

## Ultra high voltage ceramic capacitors For power circuit breakers

# TSF series



### FEATURES

- Lineup of rated voltage Eac: 20kV
- Strong impulse voltage
- High capacitance and excellent temperature characteristics
- Low loss and low distortion factor
- Uses high-reliability mold resin

### APPLICATION

Circuit breakers for gas insulation switchgears (available for SF6 gas)

### PART NUMBER CONSTRUCTION

607	34	ZT	112	J	4D	A	S
Product category	Internal code	Temperature characteristic	Nominal capacitance	Capacitance tolerance	Rated voltage	Voltage classification	Insulation structure
Ultra high voltage ceramic capacitors		ZT	401 400pF 112 1080pF	J ±5% K ±10%	4D 20kV	A AC voltage specification	S Mold type

\* Please refer to P-2 about the product dimensions.

### OPERATING TEMPERATURE RANGE

series	Operating temperature(°C)	Storage temperature(°C)
TSF	-30 to +85	-30 to +85

The maximum operating temperature of +85°C includes capacitor self-generated heat of up to 20°C.

### PRODUCT APPEARANCE



# TSF series

## ELECTRICAL CHARACTERISTICS

### CHARACTERISTICS SPECIFICATION TABLE

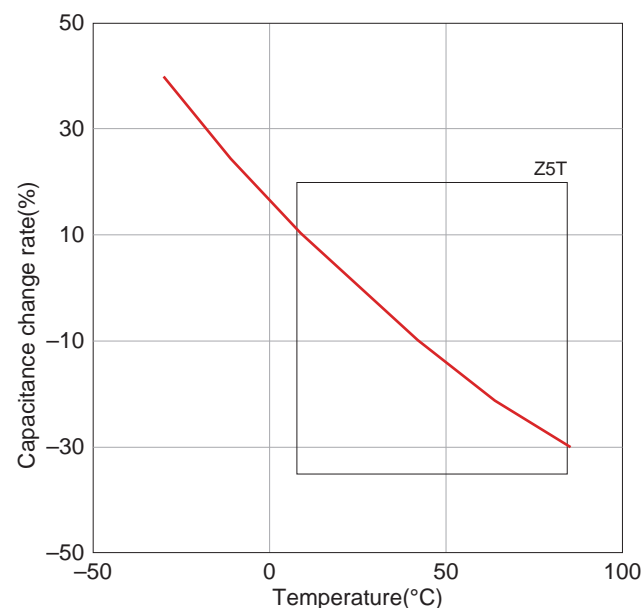
Class 2 (Temperature stable)

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

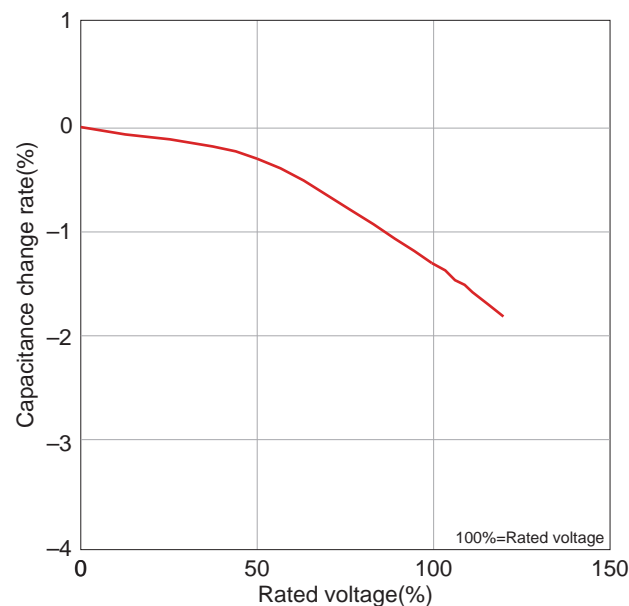
Part numbers	Sub part numbers	Rated voltage (kVAC)	Capacitance (pF)	Withstanding voltage [1min.in insulating liquid] (kVAC)	Dissipation factor(tanδ) (%) max.	Insulation resistance (MΩ) min.	AC corona starting voltage [3pC* ] (kVAC) min.	Lightning impulse withstanding voltage (kV) min.
60734ZT112J4DAS2	TSF-40C	20	1080±5%	42	0.1	10,000	25	±110
60722ZT401K4DAS	TSF-30	20	400±10%	30	0.3	10,000	25	±110

\* pC : Pico coulomb

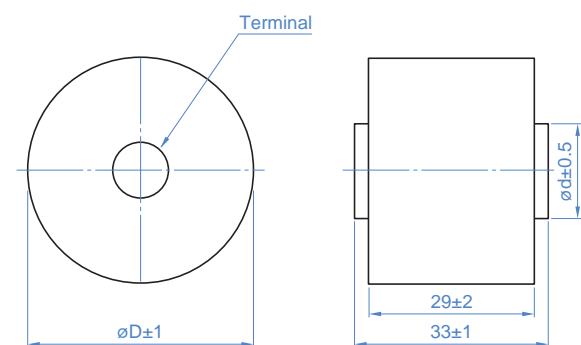
### TEMPERATURE CHARACTERISTIC



### AC VOLTAGE CHARACTERISTIC



## SHAPE & DIMENSIONS



Molded with epoxide resin; alumina filler.

### MARKINGS

TSF-40C	Sub part number
112J	Nominal capacitance and tolerance code
AC20kV	Rated voltage
TDK	Manufacturer's name (TDK or TDK logo mark)
1234	Lot number

Part numbers	Sub part numbers	øD (mm)	ød (mm)
60734ZT112J4DAS2	TSF-40C	40	15
60722ZT401K4DAS	TSF-30	30	10

## REMINDERS FOR USING THESE PRODUCTS

Before using these products, be sure to request the delivery specifications.

### SAFETY REMINDERS

Please pay sufficient attention to the warnings for safe designing when using this products.

#### REMINDERS

##### (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.
- Please contact us when using in  $\text{SF}_6$  gas.

##### (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 (cars, electric trains, ships, etc.)
- (3) Medical equipment (excepting Pharmaceutical Affairs Law classification Class1,2)
- (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.