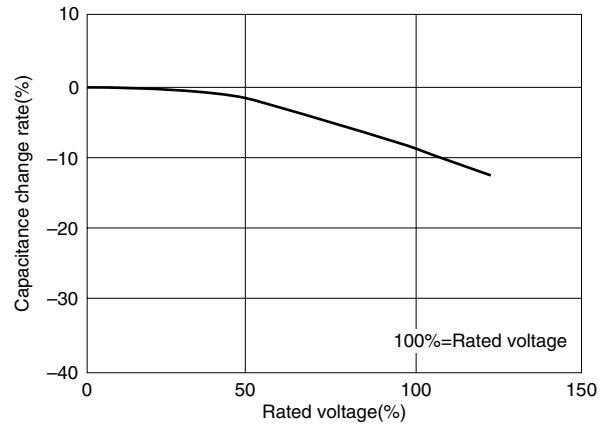


## CAPACITANCE vs. DC BIAS CHARACTERISTICS

### UHV SERIES(DC. 20 to 50kV, TC:Z5T)



### FHV SERIES(DC. 15 to 50kV, TC:Y5S)



## PRECAUTIONS

### (1) During transportation and storage

- Do not transport or store where the capacitor 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

- When the capacitor is used for high-speed pulses such as with a laser, make sure that the impressed voltage (peak-to-peak voltage) is within the capacitor's rated specifications.
- Make sure that the capacitor is not exposed to radiant heat from chambers or transformers.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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