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.

TDK

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.

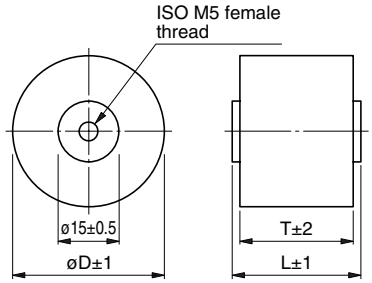
INITIAL CHARACTERISTICS

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)

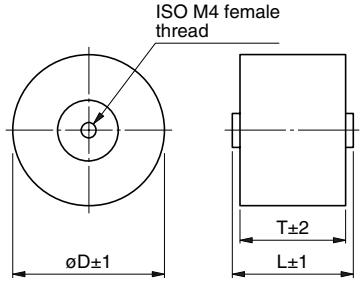
* PC: Pico coulomb

SHAPES AND DIMENSIONS

UHV-1A to 12A

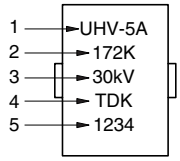


UHV-221A to 253A

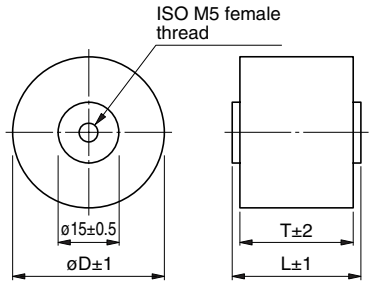


Dimensions in mm

MARKING

Item	Marking example
1. Part No. 2. Nominal capacitance and tolerance code 3. Rated voltage 4. Manufacturer's name (TDK or TDK logo mark) 5. Lot No.	

FHV-1AN to 12AN



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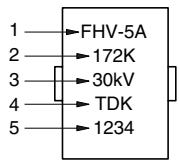
1. Part No. 2. Nominal capacitance and tolerance code 3. Rated voltage 4. Manufacturer's name (TDK or TDK logo mark) 5. Lot No.	

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ELECTRICAL CHARACTERISTICS/DIMENSIONS

TYPICAL CAPACITANCE CHARACTERISTICS

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

Rated voltage Edc(kV)	Part No.	Rated capacitance (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			ISO M5
	UHV-5A	1,700	48			
	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			

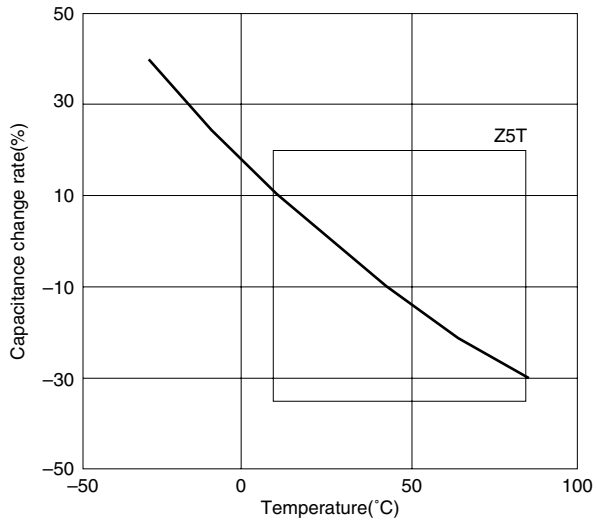
FHV SERIES(DC. 15 to 50kV, TC:Y5S)

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

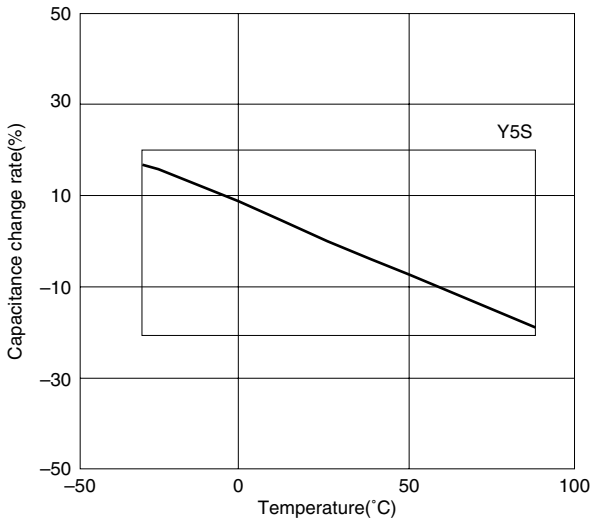
TYPICAL CAPACITANCE CHARACTERISTICS

CAPACITANCE vs. TEMPERATURE CHARACTERISTICS

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



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



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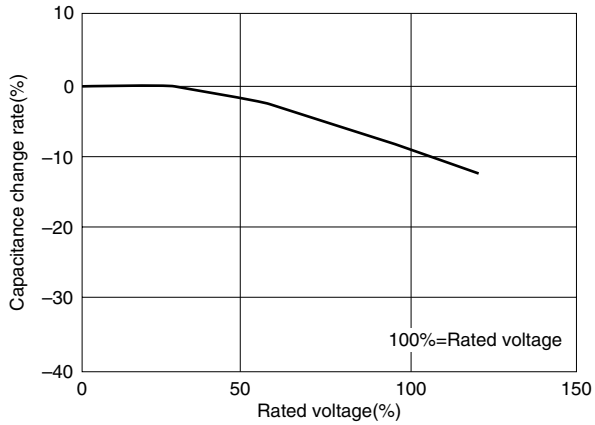
CAPACITANCE vs. DC BIAS CHARACTERISTICS

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



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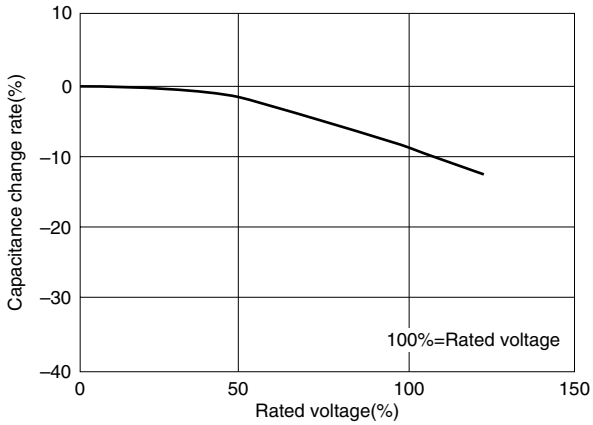

PRECAUTIONS

(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 H_2SO_4, HCl, or 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.

- For more information about products with other capacitance or other data, please contact us.